12193 237
20610

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

SEP 1990
RECEIVED
J.H. KESSNER

# 222-S/RCRA ANALYTICAL LABORATORIES

| | |
|---|---|
| PROJECT: | SINGLE-SHELL TANK WASTE CHARACTERIZATION |
| TANK: | 241-U-110 |
| CORE: | 6 |
| SEGMENT: | 2 |
| CUSTOMER ID. NUMBER: | 89-043 |
| REPORT REVISION: | 1 |
| DATE PRINTED: | AUGUST 30, 1990 |

BEST AVAILABLE COPY

## TABLE OF CONTENTS


Signature Form.....ii

Introduction..... 1

Sampling and Custody Data.....4

Sample Data Summary..... 7

Physical Test Results..... 9
- Extrusion of Segment.....10
- Appearance of Solid.....10
- Homogenization.....10
- Single Shell Tank Segment - Subsamples.....11
- VOA Sampling.....11
- Photograph of Tank 241-U-11 Core 6 Segment 2.....12
- Particle Size Analysis.....13

Undigested Sample Analysis.....19
- Untreated Sample Results Summary.....20
- pH Analysis.....21
- Percent Water.....22

KOH Fusion Analysis.....23
- Fusion Analysis Results Summary.....24
- Fusion Analysis Results of Laboratory Solutions.....25
- Fusion Dissolution.....26
- Total Alpha and Beta Analysis.....27
- GEA Analysis.....34
- Uranium Analysis.....74

Water Digestion Test Analysis.....75
- Water Digestion Results Summary.....76
- Water Digestion Results Of Laboratory Solutions.....77
- Water Digestion.....78
- Ion Chromatographic Analysis.....79
- Ion Chromatographic Analysis.....106
- Ion Chromatographic Analysis.....115
- Total Organic Carbon Analysis.....133

Acid Digestion Test Analysis.....140
- Acid Digestion Data Summary.....141
- Acid Digestion Analysis.....142
- Inductively Coupled Plasma Specrographic Analysis.....143
- ICP Raw Data Summary.....145

Appendix A
- Analytical Analysis Cards

I have reviewed this report and certify that the package is in compliance with "Quality Assurance Project Plan" - 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 8/30/90
Shirley A. Cervantes
Data Coordinator

Cary M Seidel — Date 9/1/90
Cary M. Seidel
Unit Manager

L. H. Taylor — Date 9-28-90
Larry H. Taylor
Laboratory Q.A. Officer

# 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. This tank was 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.

The Analytical Laboratories performs all analytical analysis to the specifications of the "Quality Assurance Project Plan", 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 chemist. 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, Inductively Coupled Plasma, Mercury Hydride, Total Organic Carbon, 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 radio-isotopic 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 sample identified as segment 3 from core 5 taken from tank 241-U-110.

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.

Samples analyzed for Total Organic Carbon between November 1, 1989 and February 22, 1990 were not acidified. The results from these analyses include total organic carbon, carbonate, and dissolved carbon dioxide from the air. The validity of these analyses are subject to interpretation. The total organic carbon procedure was corrected and these analyses will be repeated

wherever possible.

All sample results reported here by weight are reported as the "wet weight" of the sample. Some samples did noticeably lose moisture during the process of aliquoting and weighing the sample for digestion. The percent moisture was determined at the earliest opportunity to minimize any errors introduced by the loss of moisture. Drying samples before analysis resulted in radiation exposure increases of about a factor of ten. In order to reduce and control radiation exposure to laboratory personnel, the samples were not dried before aliqouting and digestion. This policy 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.

9112170677

# SAMPLING and CUSTODY DATA

9 1 1 2 1 0 0 5 7 9

Lab Segment Serial # F0053

# CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 5-023-89 (2) Sample Number 89-043 (3) Supervisor D.C. Hartley

(4) Tank 110U (5) Riser 17 (6) Segment #2 (7) Cask Serial Number C1021

| Radiation Survey Data: | (8) FIELD | (20) LABORATORY |
|---|---|---|
| Over Top Dose Rate | 1.5mr/HR | 1.5mR/hr |
| Side Dose Rate | 2.5mr/HR | 2.5 mR/hr |
| Bottom Dose Rate | .75mr/HR | .75 mR/hr |
| Smearable Contamination | 1 DET. (alpha) | 1 Det (alpha) |
| | 1 DET. (beta-gamma) | 1 Det (beta-gamma) |
| | RPT [signature] (Signature) | RPT D. Arnold (Signature) |

(9) Shipment Description:

| | |
|---|---|
| A. Work Package Number | 2W-89-00958-W |
| B. Cask Seal Number | For Future Use |
| C. Sampler Number Used | #58 |
| D. Date and Time Sampler Unseated | 11-13-89, 1035 |
| E. Expected Liquid Content | 20% |
| F. Expected Solid Content | 80% |
| G. Dose Rate Through Drill String | 70mr/HR |
| H. Expected Sample Length | 19" |

(10) INFORMATION (*Include statement of laboratory tests to be performed.**)

Core #006,
WHC-EP-0210, Waste Characterization Plan for the Hanford Site Single Shell Tanks

*Reference laboratory work request, if available.

Comments:

| (11) POINT OF ORIGIN | (12) SENDER NAME | (13) DATE AND TIME RELEASED | (14) DESTINATION | (16) RECIPIENT NAME | (17) DATE AND TIME RECEIVED |
|---|---|---|---|---|---|
| 241-U 110 | D.C. Hartley | 11-15-89 | 222S LABS 200West | C.M. Seidel | 0955 |
| | SENDER SIGNATURE [signature] | 0920 | | RECIPIENT SIGNATURE Cary M Seidel | 11-15-89 |

(15) Seal Intact Upon Release? ☒ Yes ☐ No

(18) Seal Intact Upon Receipt? ☒ Yes ☐ No

(19) Seal Data Consistent with this Record?
Shipment No. ☒ Yes ☐ No
Sample No. ☒ Yes ☐ No

# Single Shell Tank Waste Characterization
# Summary of Core Sample

**Phase I-A**

| | |
|---|---|
| Tank ID: | 241-U-110 |
| Riser ID: | 17 |
| Core ID: | 006 |

| | |
|---|---|
| Date Sampling Initiated: | 11-10-89 |
| Date Sampling Completed: | 11-14-89 |
| | |

| | | |
|---|---|---|
| Segment 1 | Lab Serial No. | F-0029 |
| | Customer ID. No. | 89-042 |
| | Last Segment? | No |
| Segment 2 | Lab Serial No. | F-0053 |
| | Customer ID. No. | 89-043 |
| | Last Segment? | No |
| Segment 3 | Lab Serial No. | F-0077 |
| | Customer ID. No. | 89-044 |
| | Last Segment? | No |
| Segment 4 | Lab Serial No. | F-0101 |
| | Customer ID. No. | 89-045 |
| | 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? | |

Remarks: Customer Id. No# 89-042 was received empty.

Prepared by: [signature] H. S. Rich Date: 05-15-90
Signature Printed Name

Verified by: Carry M Seidel C. M. Seidel Date: 05-15-90
Signature Printed Name

Approved by: [signature] L.H. Taylor Date: 9-28-90
Signature Printed Name

Interim

SST-1 Rev. B 3/27/90

# SAMPLE DATA SUMMARY

# SUMMARY DATA REPORT

| | |
|---|---|
| Tank | 241-U-110 |
| Core | 6 |
| Segment | 2 |
| Customer Id. | 89-043 |

## Untreated Sample

| | Sample | Duplicate |
|---|---|---|
| pH | 11.56 | 11.76 |
| Percent Water | 39.50 % | 37.60 % |

## Fusion Analysis

| | | |
|---|---|---|
| Total Alpha | 2.81 uci/g | 2.46 uci/g |
| Total Beta | 1650 uci/g | 1600 uci/g |
| GEA | | |
| Cs-137 | 30.1 uci/g | 37.0 uci/g |
| Uranium | 14100 ug/g | 15000 ug/g |

## Water Digestion

| | | |
|---|---|---|
| First Batch Analysis | | |
| Fluoride | <1030 ug/g | <971 ug/g |
| Chloride | 1620 ug/g | <971 ug/g |
| Nitrate | 54600 ug/g | 44900 ug/g |
| Sulfate | <10000 ug/g | <9710 ug/g |
| Second Batch Analysis | | |
| Phosphate | <10000 ug/g | |
| Third Batch Analysis | | |
| Phosophate | | <9710 ug/g |
| Total Organic Carbon | 2760 ug/g | 2490 ug/g |

## Acid Digestion Results

| | Sample | Duplicate |
|---|---|---|
| Aluminum | 94285 ug/g | 88959 ug/g |
| Antimony | 579 ug/g | LT ug/g |
| Barium | 74 ug/g | 38 ug/g |
| Beryllium | 3 ug/g | LT ug/g |
| Bismuth | 5381 ug/g | 4709 ug/g |
| Boron | 62 ug/g | LT ug/g |
| Cadmium | LT ug/g | LT ug/g |
| Calcium | 1098 ug/g | 905 ug/g |
| Chromium | 448 ug/g | 511 ug/g |
| Cobalt | 79 ug/g | LT ug/g |
| Copper | 97 ug/g | LT ug/g |
| Europium | 8 ug/g | LT ug/g |
| Iron | 18001 ug/g | 18129 ug/g |
| Lanthanum | 68 ug/g | LT ug/g |
| Lead | 1344 ug/g | 3045 ug/g |
| Lithium | 13 ug/g | LT ug/g |
| Magnesium | 8338 ug/g | 1444 ug/g |
| Manganese | 6755 ug/g | 6547 ug/g |
| Mercury | 40 ug/g | 43 ug/g |
| Molybdenum | 40 ug/g | LT ug/g |
| Nickel | 192 ug/g | 131 ug/g |
| Potassium | LT ug/g | LT ug/g |
| Samarium | 496 ug/g | LT ug/g |
| Selenium | 761 ug/g | 316 ug/g |
| Silver | LT ug/g | LT ug/g |
| Sodium | 79677 ug/g | 75641 ug/g |
| Strontium | 777 ug/g | 756 ug/g |
| Sulfur | 511 ug/g | 377 ug/g |
| Tantalum | 96 ug/g | LT ug/g |
| Thallium | 1733 ug/g | LT ug/g |
| Thorium | 476 ug/g | LT ug/g |
| Tin | 112 ug/g | 53 ug/g |
| Titanium | 157 ug/g | 113 ug/g |
| Uranium | 18706 ug/g | 8238 ug/g |
| Vanadium | 92 ug/g | LT ug/g |
| Zinc | 735 ug/g | 274 ug/g |
| Zirconium | 96 ug/g | LT ug/g |

LT: Less than instrument detection limit.

# PHYSICAL TEST RESULTS

# Single Shell Tank
# Extrusion of Segment -- Physical Tests

**Phase I-A**

Lab Segment Serial No.: F0053 Customer ID: 89-043

Analyst: Richard L. Weiss Date Extruded: 11-15-89

**Drainable Liquid** Liquid Submitted for Segment Analysis? -- No

| | | |
|---|---|---|
| Gross None | Tare | Net |
| Serial | Date/Time_____/_____ | Estimated |
| Specific | Calculated | |

Appearance of Liquid:

**Dimensions of Segment**

| | | |
|---|---|---|
| Complete Segment Obtained? No | Length: 5 in. | Calculated Volume: 3.93 cubic in. |
| Remarks None | | |

Appearance of Solid:

The sample was semi-cohesive at the bottom, grading to crumbly at the top. The sample was a uniform brown color.

**Penetrometer** 13.8 lbs/sq in Remarks: None

**Homogenization**

| | |
|---|---|
| Procedure: T038A-00712 Revision: F | Quantity of Material 102.32 grams |
| Date Homogenized: 01-03-90 | Time Homogenized: 5 Minutes |
| Opperator: John R. Smith | |

**Laboratory Notebook Reference** WHC-N-313-4 (Notebook No.) 17 (Page No.)

Prepared by: [signature] (Signature) H. S. Rich (Printed Name) Date: 05-17-90

Verified by: [signature] (Signature) C. M. Seidel (Printed Name) Date: 05-17-90

Approved by: [signature] (Signature) L.H. Taylor (Printed Name) Date: 9-28-90

Interim

SST-3 Rev. C 3/27/90

10

# Single Shell Tank
# Segment – Subsamples

**Phase 1A**

Customer ID: 89-043 Lab Segment Serial No. F0053

| Volatile Organic Analysis | | |
|---|---|---|
| VOA Sample | Laboratory Serial Number: 89-043-26 | Date Sampled: 01-03-90 |

| Particle Size Distribution Analysis | | |
|---|---|---|
| Particle Size Sample | Laboratory Serial Number: F0053 | Date Sampled: 01-03-90 |
| Sample analysis performed at 222-S | | |

**Homogenized Solids**

| Undigested Solids Analysis | | |
|---|---|---|
| Laboratory Serial Number for Sample: | F0053 | Date Sampled: 01-03-90 |
| Laboratory Serial Number of Duplicate Sample: | F0054 | |

| Fusion Analysis of Solids | | |
|---|---|---|
| Laboratory Serial Number for Sample: | F0058 | Date Sampled: 01-03-90 |
| Laboratory Serial Number of Duplicate Sample:: | F0059 | |
| Laboratory Serial Number of Spiked Sample: | N/A | |

| Acid Digestion Analysis of Solids | | |
|---|---|---|
| Laboratory Serial Number for Sample: | F0068 | Date Sampled: 01-03-90 |
| Laboratory Serial Number of Duplicate Sample: | F0069 | |
| Laboratory Serial Number of Spiked Sample: | F0118 | |

| Water Digestion Analysis of Solids | | |
|---|---|---|
| Laboratory Serial Number for Sample: | F0063 | Date Sampled 01-03-90 |
| Laboratory Serial Number of Duplicate Sample: | F0064 | |
| Laboratory Serial Number of Spiked Sample: | F0065 | |

**Laboratory Notebook Reference**

| WHC-N-313-4 | 17 |
|---|---|
| Notebook No. | Page No. |

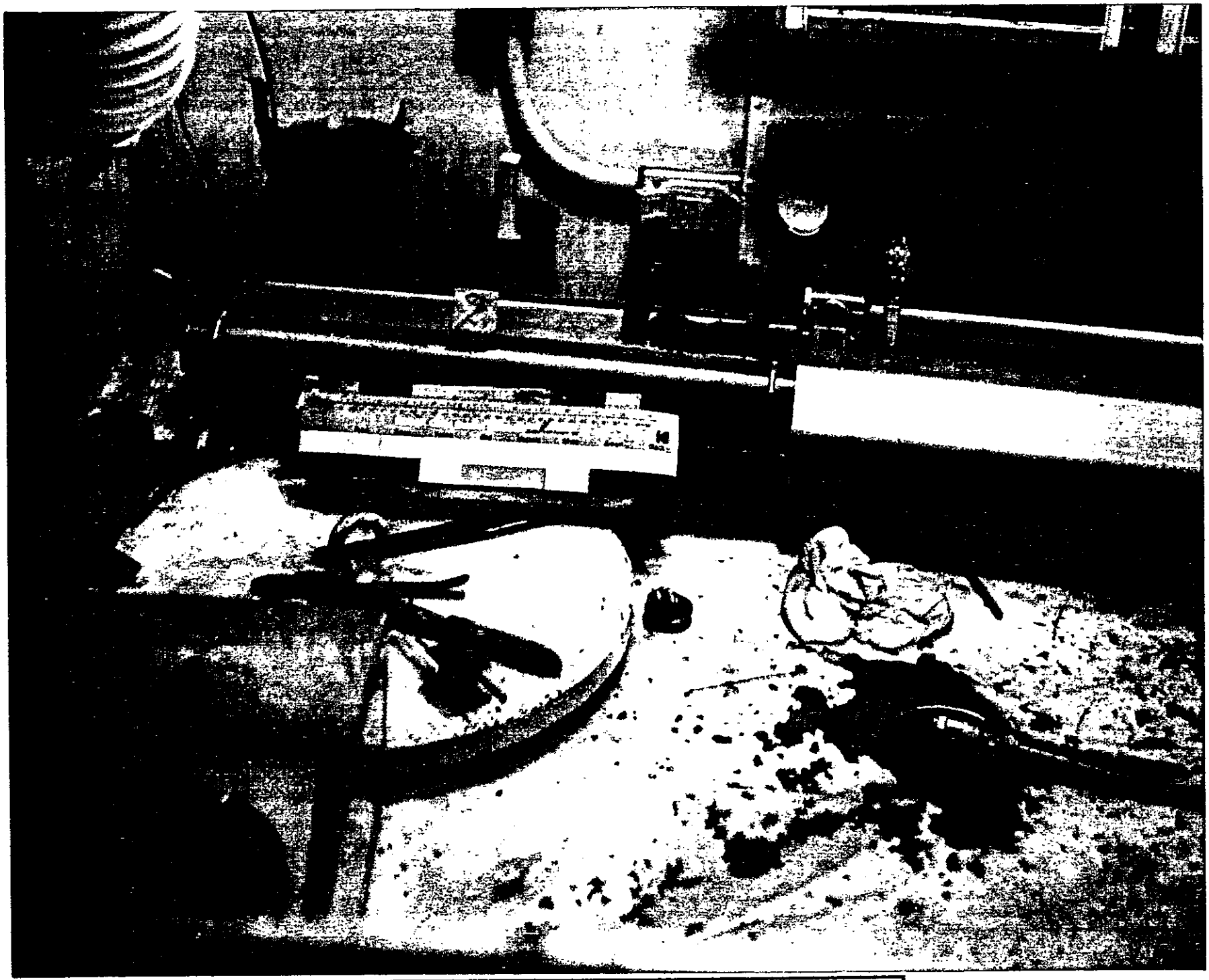
Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: 8-15-90

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

Approved by: L. H. Taylor (Signature) L. H. Taylor (Printed Name) Date: 9-28-90

SST-17 Rev.A 04/24/90

9 1 1 2 1 6 7 0 6 1 5



TANK 241-U-110, CORE 6, SEGMENT 2

B r i n k m a n n

Particle Size Analyzer

## PROCESS CHEMISTRY LABS PARTICLE ANALYSIS VIA BRINKMANN 2010

### STATISTICS

SAMPLE NAME : SST,B000035,F0053,H20,SBK
FILE NAME : F0053.001

| | | | | | |
|---|---|---|---|---|---|
| DATE | : 30/11/1989 | ACQ. RANGE | : 0.5-150 | COUNTS | : 147242 |
| TIME | : 10:10 | ACQ. MODE | : SAMPLE | S.N.F. | : 0.50 |
| CONFIG. | : 1 (0.7 S1) | ACQ. TIME | : 1193 SEC | S.D.U. | : 6657 |
| CELL TYPE | : MAGNETIC (3) | SAMPLE SIZE | : 4 | CONCENTR. | : 3.0E+06 #/ml |
| SAMPLE TYPE | : REGULAR | REQ. CONF. | : 95.00%(V) | SOLIDS | : 1.3E-03 % |

| | MEAN Diameter | S.D. |
|---|---|---|
| Number, Length : | 1.12 µm | 0.90 µm |
| Number, Area : | 1.44 µm | 0.96 µm |
| Number, Volume : | 2.02 µm | 1.27 µm |
| Length, Area : | 1.85 µm | 1.98 µm |
| Length, Volume : | 2.70 µm | 2.15 µm |
| Area, Volume : | 3.96 µm | 4.03 µm |
| Volume, Moment : | 8.06 µm | 6.71 µm |

| | MEDIAN Diameter | MODE | CONFIDENCE |
|---|---|---|---|
| Number : | 0.88 µm | 0.75 µm | 100.00% |
| Area : | 2.99 µm | 5.25 µm | 100.00% |
| Volume : | 5.76 µm | 5.25 µm | 99.88% |

Sample sl. moist, dark brown

Dispersed well in $H_2O$, nil agglomeration

Dispersed particles < 150 µ

B r i n k m a n n

Particle Size Analyzer

## PROCESS CHEMISTRY LABS PARTICLE ANALYSIS VIA BRINKMANN 2010

### STATISTICS

SAMPLE NAME : SST,B000035,F0053,H20,SBK
FILE NAME : F0053.002

| | | | | | |
|---|---|---|---|---|---|
| DATE | : 30/11/1989 | ACQ. RANGE | : 0.5-60 | COUNTS | : 21513 |
| TIME | : 10:43 | ACQ. MODE | : SAMPLE | S.N.F. | : 0.96 |
| CONFIG. | : 1 (0.7 S1) | ACQ. TIME | : 87 SEC | S.D.U. | : 6722 |
| CELL TYPE | : MAGNETIC (3) | SAMPLE SIZE | : 1 | CONCENTR. | : 1.5E+06 #/ml |
| SAMPLE TYPE | : REGULAR | REQ. CONF. | : 95.00%(V) | SOLIDS | : 2.8E-05 % |

| | MEAN Diameter | S.D. |
|---|---|---|
| Number, Length : | 0.67 µm | 0.17 µm |
| Number, Area : | 0.69 µm | 0.17 µm |
| Number, Volume : | 0.71 µm | 0.17 µm |
| Length, Area : | 0.71 µm | 0.18 µm |
| Length, Volume : | 0.73 µm | 0.18 µm |
| Area, Volume : | 0.76 µm | 0.20 µm |
| Volume, Moment : | 0.81 µm | 0.20 µm |

| | MEDIAN Diameter | MODE | CONFIDENCE |
|---|---|---|---|
| Number : | 0.65 µm | 0.55 µm | 100.00% |
| Area : | 0.73 µm | 0.70 µm | 100.00% |
| Volume : | 0.78 µm | 0.70 µm | 100.00% |

B r i n k m a n n

Particle Size Analyzer

## PROCESS CHEMISTRY LABS PARTICLE ANALYSIS VIA BRINKMANN 2010

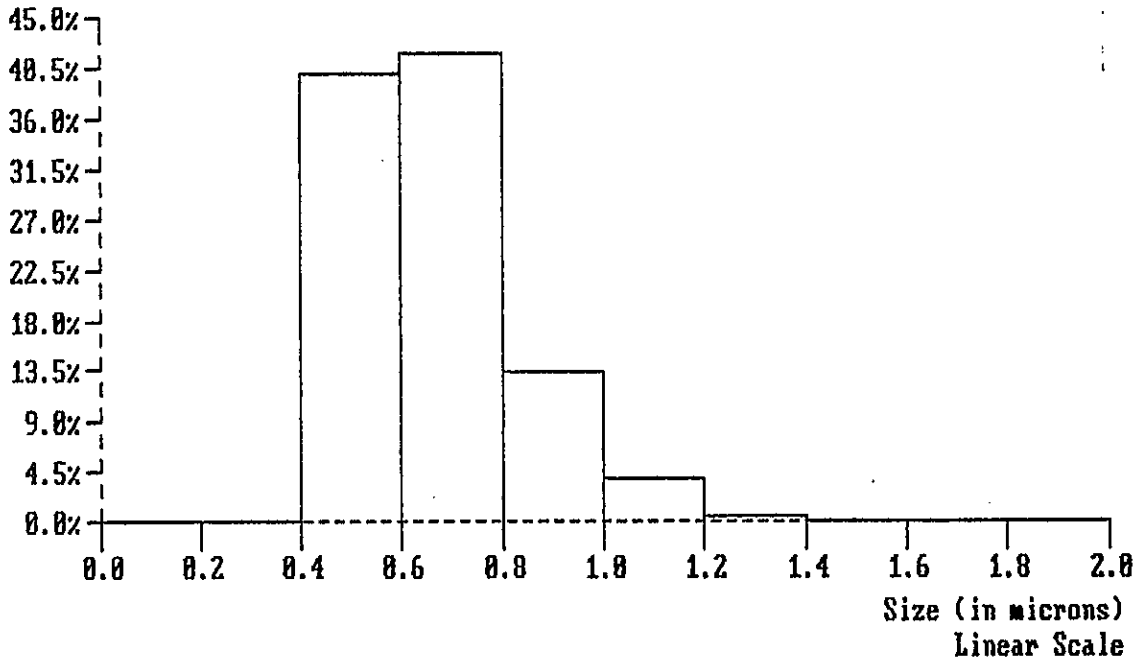
SAMPLE NAME : SST,B000035,F0053,H20,SBK
FILE NAME : F0053.002

| | | | | | |
|---|---|---|---|---|---|
| DATE | : 30/11/1989 | ACQ. RANGE | : 0.5-60 | COUNTS | : 21513 |
| TIME | : 10:43 | ACQ. MODE | : SAMPLE | S.N.F. | : 0.96 |
| CONFIG. | : 1 (0.7 S1) | ACQ. TIME | : 87 SEC | S.D.U. | : 6722 |
| CELL TYPE | : MAGNETIC (3) | SAMPLE SIZE | : 1 | CONCENTR. | : 1.5E+06 #/ml |
| SAMPLE TYPE | : REGULAR | REQ. CONF. | : 95.00%(V) | SOLIDS | : 2.8E-05 % |

### PROBABILITY NUMBER DENSITY GRAPH

Name: SST,B000035,F0053,H20,SBK
1.5E+06 #/ml(100.0%)
Mode at 0.70 µm
<< SCALE RANGE (µm): ADJUSTED >>

Median : 0.65µm
Mean(nl): 0.67µm
S.D.(nl): 0.17µm
Conf(nl):100.00 %



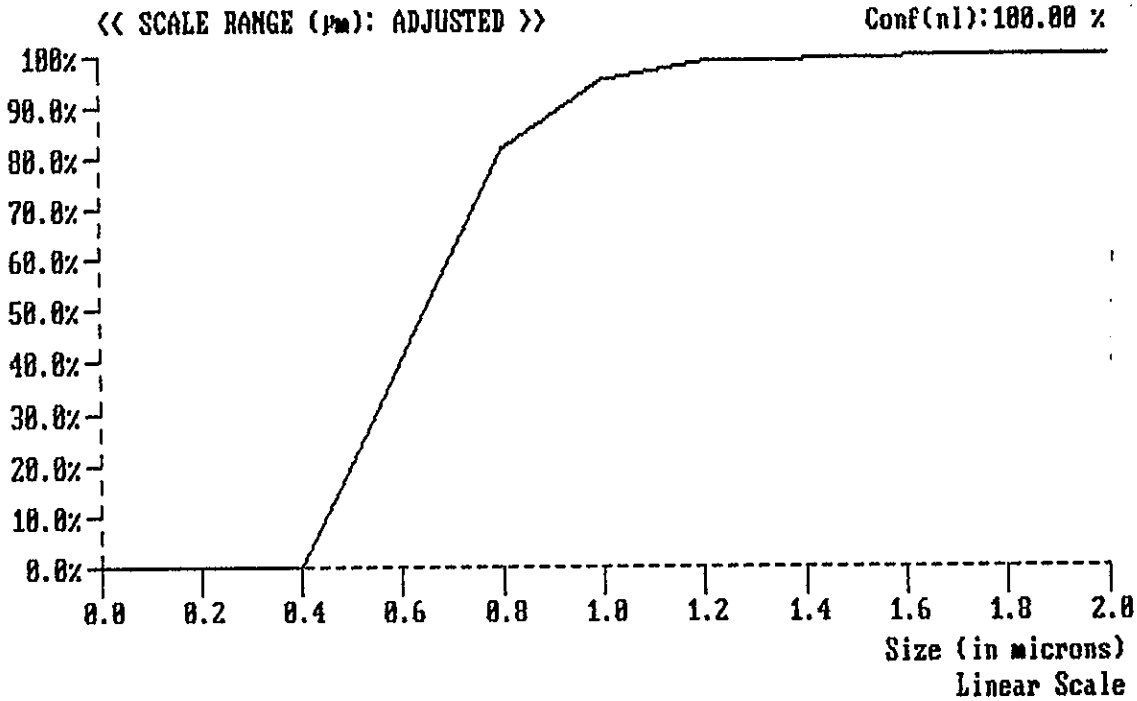
SAMPLE NAME : SST,B000035,F0053,H2O,SBK
FILE NAME : F0053.002

| | | | | | |
|---|---|---|---|---|---|
| DATE | : 30/11/1989 | ACQ. RANGE | : 0.5-60 | COUNTS | : 21513 |
| TIME | : 10:43 | ACQ. MODE | : SAMPLE | S.N.F. | : 0.96 |
| CONFIG. | : 1 (0.7 S1) | ACQ. TIME | : 87 SEC | S.D.U. | : 6722 |
| CELL TYPE | : MAGNETIC (3) | SAMPLE SIZE | : 1 | CONCENTR. | : 1.5E+06 #/ml |
| SAMPLE TYPE | : REGULAR | REQ. CONF. | : 95.00%(V) | SOLIDS | : 2.8E-05 % |

## PROBABILITY NUMBER DISTRIBUTION GRAPH

Name: SST,B000035,F0053,H2O,SBK
1.5E+06 #/ml(100.0%)

Median : 0.65µm
Mean(nl): 0.67µm
S.D.(nl): 0.17µm
Conf(nl):100.00 %



B r i n k m a n n

Particle Size Analyzer

PROCESS CHEMISTRY LABS PARTICLE ANALYSIS VIA BRINKMANN 2010

SAMPLE NAME : SST,B000035,F0053,H20,SBK
FILE NAME : F0053.001

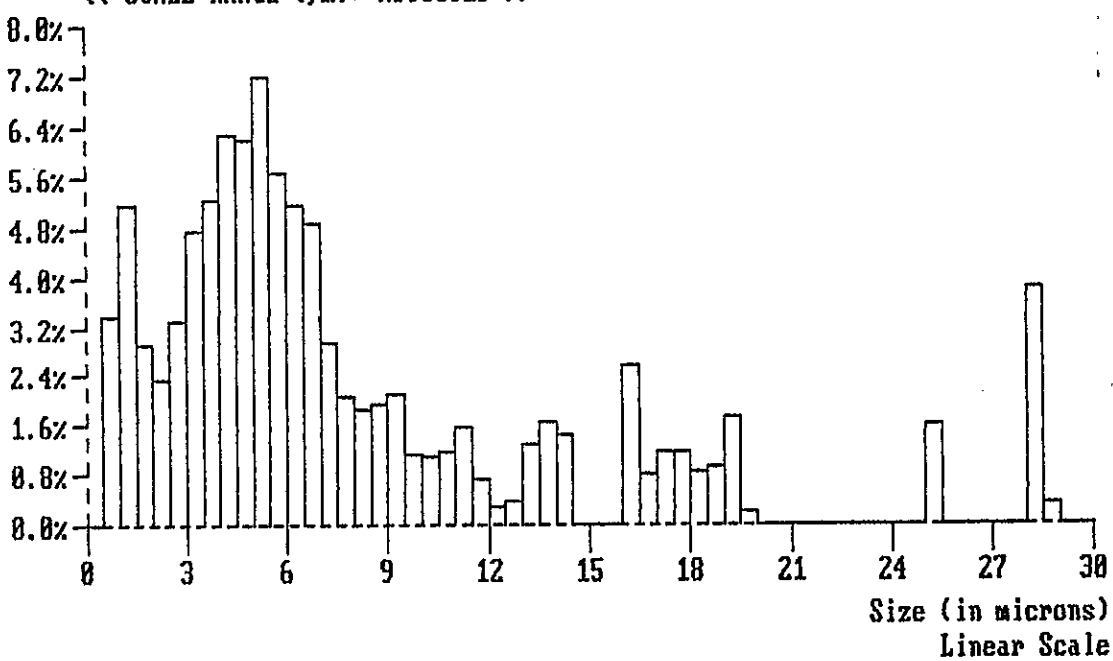
| | | | | | |
|---|---|---|---|---|---|
| DATE | : 30/11/1989 | ACQ. RANGE | : 0.5-150 | COUNTS | : 147242 |
| TIME | : 10:10 | ACQ. MODE | : SAMPLE | S.N.F. | : 0.50 |
| CONFIG. | : 1 (0.7 S1) | ACQ. TIME | : 1193 SEC | S.D.U. | : 6657 |
| CELL TYPE | : MAGNETIC (3) | SAMPLE SIZE | : 4 | CONCENTR. | : 3.0E+06 #/ml |
| SAMPLE TYPE | : REGULAR | REQ. CONF. | : 95.00%(V) | SOLIDS | : 1.3E-03 % |

PROBABILITY VOLUME DENSITY GRAPH

Name: SST,B000035,F0053,H20,SBK
1.3E-05 cc/ml(100.0%)
Mode at 5.25 µm
<< SCALE RANGE (µm): ADJUSTED >>

Mean(nv): 2.02µm
S.D.(nv): 1.27µm

Median : 5.76µm
Mean(vm): 8.06µm
S.D.(vm): 6.71µm
Conf(vm): 99.88 %



B r i n k m a n n

Particle Size Analyzer

## PROCESS CHEMISTRY LABS PARTICLE ANALYSIS VIA BRINKMANN 2010

SAMPLE NAME : SST,B000035,F0053,H20,SBK
FILE NAME : F0053.001

| | | | | | |
|---|---|---|---|---|---|
| DATE | : 30/11/1989 | ACQ. RANGE | : 0.5-150 | COUNTS | : 147242 |
| TIME | : 10:10 | ACQ. MODE | : SAMPLE | S.N.F. | : 0.50 |
| CONFIG. | : 1 (0.7 S1) | ACQ. TIME | : 1193 SEC | S.D.U. | : 6657 |
| CELL TYPE | : MAGNETIC (3) | SAMPLE SIZE | : 4 | CONCENTR. | : 3.0E+06 #/ml |
| SAMPLE TYPE | : REGULAR | REQ. CONF. | : 95.00%(V) | SOLIDS | : 1.3E-03 % |

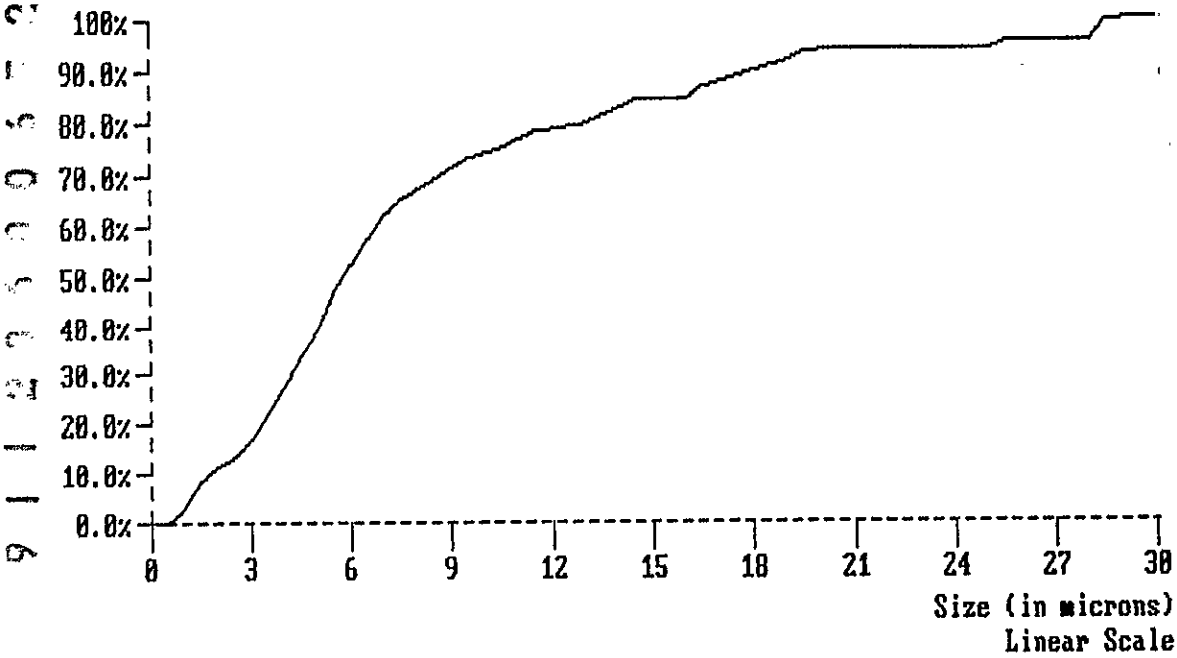
### PROBABILITY VOLUME DISTRIBUTION GRAPH

Name: SST,B000035,F0053,H20,SBK
1.3E-05 cc/ml(100.0%)

Mean(nv): 2.02µm
S.D.(nv): 1.27µm

Median : 5.76µm
Mean(vm): 8.06µm
S.D.(vm): 6.71µm
Conf(vm): 99.88 %

<< SCALE RANGE (µm): ADJUSTED >>



# UNDIGESTED SAMPLE ANALYSIS

Single Shell Tank Project — Untreated Sample Results — 05-10-90

Tank: 241-U-110
Core: 6
Segment: 2
Customer ID: 89-043

| | Check Standard | Blank | Sample | Sample Duplicate | Check Standard |
|---|---|---|---|---|---|
| Laboratory ID: | F0056 | F0073 | F0053 | F0054 | F0704 |
| pH | 100.20% | 8.16 | 11.56 | 11.76 | 99.90% |
| Laboratory ID: | F0052 | F0749 | F0053 | F0054 | F0732 |
| %Water | 95.00% | 6.15E-03 | 39.50% | 37.60% | 98.20% |

**Approved by:** H. S. Rich **Date:** 5/10/90

**Verified by:** C.M. Seidel **Date:** 5/10/90

**Approved by:** L.H. Taylor **Date:** 9-28-90

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

pH Analysis of the Solid Sample

Undigested Sample

| | |
|---|---|
| Instrument | AL10653 |
| Procedure / Rev | LA-212-103/A-3 |
| Technologist | 6C269/M. Franz |
| Date | 1-4-90 |
| Temperature | 25.4 C |
| Starting Time | 8:00 |
| Ending Time | 14:00 |
| Chemist | R. E. Brandt |

| | Description | Lab. Id. |
|---|---|---|
| 1 | Initial LMCS Check Std. | F0056 |
| 2 | Blank | F0073 |
| 3 | Sample 89-043 | F0053 |
| 4 | Duplicate 89-043 | F0054 |
| 5 | Sample 89-082 | F0705 |
| 6 | Duplicate 89-082 | F0706 |
| 7 | Ending LMCS Check Std. | F0704 |
| 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 | 72C11-A/5.0mL | | | 5.0 mL |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Prepared by: Shirley Cervantes (Signature) S.A. Cervantes (Printed Name) Date: 05/11/90

Verified by: Cary M Seidel (Signature) C.M. Seidel (Printed Name) Date: 05/11/90

Approved by: L. H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9/28/90

Interim

Rev. E 4/04/90

SST-102

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

Percent Water

Undigested Sample

| | |
|---|---|
| Instrument | N/A |
| Procedure / Rev | LA-564-101/D-1 |
| Technologist | 6B598/R. A. Hale |
| Date | 1-10-90 |
| Temperature | 120 C |
| Starting Time | 11:00 1-9-90 |
| Ending Time | 14:00 1-10-90 |
| Chemist | R. E. Brandt |

| | Description | Lab. Id. |
|---|---|---|
| 1 | Initial LMCS Check Std | F0052 |
| 2 | Blank | F0749 |
| 3 | Sample 89-043 | F0053 |
| 4 | Duplicate 89-043 | F0054 |
| 5 | Sample 89-082 | F0705 |
| 6 | Duplicate 89-082 | F0706 |
| 7 | Sample 89-083 | F0729 |
| 8 | Duplicate 89-083 | F0730 |
| 9 | Final LMCS Check Std | F0732 |
| 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 | 11C11AH/1 mL | | | 1 mL |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Prepared by: H. S. Rich (Signature) — H. S. Rich (Printed Name) — Date: 05-14-90

Verified by: Carry M Seidel (Signature) — C. M. Seidel (Printed Name) — Date: 05-14-90

Approved by: L. H. Taylor (Signature) — L. H. Taylor (Printed Name) — Date: 9-28-90

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

# KOH FUSION ANALYSIS

9 1 1 2 3 5 0 9 6 7 7

Single Shell Tank Project

Fusion Analysis

Laboratory Results of Solids
Units Are Sample Wet Weight

Tank: 241-U-110
Core: 6
Segment: 2
Customer ID: 89-043

| | Check Standard | Blank | Sample | Sample Duplicate | Spike of Sample | Check Standard |
|---|---|---|---|---|---|---|
| Laboratory ID: | | | F0058 | F0059 | | |
| Fusion Digestion | | | 2.27 g/L | 1.68 g/L | | |
| Laboratory ID: | F0057 | F0072 | F0058 | F0059 | F0060 | F0737 |
| Total Alpha | 105.20% | <1.29E-04 uci/L | 2.81E+00 uci/g | 2.46E+00 uci/g | * | 111.80% |
| Total Beta | 99.20% | <3.50E-04 uci/L | 1.65E+03 uci/g | 1.60E+03 uci/g | * | 101.10% |
| Laboratory ID: | F0057 | F0748 | F0058 | F0059 | F0736 | F0737 |
| GEA | | | | | | |
| Cs-137 | 97.80% | <3.50E-01 uci/L | 3.09E+01 uci/g | 3.70E+01 uci/g | 107.50% | 97.80% |
| Laboratory ID: | F0057 | F0748 | F0058 | F0059 | F0060 | F0737 |
| Uranium | 94.90% | <1.03E+03 ug/L | 1.41E+04 ug/g | 1.48E+04 ug/g | ** | 113.90% |

* Ratio of Standard To Sample Is Insufficient To Calculate Spike Recovery.

** Spike Improperly Prepared.

Single Shell Tank Project

Fusion Analysis

Sample Results on Laboratory Digestion

Tank: 241-U-110
Core: 6
Segment: 2
Customer ID: 89-043

| | Check Standard | Blank | Sample | Sample Duplicate | Spike of Sample | Check Standard |
|---|---|---|---|---|---|---|
| Laboratory ID: | | | F0058 | F0059 | | |
| Fusion Digestion | | | 2.27 g/L | 1.68 g/L | | |
| Laboratory ID: | F0057 | F0072 | F0058 | F0059 | F0060 | F0737 |
| Total Alpha | 105.20% | <1.29E-04 uci/L | 6.38E+00 uci/L | 4.13E+00 uci/L | * | 111.80% |
| Total Beta | 99.20% | <3.50E-04 uci/L | 3.75E+03 uci/L | 2.68E+03 uci/L | * | 101.10% |
| Laboratory ID: | F0057 | F0748 | F0058 | F0059 | F0736 | F0737 |
| GEA | | | | | | |
| Cs-137 | 97.80% | <3.50E-01 uci/L | 6.98E+01 uci/L | 6.21E+01 uci/L | 107.50% | 97.80% |
| Uranium | 94.90% | <1.03E+03 ug/L | 3.19E-02 g/L | 2.48E-02 g/L | ** | 113.90% |

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

** Spike improperly prepared.

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

Fusion Dissolution

| | |
|---|---|
| Instrument | N/A |
| Procedure / Rev | LA-549-141/A-1 |
| Technologist | 6B598/R.D. Hale |
| Date | 1-5-90 |
| Temperature | 450 C |
| Starting Time | 10:30 |
| Ending Time | 14:30 |
| Chemist | S. A. Catlow |

| | Description | Lab. Id. |
|---|---|---|
| 1 | Blank | F0748 |
| 2 | Sample 89-043 | F0058 |
| 3 | Duplicate 89-043 | F0059 |
| 4 | Sample 89-082 | F0710 |
| 5 | Duplicate 89-082 | F0711 |
| 6 | Sample 89-083 | F0734 |
| 7 | Duplicate 89-083 | F0735 |
| 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: H. S. Rich (Signature) — H. S. Rich (Printed Name) — Date: 05-11-90

Verified by: Carry M Seidel (Signature) — C. M. Seidel (Printed Name) — Date: 05-11-90

Approved by: L. H. Taylor (Signature) — L.H. Taylor (Printed Name) — Date: 9-28-90

Interim

Rev. E 4/04/90

SST-102

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

| | |
|---|---|
| Instrument | WA93415 |
| Procedure / Rev | LA-508-101/C-1 |
| Technologist | 6A543/J.A. Hopkins |
| Date | 1-8-90 |
| Temperature | 70 F |
| Starting Time | 08:30 |
| Ending Time | 13:00 |
| Chemist | S. A. Catlow |

Total Alpha and Total Beta
Fusion Dissolution

Samples were prepared in batch, but counted randomly.

| | Description | Lab. Id. |
|---|---|---|
| 1 | Initial Check Standard | F0057 |
| 2 | Blank | F0072 |
| 3 | Sample 89-043 | F0058 |
| 4 | Duplicate 89-043 | F0059 |
| 5 | Spike 89-043 | F0060 |
| 6 | Sample 89-082 | F0710 |
| 7 | Duplicate 89-082 | F0711 |
| 8 | Sample 89-083 | F0734 |
| 9 | Duplicate 89-083 | F0735 |
| 10 | Ending Check Standard | F0737 |
| 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 | 83B44/10 mL | | | 10 mL |
| Spike | 83B44/10 mL | Sample/1.0 uL | | 10.001 mL |
| | | | | |
| | | | | |
| | | | | |

Prepared by: [signature] (Signature) H. S. Rich (Printed Name) Date: 05-14-90

Verified by: Carry M Seidel (Signature) C.M. Seidel (Printed Name) Date: 05-14-90

Approved by: [signature] (Signature) L.H. Taylor (Printed Name) Date: 9-28-90

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 #18 | Property Number: | WA93415 |
| Technologist: | R. A. Jones | Payroll Number: | 65801 |
| Date: | 06/28/89 | | |

| | |
|---|---|
| Calibration Standard ID: | 36B40A3; 36B40B3, 36B40C3 |
| Analyte Concentration: | 61800, 110700, 161400 cpm |
| Type of Calibration: | Efficiency |

| | Dilution | Concentration | Instrument Reading Units = |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | SEE ATTACHED SHEETS | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

Comments:

Prepared by: H. S. Rich (Signature) H. S. Rich (Printed Name) Date: 05-17-90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 5/21/90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9/28/90

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

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

DETECTOR No. 18

TIME ZERO DATE (HD): 15897

RADIONUCLIDE: Am-241
HALF LIFE: 154497
COUNT TIME: 5
CPM BKG: 0.2

DATE COUNTED (HD): 16347

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 | | | | | | |
| 36B40B7 | 1 | | | | | | |
| 36B40C7 | 1 | | | | | | |
| 36B40A3 | 2 | 06/28/80 | 1542 | 67207 | 66768 | 67025 | 66645 |
| 36B40B3 | 2 | 06/28/80 | 1547 | 115573 | 116337 | 116289 | 116143 |
| 36B40C3 | 2 | 06/28/80 | 1552 | 162269 | 162819 | 162370 | 161593 |
| 36B40A6 | 5 | 06/28/80 | 1558 | 61627 | 62404 | 61970 | 61272 |
| 36B40B6 | 5 | 06/28/80 | 1603 | 118582 | 119217 | 118566 | 119430 |
| 36B40C5 | 5 | 06/28/80 | 1608 | 164322 | 165699 | 166216 | 166176 |

| STANDARD ID | SIZE | STD VALUE | AVE CPM | DECAY CORR | DECAY CORR CPM | EFFICIENCY |
|---|---|---|---|---|---|---|
| 36B40A8 | 1" | 60570 | -0 | 1.00 | -0 | -0.0000 |
| 36B40B7 | 1" | 109900 | -0 | 1.00 | -0 | -0.0000 |
| 36B40C7 | 1" | 159700 | -0 | 1.00 | -0 | -0.0000 |

AVERAGE, 1" = -0.0000 +/- @95% 0.0000 -97.62 % ON 06/28/89

| STANDARD ID | | STD VALUE | AVE CPM | DECAY CORR | DECAY CORR CPM | EFFICIENCY |
|---|---|---|---|---|---|---|
| 36B40A3 | 2" | 61800 | 13382 | 1.00 | 13409 | 0.2170 |
| 36B40B3 | 2" | 110700 | 23217 | 1.00 | 23264 | 0.2102 |
| 36B40C3 | 2" | 161400 | 32452 | 1.00 | 32518 | 0.2015 |

AVERAGE, 2" = 0.2095 +/- @95% 0.0152 7.27 % ON 06/28/89

| STANDARD ID | | STD VALUE | AVE CPM | DECAY CORR | DECAY CORR CPM | EFFICIENCY |
|---|---|---|---|---|---|---|
| 36B40A6 | 5" | 59470 | 12363 | 1.00 | 12388 | 0.2083 |
| 36B40B6 | 5" | 109800 | 23790 | 1.00 | 23838 | 0.2171 |
| 36B40C5 | 5" | 160100 | 33120 | 1.00 | 33187 | 0.2073 |

AVERAGE, 5" = 0.2109 +/- @95% 0.0106 5.01 % ON 06/28/89

---

NEW EFFS FOR DET 18 Am-241 1" = -0.0000 2" = 0.2095

5" = 0.2109

---

# Single Shell Tank Calibration Record

**Phase I-A**

| | | | |
|---|---|---|---|
| Analyte: | $Co^{60}$ | | |
| Procedure | LQ-508-002 | Revision: | A-0 |
| Instrument: | Detector #18 | Property Number: | WA93415 |
| Technologist: | R. A. Jones | Payroll Number: | 65801 |
| Date: | 06/28/89 | | |

| | |
|---|---|
| Calibration Standard ID: | 32B40A4, 32B40B3, 32B40C4 |
| Analyte Concentration: | 70480, 135100, 202400 |
| Type of Calibration: | Efficiency |

| | Dilution | Concentration | Instrument Reading Units = |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | SEE ATTACHED SHEETS | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

Comments:

Prepared by: [signature] Signature — H. S. Rich Printed Name — Date: 05-17-90

Verified by: [signature] Signature — C. M. Seidel Printed Name — Date: 5/21/90

Approved by: [signature] Signature — L.H. Taylor Printed Name — Date: 9/28/90

Interim Rev. (Draft) 1/18/89 SST-105

9 1 1 2 7 1 7 0 6 1 5

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

DETECTOR No. 18

RADIONUCLIDE: Co-60
HALF LIFE: 1925
COUNT TIME: 5
CPM BKG: 5
CPM 1" BKG:

2",5" STD TIME ZERO DATE (HD): 15883
1" STD TIME ZERO DATE (HD): 16573
DATE COUNTED (HD): 16347
DATE COUNTED 1" (HD)

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. |
|---|---|---|---|---|---|---|---|
| 100B40A2 | 1 | | | | | | |
| 100B40B1 | 1 | | | | | | |
| 100B40C1 | 1 | | | | | | |
| 32B40A4 | 2 | 06/28/89 | 1510 | 95552 | 95030 | 96367 | 94943 |
| 32B40B3 | 2 | 06/28/89 | 1515 | 179993 | 179923 | 180564 | 179845 |
| 32B40C4 | 2 | 06/28/89 | 1521 | 266251 | 266109 | 266791 | 262848 |
| 32B40A5 | 5 | 06/28/89 | 1526 | 80056 | 79664 | 81559 | 79720 |
| 32B40B6 | 5 | 06/28/89 | 1531 | 159760 | 162820 | 161429 | 163674 |
| 32B40C5 | 5 | 06/28/89 | 1536 | 234482 | 235955 | 237348 | 236432 |

| STANDARD ID | SIZE | STD VALUE | AVE CPM | DECAY CORR | DECAY CORR CPM | EFFICIENCY |
|---|---|---|---|---|---|---|
| 100B40A2 | 1" | 67290 | 0 | 0.00 | 0 | 0.0000 |
| 100B40B1 | 1" | 137800 | 0 | 0.00 | 0 | 0.0000 |
| 100B40C1 | 1" | 199700 | 0 | 0.00 | 0 | 0.0000 |

AVERAGE, 1" = 0.0000 +/- @95% 0.0000 ERR % ON 06/28/89

| STANDARD ID | | STD VALUE | AVE CPM | DECAY CORR | DECAY CORR CPM | EFFICIENCY |
|---|---|---|---|---|---|---|
| 32B40A4 | 2" | 70480 | 19090 | 1.18 | 22561 | 0.3201 |
| 32B40B3 | 2" | 135100 | 36011 | 1.18 | 42560 | 0.3150 |
| 32B40C4 | 2" | 202400 | 53095 | 1.18 | 62750 | 0.3100 |

AVERAGE, 2" = 0.3151 +/- @95% 0.0099 3.13 % ON 06/28/89

| STANDARD ID | | STD VALUE | AVE CPM | DECAY CORR | DECAY CORR CPM | EFFICIENCY |
|---|---|---|---|---|---|---|
| 32B40A5 | 5" | 70160 | 16045 | 1.18 | 18963 | 0.2703 |
| 32B40B6 | 5" | 135700 | 32379 | 1.18 | 38267 | 0.2820 |
| 32B40C5 | 5" | 201900 | 47206 | 1.18 | 55790 | 0.2763 |

AVERAGE, 5" = 0.2762 +/- @95% 0.0115 4.16 % ON 06/28/89

---

NEW EFFS FOR DET 18 Co-60 1" = 0.0000 2" = 0.3151

5" = 0.2762

---

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

| | |
|---|---|
| Instrument | WA38021 |
| Procedure / Rev | LA-548-121/C-2 |
| Technologist | 6B598/R.D. Hale |
| Date | 1-10-90 |
| Temperature | 24 C |
| Starting Time | 11:00 |
| Ending Time | 12:00 |
| Chemist | S. A. Catlow |

GEA Analysis
Fusion Dissolution
Samples are prepared in batch, but counted randomly.
Detectors 1,2, and 3

| | Description | Lab. Id. |
|---|---|---|
| 1 | Initial Check Standard | F0057 |
| 2 | Blank | F0748 |
| 3 | Sample 89-043 | F0058 |
| 4 | Duplicate 89-043 | F0059 |
| 5 | Sample 89-049 | F0178 |
| 6 | Duplicate 89-049 | F0179 |
| 7 | Sample 89-082 | F0710 |
| 8 | Duplicate 89-082 | F0711 |
| 9 | Sample 89-083 | F0734 |
| 10 | Duplicate 89-083 | F0735 |
| 11 | Spike 89-083 | F0736 |

| | Description | Lab. Id. |
|---|---|---|
| 12 | Ending Check Standard | F0737 |
| 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 | 89B44/500 uL | | | 22 mL |
| Spike | 89B44/500 uL | Sample/500 uL | | 22 mL |
| | | | | |
| | | | | |
| | | | | |

Prepared by: [signature] Signature — H. S. Rich Printed Name — Date: 05-11-90

Verified by: Carry M Seidel Signature — C. M. Seidel Printed Name — Date: 05-11-90

Approved by: L.H. Taylor Signature — L.H. Taylor Printed Name — Date: 9-28-90

Interim

SST-102 Rev E 4/04/90

# 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: | 61413 |
| Date: | 3/2/89 | | |

Calibration Standard ID: 56B40 D1

Analyte Concentration: N/A

Type of Calibration: Gamma Energy Analysis (Efficiency)

| | Dilution | Concentration | Instrument Reading Units = |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | SEE ATTACHED | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

Comments:

Prepared by: [signature] (Signature) H. S. Rich (Printed Name) Date: 05/17/90

Verified by: [signature] (Signature) C. M. Seidel (Printed Name) Date: 5/21/90

Approved by: [signature] (Signature) L.H. Taylor (Printed Name) Date: 9/28/90

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

9112270619

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 Standards | | |
| Procedure | LQ-508-003 | Revision: | A-0 |
| Instrument: | GEA Detector #2 | Property Number: | 401934 |
| Technologist: | JL Anderson | Payroll Number: | 61413 |
| Date: | 9-1-88 | | |

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

| | Dilution | Concentration | Instrument Reading Units = |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | SEE ATTACHED | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

Comments:

Prepared by: [signature] (Signature) H. S. Rich (Printed Name) Date: 05/17/90

Verified by: Carey M Seidel (Signature) C. M. Seidel (Printed Name) Date: 5/21/90

Approved by: L.H. Taylor (Signature) L.H. Taylor (Printed Name) Date: 9/28/90

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

9112250572

38

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 | LQ-508-003 | Revision: | A-0 |
| Instrument: | GEA Detector #3 | Property Number: | WA77228 |
| Technologist: | J. L. Anderson | Payroll Number: | 61413 |
| Date: | 02/07/89 | | |

Calibration Standard ID: 56B40 D1

Analyte Concentration: N/A

Type of Calibration: Gamma Energy Analysis (Efficiency)

| | Dilution | Concentration | Instrument Reading Units = |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | SEE ATTACHED | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

Comments:

Prepared by: [signature] Signature — H. S. Rich Printed Name — Date: 05/17/90

Verified by: [signature] Signature — C. M. Seidel Printed Name — Date: 5/21/90

Approved by: [signature] Signature — L.H. Taylor Printed Name — Date: 9/26/90

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

9 1 1 2 1 5 0 0 5 7 5

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: 56840 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
```

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                                                                     *
*          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                                  11-MAY-90  12:34:54


                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: 1.00 SIGMA UNCERTAINTY

LLD CALCULATION PERFORMED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD1010
ANALYZED BY:        DM

SAMPLE DESCRIPTION: F-57 SEGMENT-6
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 10-JAN-90 AT 10:17:03

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 11-MAY-90 12:34:54

# 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 | 1126.99 | 562.97 | 1.34 | 572. | 711. | 6.7 | CS-134, EU-152 |
| 2C | 1139.12 | 569.03 | 1.34 | 587. | 1296. | 5.9 | CS-134, BI-207 |
| 3$ | 1209.92 | 604.42 | 1.39 | 552. | 8190. | 1.4 | CS-134 |
| 4 | 1323.77 | 661.33 | 1.51 | 359. | 12052. | 0.9 | CS-137 |
| 5C | 1592.12 | 795.49 | 1.52 | 316. | 5792. | 1.6 | CS-134 |
| 6C | 1604.28 | 801.57 | 1.52 | 297. | 511. | 5.4 | CS-134 |
| 7 | 2346.63 | 1172.87 | 1.90 | 201. | 5305. | 1.4 | CO-60 |
| 8 | 2665.19 | 1332.27 | 1.92 | 34. | 4790. | 1.5 | CO-60 |
| 9 | 2730.35 | 1364.88 | 1.34 | 16. | 143. | 9.5 | CS-134 |
| 10$ | 2798.23 | 1398.86 | 1.04 | 7. | 14. | 34.0 | I-132 |
| 11$ | 2801.29 | 1400.39 | 1.04 | 10. | 35. | 21.6 | BI-214 |
| 12 | 2921.74 | 1460.68 | 1.81 | 21. | 154. | 9.4 | K-40 |

ERROR QUOTATION AT 1.00 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
$ - MULTIPLET ANALYSIS CONVERGED DUE TO LACK OF CHI-SQ IMPROVEMENT

222-S COUNTING ROOM 11-MAY-90 12:34:54

SAMPLE: F-57 SEGMENT-6
DATA COLLECTED ON 10-JAN-90 AT 10:17:03
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 |
|---|---|---|---|---|
| AC-228 | LLD<7.93E-01 | | LLD<7.93E-01 | |
| AG-108M | LLD<2.33E-01 | | LLD<2.33E-01 | |
| AG-110M | LLD<1.04E+00 | | LLD<1.04E+00 | |
| AM-241 | LLD<8.97E-01 | | LLD<8.97E-01 | |
| AM-243 | LLD<2.40E-01 | | LLD<2.40E-01 | |
| AR-41 | LLD<1.37E-01 | | LLD<1.37E-01 | |
| AU-198 | LLD<1.95E-01 | | LLD<1.95E-01 | |
| BA-133 | LLD<2.98E-01 | | LLD<2.98E-01 | |
| BA-139 | LLD<5.98E-01 | | LLD<5.98E-01 | |
| BA-140 | LLD<7.87E-01 | | LLD<7.87E-01 | |
| BA-141 | LLD<5.95E-01 | | LLD<5.95E-01 | |
| BE-7 | LLD<1.99E+00 | | LLD<1.99E+00 | |
| BI-207 | LLD<2.05E-01 | | LLD<2.05E-01 | |
| BI-212 | LLD<2.45E+00 | | LLD<2.45E+00 | |
| BI-214 | LLD<1.07E+00 | | LLD<1.07E+00 | |
| CD-109 | LLD<3.47E+00 | | LLD<3.47E+00 | |
| CE-139 | LLD<1.35E-01 | | LLD<1.35E-01 | |
| CE-141 | LLD<2.07E-01 | | LLD<2.07E-01 | |
| CEPR144 | LLD<1.69E+00 | | LLD<1.69E+00 | |
| CO-56 | LLD<1.93E-01 | | LLD<1.93E-01 | |
| CO-57 | LLD<1.11E-01 | | LLD<1.11E-01 | |
| CO-58 | LLD<1.82E-01 | | LLD<1.82E-01 | |
| CO-60 | 2.28E+01 | +-3.55E-01 | 2.28E+01 | +-3.55E-01 |
| CR-51 | LLD<1.52E+00 | | LLD<1.52E+00 | |
| CS-134 | 2.09E+01 | +-3.51E-01 | 2.09E+01 | +-3.51E-01 |
| CS-136 | LLD<1.81E-01 | | LLD<1.81E-01 | |
| CS-137 | 3.74E+01 | +-4.22E-01 | 3.74E+01 | +-4.22E-01 |
| CS-138 | LLD<1.47E-01 | | LLD<1.47E-01 | |
| EU-152 | LLD<3.74E-01 | | LLD<3.74E-01 | |
| EU-154 | LLD<3.68E-01 | | LLD<3.68E-01 | |
| EU-155 | LLD<4.27E-01 | | LLD<4.27E-01 | |
| FE-59 | LLD<4.36E-01 | | LLD<4.36E-01 | |
| HF-181 | LLD<2.27E-01 | | LLD<2.27E-01 | |
| HG-203 | LLD<1.83E-01 | | LLD<1.83E-01 | |
| I-131 | LLD<2.22E-01 | | LLD<2.22E-01 | |
| I-132 | LLD<2.35E-01 | | LLD<2.35E-01 | |
| I-133 | LLD<2.18E-01 | | LLD<2.18E-01 | |
| I-134 | LLD<2.72E-01 | | LLD<2.72E-01 | |
| I-135 | LLD<4.79E-01 | | LLD<4.79E-01 | |
| K-40 | 7.37E+00 | +-6.95E-01 | 7.37E+00 | +-6.95E-01 |
| KR-85 | LLD<4.44E+01 | | LLD<4.44E+01 | |
| KR-85M | LLD<1.30E-01 | | LLD<1.30E-01 | |
| KR-87 | LLD<4.96E-01 | | LLD<4.96E-01 | |
| KR-89 | LLD<7.31E+00 | | LLD<7.31E+00 | |
| LA-140 | LLD<7.82E-02 | | LLD<7.82E-02 | |
| LA-142 | LLD<4.24E-01 | | LLD<4.24E-01 | |
| MN-54 | LLD<1.91E-01 | | LLD<1.91E-01 | |

| | | |
|---|---|---|
| MN-56 | LLD<2.17E-01 | LLD<2.17E-01 |
| NA-22 | LLD<1.18E-01 | LLD<1.18E-01 |
| NA-24 | LLD<2.05E-01 | LLD<2.05E-01 |
| NB-94 | LLD<1.66E-01 | LLD<1.66E-01 |
| NB-95 | LLD<1.61E-01 | LLD<1.61E-01 |
| NB-97 | LLD<1.27E+00 | LLD<1.27E+00 |
| NP-238 | LLD<8.45E-01 | LLD<8.45E-01 |
| NP-239 | LLD<1.05E+00 | LLD<1.05E+00 |
| PA-233 | LLD<4.49E-01 | LLD<4.49E-01 |
| PA-234M | LLD<3.98E+01 | LLD<3.98E+01 |
| PB-210 | LLD<5.29E+00 | LLD<5.29E+00 |
| PB-212 | LLD<3.30E-01 | LLD<3.30E-01 |
| PB-214 | LLD<4.99E-01 | LLD<4.99E-01 |
| PO-210 | LLD<1.89E+04 | LLD<1.89E+04 |
| PO-214 | LLD<8.40E+03 | LLD<8.40E+03 |
| PO-216 | LLD<1.62E+04 | LLD<1.62E+04 |
| PU-239 | LLD<1.47E+03 | LLD<1.47E+03 |
| PU-241 | LLD<5.18E+04 | LLD<5.18E+04 |
| RA-224 | LLD<3.47E+00 | LLD<3.47E+00 |
| RA-226 | LLD<3.23E+00 | LLD<3.23E+00 |
| RB-88 | LLD<9.86E-01 | LLD<9.86E-01 |
| RB-89 | LLD<1.02E+00 | LLD<1.02E+00 |
| RN-220 | LLD<1.74E+02 | LLD<1.74E+02 |
| RU-103 | LLD<2.08E-01 | LLD<2.08E-01 |
| RURH106 | LLD<3.64E+00 | LLD<3.64E+00 |
| SB-124 | LLD<3.10E-01 | LLD<3.10E-01 |
| SB-125 | LLD<1.65E+00 | LLD<1.65E+00 |
| SC-46 | LLD<2.18E-01 | LLD<2.18E-01 |
| SE-75 | LLD<2.43E-01 | LLD<2.43E-01 |
| SN-113 | LLD<2.81E-01 | LLD<2.81E-01 |
| SR-85 | LLD<1.95E-01 | LLD<1.95E-01 |
| SR-91 | LLD<3.33E-01 | LLD<3.33E-01 |
| SR-92 | LLD<9.88E-02 | LLD<9.88E-02 |
| TA-182 | LLD<6.15E-01 | LLD<6.15E-01 |
| TC-99M | LLD<1.08E-01 | LLD<1.08E-01 |
| TE-123M | LLD<1.24E-01 | LLD<1.24E-01 |
| TE-125M | LLD<3.14E+01 | LLD<3.14E+01 |
| TE-132 | LLD<1.53E-01 | LLD<1.53E-01 |
| TH-228 | LLD<1.07E+01 | LLD<1.07E+01 |
| TL-208 | LLD<2.43E-01 | LLD<2.43E-01 |
| U-235 | LLD<2.15E-01 | LLD<2.15E-01 |
| U-237 | LLD<6.21E-01 | LLD<6.21E-01 |
| W-187 | LLD<5.63E-01 | LLD<5.63E-01 |
| XE-131M | LLD<5.43E+00 | LLD<5.43E+00 |
| XE-133 | LLD<3.72E-01 | LLD<3.72E-01 |
| XE-133M | LLD<1.35E+00 | LLD<1.35E+00 |
| XE-135 | LLD<1.58E-01 | LLD<1.58E-01 |
| XE-138 | LLD<1.20E+00 | LLD<1.20E+00 |
| Y-88 | LLD<9.35E-02 | LLD<9.35E-02 |
| Y-91 | LLD<4.36E+01 | LLD<4.36E+01 |
| Y-91M | LLD<2.52E-01 | LLD<2.52E-01 |
| ZN-65 | LLD<4.86E-01 | LLD<4.86E-01 |
| ZR-95 | LLD<3.24E-01 | LLD<3.24E-01 |
| ZR-97 | LLD<1.80E-01 | LLD<1.80E-01 |
| TOTAL | 8.84E+01 +-9.54E-01 | 8.84E+01 +-9.54E-01 |

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.58E-09 UC/LI
TOTAL MEASURED ACTIVITY = 8.84E+01 (+-9.54E-01) UC/LI

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

ERROR QUOTATION AT 1.00 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

| CENTROID CHANNEL | ENERGY KEV | NET AREA COUNTS | ERROR % | GAMMAS/SEC |
|---|---|---|---|---|
| 1126.99 | 562.97 | 711. | 6.7 | 3.04E+01 |
| 1139.12 | 569.03 | 1296. | 5.9 | 5.60E+01 |
| 1604.28 | 801.57 | 511. | 5.4 | 2.93E+01 |
| 2730.35 | 1364.88 | 143. | 9.5 | 1.28E+01 |
| 2798.23 | 1398.86 | 14. | 34.0 | 1.24E+00 |
| 2801.29 | 1400.39 | 35. | 21.6 | 3.18E+00 |

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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            11-MAY-90  13:06:27


                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:  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: 1.00 SIGMA UNCERTAINTY

LLD CALCULATION PERFORMED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD3893
ANALYZED BY:        DM

SAMPLE DESCRIPTION: F-748 SEGMENT-U
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 10-JAN-90 AT 15:04:27

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 17-OCT-89
EFFICIENCY CALIBRATION PERFORMED 31-JUL-89
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222-S COUNTING ROOM WESTINGHOUSE HANFORD 11-MAY-90 13:06:27

# 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 | 703.58 | 352.00 | 1.81 | 172. | 137. | 16.0 | PB-214 |
| 2 | 1166.52 | 583.30 | 1.47 | 116. | 96. | 20.1 | EU-154, TL-208 |
| 3 | 1218.44 | 609.25 | 1.35 | 85. | 168. | 11.5 | BI-214, RU-103 |
| 4 | 1323.28 | 661.64 | 1.59 | 106. | 63. | 28.1 | CS-137 |
| 5 | 2921.43 | 1460.81 | 2.36 | 14. | 639. | 4.1 | K-40 |

ERROR QUOTATION AT 1.00 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

222-S COUNTING ROOM WESTINGHOUSE HANFORD 11-MAY-90 13:06:27

SAMPLE: F-748 SEGMENT-U
DATA COLLECTED ON 10-JAN-90 AT 15:04:27
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 |
|---|---|---|---|---|
| AC-228 | LLD<4.91E-01 | | LLD<4.91E-01 | |
| AG-108M | LLD<1.19E-01 | | LLD<1.19E-01 | |
| AG-110M | LLD<1.85E-01 | | LLD<1.85E-01 | |
| AM-241 | LLD<1.83E-01 | | LLD<1.83E-01 | |
| AM-243 | LLD<1.15E-01 | | LLD<1.15E-01 | |
| AR-41 | LLD<2.44E-01 | | LLD<2.44E-01 | |
| AU-198 | LLD<1.17E-01 | | LLD<1.17E-01 | |
| BA-133 | LLD<1.82E-01 | | LLD<1.82E-01 | |
| BA-139 | LLD<4.46E-01 | | LLD<4.46E-01 | |
| BA-140 | LLD<5.08E-01 | | LLD<5.08E-01 | |
| BA-141 | LLD<4.81E-01 | | LLD<4.81E-01 | |
| BE-7 | LLD<1.05E+00 | | LLD<1.05E+00 | |
| BI-207 | LLD<1.21E-01 | | LLD<1.21E-01 | |
| BI-212 | LLD<2.03E+00 | | LLD<2.03E+00 | |
| BI-214 | 1.36E+00 | +-1.57E-01 | 1.36E+00 | +-1.57E-01 |
| CD-109 | LLD<2.36E+00 | | LLD<2.36E+00 | |
| CE-139 | LLD<1.01E-01 | | LLD<1.01E-01 | |
| CE-141 | LLD<1.80E-01 | | LLD<1.80E-01 | |
| CEPR144 | LLD<1.58E+00 | | LLD<1.58E+00 | |
| CO-56 | LLD<1.40E-01 | | LLD<1.40E-01 | |
| CO-57 | LLD<1.03E-01 | | LLD<1.03E-01 | |
| CO-58 | LLD<1.46E-01 | | LLD<1.46E-01 | |
| CO-60 | LLD<1.62E-01 | | LLD<1.62E-01 | |
| CR-51 | LLD<1.01E+00 | | LLD<1.01E+00 | |
| CS-134 | LLD<1.56E-01 | | LLD<1.56E-01 | |
| CS-136 | LLD<1.31E-01 | | LLD<1.31E-01 | |
| CS-137 | 2.88E-01 | +-8.10E-02 | 2.88E-01 | +-8.10E-02 |
| CS-138 | LLD<3.36E-01 | | LLD<3.36E-01 | |
| EU-152 | LLD<6.62E-01 | | LLD<6.62E-01 | |
| EU-154 | LLD<3.82E-01 | | LLD<3.82E-01 | |
| EU-155 | LLD<3.77E-01 | | LLD<3.77E-01 | |
| FE-59 | LLD<3.13E-01 | | LLD<3.13E-01 | |
| HF-181 | LLD<1.39E-01 | | LLD<1.39E-01 | |
| HG-203 | LLD<1.28E-01 | | LLD<1.28E-01 | |
| I-131 | LLD<1.25E-01 | | LLD<1.25E-01 | |
| I-132 | LLD<1.55E-01 | | LLD<1.55E-01 | |
| I-133 | LLD<1.35E-01 | | LLD<1.35E-01 | |
| I-134 | LLD<2.02E-01 | | LLD<2.02E-01 | |
| I-135 | LLD<6.16E-01 | | LLD<6.16E-01 | |
| K-40 | 4.40E+01 | +-1.87E+00 | 4.40E+01 | +-1.87E+00 |
| KR-85 | LLD<3.55E+01 | | LLD<3.55E+01 | |
| KR-85M | LLD<1.35E-01 | | LLD<1.35E-01 | |
| KR-87 | LLD<2.80E-01 | | LLD<2.80E-01 | |
| KR-89 | LLD<5.03E+00 | | LLD<5.03E+00 | |
| LA-140 | LLD<1.68E-01 | | LLD<1.68E-01 | |
| LA-142 | LLD<2.98E-01 | | LLD<2.98E-01 | |
| MN-54 | LLD<1.63E-01 | | LLD<1.63E-01 | |

| | | | | |
|---|---|---|---|---|
| MN-56 | LLD<1.58E-01 | | LLD<1.58E-01 | |
| NA-22 | LLD<1.61E-01 | | LLD<1.61E-01 | |
| NA-24 | LLD<1.18E-01 | | LLD<1.18E-01 | |
| NB-94 | LLD<1.50E-01 | | LLD<1.50E-01 | |
| NB-95 | LLD<1.49E-01 | | LLD<1.49E-01 | |
| NB-97 | LLD<2.24E-01 | | LLD<2.24E-01 | |
| NP-238 | LLD<5.20E-01 | | LLD<5.20E-01 | |
| NP-239 | LLD<7.21E-01 | | LLD<7.21E-01 | |
| PA-233 | LLD<2.78E-01 | | LLD<2.78E-01 | |
| PA-234M | LLD<2.48E+01 | | LLD<2.48E+01 | |
| PB-210 | LLD<2.93E+00 | | LLD<2.93E+00 | |
| PB-212 | LLD<2.44E-01 | | LLD<2.44E-01 | |
| PB-214 | LLD<2.88E-01 | | LLD<2.88E-01 | |
| PO-210 | LLD<1.18E+04 | | LLD<1.18E+04 | |
| PO-214 | LLD<1.44E+03 | | LLD<1.44E+03 | |
| PO-216 | LLD<7.22E+03 | | LLD<7.22E+03 | |
| PU-239 | LLD<1.38E+03 | | LLD<1.38E+03 | |
| PU-241 | LLD<4.50E+04 | | LLD<4.50E+04 | |
| RA-224 | LLD<2.73E+00 | | LLD<2.73E+00 | |
| RA-226 | LLD<2.85E+00 | | LLD<2.85E+00 | |
| RB-88 | LLD<1.63E+00 | | LLD<1.63E+00 | |
| RB-89 | LLD<6.80E-01 | | LLD<6.80E-01 | |
| RN-220 | LLD<1.09E+02 | | LLD<1.09E+02 | |
| RU-103 | LLD<1.19E-01 | | LLD<1.19E-01 | |
| RURH106 | LLD<2.75E+00 | | LLD<2.75E+00 | |
| SB-124 | LLD<1.35E-01 | | LLD<1.35E-01 | |
| SB-125 | LLD<1.28E+00 | | LLD<1.28E+00 | |
| SC-46 | LLD<1.70E-01 | | LLD<1.70E-01 | |
| SE-75 | LLD<1.70E-01 | | LLD<1.70E-01 | |
| SN-113 | LLD<1.73E-01 | | LLD<1.73E-01 | |
| SR-85 | LLD<1.56E-01 | | LLD<1.56E-01 | |
| SR-91 | LLD<2.23E-01 | | LLD<2.23E-01 | |
| SR-92 | LLD<2.43E-01 | | LLD<2.43E-01 | |
| TA-182 | LLD<5.63E-01 | | LLD<5.63E-01 | |
| TC-99M | LLD<9.87E-02 | | LLD<9.87E-02 | |
| TE-123M | LLD<1.01E-01 | | LLD<1.01E-01 | |
| TE-125M | LLD<2.98E+01 | | LLD<2.98E+01 | |
| TE-132 | LLD<1.18E-01 | | LLD<1.18E-01 | |
| TH-228 | LLD<6.25E+00 | | LLD<6.25E+00 | |
| TL-208 | 4.00E-01 | +-8.07E-02 | 4.00E-01 | +-8.07E-02 |
| U-235 | LLD<1.70E-01 | | LLD<1.70E-01 | |
| U-237 | LLD<4.75E-01 | | LLD<4.75E-01 | |
| W-187 | LLD<4.80E-01 | | LLD<4.80E-01 | |
| XE-131M | LLD<4.40E+00 | | LLD<4.40E+00 | |
| XE-133 | LLD<2.01E-01 | | LLD<2.01E-01 | |
| XE-133M | LLD<9.81E-01 | | LLD<9.81E-01 | |
| XE-135 | LLD<1.18E-01 | | LLD<1.18E-01 | |
| XE-138 | LLD<8.70E-01 | | LLD<8.70E-01 | |
| Y-88 | LLD<1.54E-01 | | LLD<1.54E-01 | |
| Y-91 | LLD<6.53E+01 | | LLD<6.53E+01 | |
| Y-91M | LLD<1.69E-01 | | LLD<1.69E-01 | |
| ZN-65 | LLD<3.86E-01 | | LLD<3.86E-01 | |
| ZR-95 | LLD<2.48E-01 | | LLD<2.48E-01 | |
| ZR-97 | LLD<1.40E-01 | | LLD<1.40E-01 | |
| | --- | | --- | |
| TOTAL | 4.61E+01 | +-1.88E+00 | 4.61E+01 | +-1.88E+00 |

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 3.89E-13 UC/LI
TOTAL MEASURED ACTIVITY = 4.61E+01 (+-1.88E+00) UC/LI

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

ERROR QUOTATION AT 1.00 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

| CENTROID CHANNEL | ENERGY KEV | NET AREA COUNTS | ERROR % | GAMMAS/SEC |
|---|---|---|---|---|
| 703.58 | 352.00 | 137. | 16.0 | 1.19E+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                                  11-MAY-90  12:44:59

                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: 1.00 SIGMA UNCERTAINTY

LLD CALCULATION PERFORMED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2750
ANALYZED BY:        DM

SAMPLE DESCRIPTION: F-58 SEGMENT-7
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 10-JAN-90 AT 10:19:59

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 11-MAY-90 12:44:59

# 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 | 1324.12 | 661.67 | 1.65 | 48. | 1651. | 2.5 | CS-137 |
| 2 | 2921.28 | 1460.18 | 2.24 | 19. | 133. | 10.4 | K-40 |

ERROR QUOTATION AT 1.00 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

222-S COUNTING ROOM 11-MAY-90 12:44:59

SAMPLE: F-58 SEGMENT-7
DATA COLLECTED ON 10-JAN-90 AT 10:19:59
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 |
|---|---|---|---|---|
| AC-228 | LLD<3.43E+00 | | LLD<3.43E+00 | |
| AG-108M | LLD<1.04E+00 | | LLD<1.04E+00 | |
| AG-110M | LLD<6.02E+00 | | LLD<6.02E+00 | |
| AM-241 | LLD<7.19E+00 | | LLD<7.19E+00 | |
| AM-243 | LLD<2.12E+00 | | LLD<2.12E+00 | |
| AR-41 | LLD<1.07E+00 | | LLD<1.07E+00 | |
| AU-198 | LLD<9.34E-01 | | LLD<9.34E-01 | |
| BA-133 | LLD<1.41E+00 | | LLD<1.41E+00 | |
| BA-139 | LLD<3.54E+00 | | LLD<3.54E+00 | |
| BA-140 | LLD<3.68E+00 | | LLD<3.68E+00 | |
| BA-141 | LLD<3.24E+00 | | LLD<3.24E+00 | |
| BE-7 | LLD<8.97E+00 | | LLD<8.97E+00 | |
| BI-207 | LLD<9.40E-01 | | LLD<9.40E-01 | |
| BI-212 | LLD<1.40E+01 | | LLD<1.40E+01 | |
| BI-214 | LLD<1.94E+00 | | LLD<1.94E+00 | |
| CD-109 | LLD<2.59E+01 | | LLD<2.59E+01 | |
| CE-139 | LLD<8.00E-01 | | LLD<8.00E-01 | |
| CE-141 | LLD<1.38E+00 | | LLD<1.38E+00 | |
| CEPR144 | LLD<1.14E+01 | | LLD<1.14E+01 | |
| CO-56 | LLD<9.64E-01 | | LLD<9.64E-01 | |
| CO-57 | LLD<7.43E-01 | | LLD<7.43E-01 | |
| CO-58 | LLD<8.57E-01 | | LLD<8.57E-01 | |
| CO-60 | LLD<9.89E-01 | | LLD<9.89E-01 | |
| CR-51 | LLD<7.54E+00 | | LLD<7.54E+00 | |
| CS-134 | LLD<1.01E+00 | | LLD<1.01E+00 | |
| CS-136 | LLD<9.99E-01 | | LLD<9.99E-01 | |
| CS-137 | 7.13E+01 | +-1.87E+00 | 7.13E+01 | +-1.87E+00 |
| CS-138 | LLD<2.37E+00 | | LLD<2.37E+00 | |
| EU-152 | LLD<4.20E+00 | | LLD<4.20E+00 | |
| EU-154 | LLD<2.52E+00 | | LLD<2.52E+00 | |
| EU-155 | LLD<3.55E+00 | | LLD<3.55E+00 | |
| FE-59 | LLD<2.28E+00 | | LLD<2.28E+00 | |
| HF-181 | LLD<1.26E+00 | | LLD<1.26E+00 | |
| HG-203 | LLD<8.65E-01 | | LLD<8.65E-01 | |
| I-131 | LLD<9.73E-01 | | LLD<9.73E-01 | |
| I-132 | LLD<2.67E+00 | | LLD<2.67E+00 | |
| I-133 | LLD<9.77E-01 | | LLD<9.77E-01 | |
| I-134 | LLD<1.47E+00 | | LLD<1.47E+00 | |
| I-135 | LLD<3.21E+00 | | LLD<3.21E+00 | |
| K-40 | 8.79E+01 | +-9.20E+00 | 8.79E+01 | +-9.20E+00 |
| KR-85 | LLD<2.76E+02 | | LLD<2.76E+02 | |
| KR-85M | LLD<8.57E-01 | | LLD<8.57E-01 | |
| KR-87 | LLD<2.05E+00 | | LLD<2.05E+00 | |
| KR-89 | LLD<3.58E+01 | | LLD<3.58E+01 | |
| LA-140 | LLD<8.48E-01 | | LLD<8.48E-01 | |
| LA-142 | LLD<2.22E+00 | | LLD<2.22E+00 | |
| MN-54 | LLD<9.16E-01 | | LLD<9.16E-01 | |

| | | |
|---|---|---|
| MN-56 | LLD<1.09E+00 | LLD<1.09E+00 |
| NA-22 | LLD<8.97E-01 | LLD<8.97E-01 |
| NA-24 | LLD<9.69E-01 | LLD<9.69E-01 |
| NB-94 | LLD<8.56E-01 | LLD<8.56E-01 |
| NB-95 | LLD<6.89E-01 | LLD<6.89E-01 |
| NB-97 | LLD<6.81E+00 | LLD<6.81E+00 |
| NP-238 | LLD<4.17E+00 | LLD<4.17E+00 |
| NP-239 | LLD<5.28E+00 | LLD<5.28E+00 |
| PA-233 | LLD<1.85E+00 | LLD<1.85E+00 |
| PA-234M | LLD<1.74E+02 | LLD<1.74E+02 |
| PB-210 | LLD<2.26E+01 | LLD<2.26E+01 |
| PB-212 | LLD<1.65E+00 | LLD<1.65E+00 |
| PB-214 | LLD<2.07E+00 | LLD<2.07E+00 |
| PO-210 | LLD<7.37E+04 | LLD<7.37E+04 |
| PO-214 | LLD<8.29E+03 | LLD<8.29E+03 |
| PO-216 | LLD<4.85E+04 | LLD<4.85E+04 |
| PU-239 | LLD<1.08E+04 | LLD<1.08E+04 |
| PU-241 | LLD<3.26E+05 | LLD<3.26E+05 |
| RA-224 | LLD<1.70E+01 | LLD<1.70E+01 |
| RA-226 | LLD<1.81E+01 | LLD<1.81E+01 |
| RB-88 | LLD<6.30E+00 | LLD<6.30E+00 |
| RB-89 | LLD<4.34E+00 | LLD<4.34E+00 |
| RN-220 | LLD<7.29E+02 | LLD<7.29E+02 |
| RU-103 | LLD<9.22E-01 | LLD<9.22E-01 |
| RURH106 | LLD<1.71E+01 | LLD<1.71E+01 |
| SB-124 | LLD<9.50E-01 | LLD<9.50E-01 |
| SB-125 | LLD<9.71E+00 | LLD<9.71E+00 |
| SC-46 | LLD<1.02E+00 | LLD<1.02E+00 |
| SE-75 | LLD<1.32E+00 | LLD<1.32E+00 |
| SN-113 | LLD<1.29E+00 | LLD<1.29E+00 |
| SR-85 | LLD<1.21E+00 | LLD<1.21E+00 |
| SR-91 | LLD<1.73E+00 | LLD<1.73E+00 |
| SR-92 | LLD<1.06E+00 | LLD<1.06E+00 |
| TA-182 | LLD<2.71E+00 | LLD<2.71E+00 |
| TC-99M | LLD<7.61E-01 | LLD<7.61E-01 |
| TE-123M | LLD<7.72E-01 | LLD<7.72E-01 |
| TE-125M | LLD<2.47E+02 | LLD<2.47E+02 |
| TE-132 | LLD<7.75E-01 | LLD<7.75E-01 |
| TH-228 | LLD<8.84E+01 | LLD<8.84E+01 |
| TL-208 | LLD<9.86E-01 | LLD<9.86E-01 |
| U-235 | LLD<1.21E+00 | LLD<1.21E+00 |
| U-237 | LLD<3.29E+00 | LLD<3.29E+00 |
| W-187 | LLD<3.21E+00 | LLD<3.21E+00 |
| XE-131M | LLD<3.43E+01 | LLD<3.43E+01 |
| XE-133 | LLD<2.88E+00 | LLD<2.88E+00 |
| XE-133M | LLD<6.73E+00 | LLD<6.73E+00 |
| XE-135 | LLD<7.66E-01 | LLD<7.66E-01 |
| XE-138 | LLD<6.11E+00 | LLD<6.11E+00 |
| Y-88 | LLD<5.98E-01 | LLD<5.98E-01 |
| Y-91 | LLD<3.48E+02 | LLD<3.48E+02 |
| Y-91M | LLD<1.31E+00 | LLD<1.31E+00 |
| ZN-65 | LLD<2.99E+00 | LLD<2.99E+00 |
| ZR-95 | LLD<1.73E+00 | LLD<1.73E+00 |
| ZR-97 | LLD<8.10E-01 | LLD<8.10E-01 |
| TOTAL | 1.59E+02 +-9.38E+00 | 1.59E+02 +-9.38E+00 |

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 2.58E-08 UC/LI
TOTAL MEASURED ACTIVITY = 1.59E+02 (+-9.38E+00) UC/LI

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

ERROR QUOTATION AT 1.00 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

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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          11-MAY-90  13:04:17


                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:  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: 1.00 SIGMA UNCERTAINTY

LLD CALCULATION PERFORMED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD3889
ANALYZED BY:        DM

SAMPLE DESCRIPTION: F-59 SEGMENT-8
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 10-JAN-90 AT 10:22:54

COLLECT LIVE TIME:    3000. SECONDS
        REAL TIME:    3003. SECONDS
        DEAD TIME:     0.10 %

 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 11-MAY-90 13:04:17

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 | 703.75 | 352.09 | 1.58 | 220. | 124. | 19.2 | PB-214 |
| 2 | 1218.39 | 609.22 | 1.80 | 124. | 142. | 14.7 | BI-214, RU-103 |
| 3 | 1323.23 | 661.61 | 1.60 | 83. | 707. | 4.3 | CS-137 |
| 4 | 1937.80 | 968.83 | 1.31 | 86. | 36. | 45.5 | SB-124 |
| 5 | 2921.50 | 1460.85 | 2.23 | 32. | 583. | 4.5 | K-40 |

ERROR QUOTATION AT 1.00 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

9 1 1 2 7 0 0 3 9 4

222-S COUNTING ROOM WESTINGHOUSE HANFORD 11-MAY-90 13:04:17

SAMPLE: F-59 SEGMENT-8
DATA COLLECTED ON 10-JAN-90 AT 10:22:54
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 |
|---|---|---|---|---|
| AC-228 | LLD<1.05E+01 | | LLD<1.05E+01 | |
| AG-108M | LLD<2.46E+00 | | LLD<2.46E+00 | |
| AG-110M | LLD<8.01E+00 | | LLD<8.01E+00 | |
| AM-241 | LLD<4.07E+00 | | LLD<4.07E+00 | |
| AM-243 | LLD<2.49E+00 | | LLD<2.49E+00 | |
| AR-41 | LLD<4.39E+00 | | LLD<4.39E+00 | |
| AU-198 | LLD<2.31E+00 | | LLD<2.31E+00 | |
| BA-133 | LLD<3.98E+00 | | LLD<3.98E+00 | |
| BA-139 | LLD<9.66E+00 | | LLD<9.66E+00 | |
| BA-140 | LLD<1.00E+01 | | LLD<1.00E+01 | |
| BA-141 | LLD<9.64E+00 | | LLD<9.64E+00 | |
| BE-7 | LLD<2.52E+01 | | LLD<2.52E+01 | |
| BI-207 | LLD<2.60E+00 | | LLD<2.60E+00 | |
| BI-212 | LLD<4.45E+01 | | LLD<4.45E+01 | |
| BI-214 | 2.31E+01 | +-3.40E+00 | 2.31E+01 | +-3.40E+00 |
| CD-109 | LLD<4.91E+01 | | LLD<4.91E+01 | |
| CE-139 | LLD<2.19E+00 | | LLD<2.19E+00 | |
| CE-141 | LLD<3.58E+00 | | LLD<3.58E+00 | |
| CEPR144 | LLD<3.32E+01 | | LLD<3.32E+01 | |
| CO-56 | LLD<2.41E+00 | | LLD<2.41E+00 | |
| CO-57 | LLD<2.13E+00 | | LLD<2.13E+00 | |
| CO-58 | LLD<2.90E+00 | | LLD<2.90E+00 | |
| CO-60 | LLD<2.85E+00 | | LLD<2.85E+00 | |
| CR-51 | LLD<2.17E+01 | | LLD<2.17E+01 | |
| CS-134 | LLD<3.35E+00 | | LLD<3.35E+00 | |
| CS-136 | LLD<2.71E+00 | | LLD<2.71E+00 | |
| CS-137 | 6.45E+01 | +-2.81E+00 | 6.45E+01 | +-2.81E+00 |
| CS-138 | LLD<6.00E+00 | | LLD<6.00E+00 | |
| EU-152 | LLD<1.75E+01 | | LLD<1.75E+01 | |
| EU-154 | LLD<1.15E+01 | | LLD<1.15E+01 | |
| EU-155 | LLD<8.02E+00 | | LLD<8.02E+00 | |
| FE-59 | LLD<6.27E+00 | | LLD<6.27E+00 | |
| HF-181 | LLD<2.98E+00 | | LLD<2.98E+00 | |
| HG-203 | LLD<2.61E+00 | | LLD<2.61E+00 | |
| I-131 | LLD<2.99E+00 | | LLD<2.99E+00 | |
| I-132 | LLD<3.40E+00 | | LLD<3.40E+00 | |
| I-133 | LLD<2.78E+00 | | LLD<2.78E+00 | |
| I-134 | LLD<3.77E+00 | | LLD<3.77E+00 | |
| I-135 | LLD<1.44E+01 | | LLD<1.44E+01 | |
| K-40 | 8.03E+02 | +-3.72E+01 | 8.03E+02 | +-3.72E+01 |
| KR-85 | LLD<7.14E+02 | | LLD<7.14E+02 | |
| KR-85M | LLD<2.67E+00 | | LLD<2.67E+00 | |
| KR-87 | LLD<5.66E+00 | | LLD<5.66E+00 | |
| KR-89 | LLD<1.01E+02 | | LLD<1.01E+02 | |
| LA-140 | LLD<3.80E+00 | | LLD<3.80E+00 | |
| LA-142 | LLD<7.31E+00 | | LLD<7.31E+00 | |
| MN-54 | LLD<2.86E+00 | | LLD<2.86E+00 | |

| | | |
|---|---|---|
| MN-56 | LLD<2.72E+00 | LLD<2.72E+00 |
| NA-22 | LLD<4.17E+00 | LLD<4.17E+00 |
| NA-24 | LLD<3.65E+00 | LLD<3.65E+00 |
| NB-94 | LLD<2.95E+00 | LLD<2.95E+00 |
| NB-95 | LLD<2.76E+00 | LLD<2.76E+00 |
| NB-97 | LLD<9.71E+00 | LLD<9.71E+00 |
| NP-238 | LLD<1.31E+01 | LLD<1.31E+01 |
| NP-239 | LLD<1.55E+01 | LLD<1.55E+01 |
| PA-233 | LLD<5.93E+00 | LLD<5.93E+00 |
| PA-234M | LLD<5.61E+02 | LLD<5.61E+02 |
| PB-210 | LLD<6.39E+01 | LLD<6.39E+01 |
| PB-212 | LLD<5.22E+00 | LLD<5.22E+00 |
| PB-214 | LLD<6.54E+00 | LLD<6.54E+00 |
| PO-210 | LLD<2.25E+05 | LLD<2.25E+05 |
| PO-214 | LLD<3.11E+04 | LLD<3.11E+04 |
| PO-216 | LLD<1.48E+05 | LLD<1.48E+05 |
| PU-239 | LLD<2.89E+04 | LLD<2.89E+04 |
| PU-241 | LLD<9.67E+05 | LLD<9.67E+05 |
| RA-224 | LLD<5.76E+01 | LLD<5.76E+01 |
| RA-226 | LLD<5.82E+01 | LLD<5.82E+01 |
| RB-88 | LLD<3.25E+01 | LLD<3.25E+01 |
| RB-89 | LLD<1.30E+01 | LLD<1.30E+01 |
| RN-220 | LLD<2.58E+03 | LLD<2.58E+03 |
| RU-103 | LLD<2.58E+00 | LLD<2.58E+00 |
| RURH106 | LLD<5.34E+01 | LLD<5.34E+01 |
| SB-124 | LLD<2.76E+00 | LLD<2.76E+00 |
| SB-125 | LLD<2.63E+01 | LLD<2.63E+01 |
| SC-46 | LLD<3.74E+00 | LLD<3.74E+00 |
| SE-75 | LLD<3.52E+00 | LLD<3.52E+00 |
| SN-113 | LLD<3.38E+00 | LLD<3.38E+00 |
| SR-85 | LLD<3.13E+00 | LLD<3.13E+00 |
| SR-91 | LLD<4.31E+00 | LLD<4.31E+00 |
| SR-92 | LLD<4.24E+00 | LLD<4.24E+00 |
| TA-182 | LLD<1.11E+01 | LLD<1.11E+01 |
| TC-99M | LLD<2.14E+00 | LLD<2.14E+00 |
| TE-123M | LLD<2.06E+00 | LLD<2.06E+00 |
| TE-125M | LLD<6.33E+02 | LLD<6.33E+02 |
| TE-132 | LLD<2.42E+00 | LLD<2.42E+00 |
| TH-228 | LLD<1.33E+02 | LLD<1.33E+02 |
| TL-208 | LLD<2.78E+00 | LLD<2.78E+00 |
| U-235 | LLD<3.47E+00 | LLD<3.47E+00 |
| U-237 | LLD<9.97E+00 | LLD<9.97E+00 |
| W-187 | LLD<9.45E+00 | LLD<9.45E+00 |
| XE-131M | LLD<8.82E+01 | LLD<8.82E+01 |
| XE-133 | LLD<4.41E+00 | LLD<4.41E+00 |
| XE-133M | LLD<2.15E+01 | LLD<2.15E+01 |
| XE-135 | LLD<2.32E+00 | LLD<2.32E+00 |
| XE-138 | LLD<1.78E+01 | LLD<1.78E+01 |
| Y-88 | LLD<3.09E+00 | LLD<3.09E+00 |
| Y-91 | LLD<1.36E+03 | LLD<1.36E+03 |
| Y-91M | LLD<3.26E+00 | LLD<3.26E+00 |
| ZN-65 | LLD<8.68E+00 | LLD<8.68E+00 |
| ZR-95 | LLD<4.45E+00 | LLD<4.45E+00 |
| ZR-97 | LLD<3.02E+00 | LLD<3.02E+00 |
| TOTAL | 8.91E+02 +-3.74E+01 | 8.91E+02 +-3.74E+01 |

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.47E-07 UC/LI
TOTAL MEASURED ACTIVITY = 8.91E+02 (+-3.74E+01) UC/LI

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

ERROR QUOTATION AT 1.00 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

| CENTROID CHANNEL | ENERGY KEV | NET AREA COUNTS | ERROR % | GAMMAS/SEC |
|---|---|---|---|---|
| 703.75 | 352.09 | 124. | 19.2 | 1.08E+01 |
| 1937.80 | 968.83 | 36. | 45.5 | 7.07E+00 |

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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 11-MAY-90 12:52:52

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: 1.00 SIGMA UNCERTAINTY

LLD CALCULATION PERFORMED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2754
ANALYZED BY: DM

SAMPLE DESCRIPTION: F-736 SEGMENT-I
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 10-JAN-90 AT 14:50:04

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3008. SECONDS
DEAD TIME: 0.27 %

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 11-MAY-90 12:52:52

SAMPLE: F-736 SEGMENT-I
DATA COLLECTED ON 10-JAN-90 AT 14:50:04
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 |
|---|---|---|---|---|
| AC-228 | LLD<1.10E+00 | | LLD<1.10E+00 | |
| AG-108M | LLD<3.73E-01 | | LLD<3.73E-01 | |
| AG-110M | LLD<2.36E+00 | | LLD<2.36E+00 | |
| AM-241 | LLD<1.70E+00 | | LLD<1.70E+00 | |
| AM-243 | LLD<4.32E-01 | | LLD<4.32E-01 | |
| AR-41 | LLD<1.66E-01 | | LLD<1.66E-01 | |
| AU-198 | LLD<3.23E-01 | | LLD<3.23E-01 | |
| BA-133 | LLD<4.30E-01 | | LLD<4.30E-01 | |
| BA-139 | LLD<8.82E-01 | | LLD<8.82E-01 | |
| BA-140 | LLD<1.21E+00 | | LLD<1.21E+00 | |
| BA-141 | LLD<8.78E-01 | | LLD<8.78E-01 | |
| BE-7 | LLD<3.18E+00 | | LLD<3.18E+00 | |
| BI-207 | LLD<2.93E-01 | | LLD<2.93E-01 | |
| BI-212 | LLD<3.83E+00 | | LLD<3.83E+00 | |
| BI-214 | LLD<2.03E+00 | | LLD<2.03E+00 | |
| CD-109 | LLD<5.43E+00 | | LLD<5.43E+00 | |
| CE-139 | LLD<2.00E-01 | | LLD<2.00E-01 | |
| CE-141 | LLD<3.21E-01 | | LLD<3.21E-01 | |
| CEPR144 | LLD<2.61E+00 | | LLD<2.61E+00 | |
| CO-56 | LLD<2.63E-01 | | LLD<2.63E-01 | |
| CO-57 | LLD<1.64E-01 | | LLD<1.64E-01 | |
| CO-58 | LLD<2.45E-01 | | LLD<2.45E-01 | |
| CO-60 | 2.30E+01 | +-4.22E-01 | 2.30E+01 | +-4.22E-01 |
| CR-51 | LLD<2.45E+00 | | LLD<2.45E+00 | |
| CS-134 | 2.12E+01 | +-4.25E-01 | 2.12E+01 | +-4.25E-01 |
| CS-136 | LLD<2.64E-01 | | LLD<2.64E-01 | |
| CS-137 | 1.12E+02 | +-9.98E-01 | 1.12E+02 | +-9.98E-01 |
| CS-138 | LLD<2.63E-01 | | LLD<2.63E-01 | |
| EU-152 | LLD<5.79E-01 | | LLD<5.79E-01 | |
| EU-154 | LLD<4.50E-01 | | LLD<4.50E-01 | |
| EU-155 | LLD<7.58E-01 | | LLD<7.58E-01 | |
| FE-59 | LLD<5.98E-01 | | LLD<5.98E-01 | |
| HF-181 | LLD<3.84E-01 | | LLD<3.84E-01 | |
| HG-203 | LLD<2.60E-01 | | LLD<2.60E-01 | |
| I-131 | LLD<3.41E-01 | | LLD<3.41E-01 | |
| I-132 | LLD<1.00E+00 | | LLD<1.00E+00 | |
| I-133 | LLD<3.18E-01 | | LLD<3.18E-01 | |
| I-134 | LLD<3.88E-01 | | LLD<3.88E-01 | |
| I-135 | LLD<6.06E-01 | | LLD<6.06E-01 | |
| K-40 | 9.79E+00 | +-8.99E-01 | 9.79E+00 | +-8.99E-01 |
| KR-85 | LLD<7.34E+01 | | LLD<7.34E+01 | |
| KR-85M | LLD<2.05E-01 | | LLD<2.05E-01 | |
| KR-87 | LLD<7.28E-01 | | LLD<7.28E-01 | |
| KR-89 | LLD<1.08E+01 | | LLD<1.08E+01 | |
| LA-140 | LLD<1.16E-01 | | LLD<1.16E-01 | |
| LA-142 | LLD<7.05E-01 | | LLD<7.05E-01 | |
| MN-54 | LLD<2.53E-01 | | LLD<2.53E-01 | |

| | | |
|---|---|---|
| MN-56 | LLD<2.96E-01 | LLD<2.96E-01 |
| NA-22 | LLD<1.60E-01 | LLD<1.60E-01 |
| NA-24 | LLD<2.21E-01 | LLD<2.21E-01 |
| NB-94 | LLD<2.31E-01 | LLD<2.31E-01 |
| NB-95 | LLD<2.43E-01 | LLD<2.43E-01 |
| NB-97 | LLD<2.67E+00 | LLD<2.67E+00 |
| NP-238 | LLD<1.13E+00 | LLD<1.13E+00 |
| NP-239 | LLD<1.56E+00 | LLD<1.56E+00 |
| PA-233 | LLD<6.32E-01 | LLD<6.32E-01 |
| PA-234M | LLD<5.21E+01 | LLD<5.21E+01 |
| PB-210 | LLD<8.52E+00 | LLD<8.52E+00 |
| PB-212 | LLD<4.83E-01 | LLD<4.83E-01 |
| PB-214 | LLD<6.68E-01 | LLD<6.68E-01 |
| PO-210 | LLD<2.11E+04 | LLD<2.11E+04 |
| PO-214 | LLD<1.03E+04 | LLD<1.03E+04 |
| PO-216 | LLD<1.82E+04 | LLD<1.82E+04 |
| PU-239 | LLD<2.45E+03 | LLD<2.45E+03 |
| PU-241 | LLD<7.76E+04 | LLD<7.76E+04 |
| RA-224 | LLD<5.19E+00 | LLD<5.19E+00 |
| RA-226 | LLD<4.73E+00 | LLD<4.73E+00 |
| RB-88 | LLD<8.49E-01 | LLD<8.49E-01 |
| RB-89 | LLD<1.48E+00 | LLD<1.48E+00 |
| RN-220 | LLD<2.56E+02 | LLD<2.56E+02 |
| RU-103 | LLD<3.15E-01 | LLD<3.15E-01 |
| RURH106 | LLD<5.70E+00 | LLD<5.70E+00 |
| SB-124 | LLD<4.98E-01 | LLD<4.98E-01 |
| SB-125 | LLD<2.53E+00 | LLD<2.53E+00 |
| SC-46 | LLD<3.01E-01 | LLD<3.01E-01 |
| SE-75 | LLD<3.75E-01 | LLD<3.75E-01 |
| SN-113 | LLD<4.63E-01 | LLD<4.63E-01 |
| SR-85 | LLD<3.22E-01 | LLD<3.22E-01 |
| SR-91 | LLD<5.38E-01 | LLD<5.38E-01 |
| SR-92 | LLD<1.40E-01 | LLD<1.40E-01 |
| TA-182 | LLD<9.47E-01 | LLD<9.47E-01 |
| TC-99M | LLD<1.68E-01 | LLD<1.68E-01 |
| TE-123M | LLD<1.90E-01 | LLD<1.90E-01 |
| TE-125M | LLD<5.23E+01 | LLD<5.23E+01 |
| TE-132 | LLD<2.25E-01 | LLD<2.25E-01 |
| TH-228 | LLD<1.83E+01 | LLD<1.83E+01 |
| TL-208 | LLD<3.49E-01 | LLD<3.49E-01 |
| U-235 | LLD<3.14E-01 | LLD<3.14E-01 |
| U-237 | LLD<9.06E-01 | LLD<9.06E-01 |
| W-187 | LLD<8.24E-01 | LLD<8.24E-01 |
| XE-131M | LLD<8.64E+00 | LLD<8.64E+00 |
| XE-133 | LLD<6.15E-01 | LLD<6.15E-01 |
| XE-133M | LLD<1.96E+00 | LLD<1.96E+00 |
| XE-135 | LLD<2.43E-01 | LLD<2.43E-01 |
| XE-138 | LLD<1.72E+00 | LLD<1.72E+00 |
| Y-88 | LLD<8.05E-02 | LLD<8.05E-02 |
| Y-91 | LLD<6.86E+01 | LLD<6.86E+01 |
| Y-91M | LLD<4.07E-01 | LLD<4.07E-01 |
| ZN-65 | LLD<7.22E-01 | LLD<7.22E-01 |
| ZR-95 | LLD<4.39E-01 | LLD<4.39E-01 |
| ZR-97 | LLD<2.39E-01 | LLD<2.39E-01 |
| TOTAL | 1.66E+02 +-1.47E+00 | 1.66E+02 +-1.47E+00 |

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 2.62E-09 UC/LI
TOTAL MEASURED ACTIVITY = 1.66E+02 (+-1.47E+00) UC/LI

222-S COUNTING ROOM 11-MAY-90 12:52:52

# 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 | 1127.21 | 563.24 | 1.52 | 700. | 591. | 7.5 | CS-134, EU-152 |
| 2C | 1139.38 | 569.32 | 1.52 | 668. | 1034. | 6.2 | CS-134, BI-207 |
| 3 | 1210.16 | 604.70 | 1.56 | 734. | 6403. | 1.4 | CS-134 |
| 4 | 1323.98 | 661.60 | 1.59 | 432. | 25877. | 0.6 | CS-137 |
| 5C | 1592.17 | 795.68 | 1.67 | 303. | 4211. | 1.9 | CS-134 |
| 6C | 1604.30 | 801.74 | 1.67 | 277. | 442. | 6.0 | CS-134 |
| 7 | 2346.59 | 1172.85 | 2.05 | 243. | 3874. | 1.7 | CO-60 |
| 8 | 2665.06 | 1332.08 | 2.03 | 47. | 3509. | 1.7 | CO-60 |
| 9 | 2730.16 | 1364.62 | 1.83 | 13. | 98. | 11.9 | CS-134 |
| 10 | 2921.64 | 1460.36 | 1.96 | 12. | 148. | 9.2 | K-40 |

ERROR QUOTATION AT 1.00 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY

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

ERROR QUOTATION AT 1.00 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

| CENTROID CHANNEL | ENERGY KEV | NET AREA COUNTS | ERROR % | GAMMAS/SEC |
|---|---|---|---|---|
| 1127.21 | 563.24 | 591. | 7.5 | 3.48E+01 |
| 1139.38 | 569.32 | 1034. | 6.2 | 6.16E+01 |
| 1604.30 | 801.74 | 442. | 6.0 | 3.54E+01 |
| 2730.16 | 1364.62 | 98. | 11.9 | 1.21E+01 |

```
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*                                                                     *
*          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 11-MAY-90 12:42:14

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: 1.00 SIGMA UNCERTAINTY

LLD CALCULATION PERFORMED
MULTIPLET ANALYSIS PERFORMED

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD1015
ANALYZED BY: DM

SAMPLE DESCRIPTION: F-737 SEGMENT-J
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 10-JAN-90 AT 14:58:34

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

222-S COUNTING ROOM 11-MAY-90 12:42:14

SAMPLE: F-737 SEGMENT-J
DATA COLLECTED ON 10-JAN-90 AT 14:58:34
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 |
|---|---|---|---|---|
| AC-228 | LLD<7.75E-01 | | LLD<7.75E-01 | |
| AG-108M | LLD<2.20E-01 | | LLD<2.20E-01 | |
| AG-110M | LLD<1.05E+00 | | LLD<1.05E+00 | |
| AM-241 | LLD<9.43E-01 | | LLD<9.43E-01 | |
| AM-243 | LLD<2.47E-01 | | LLD<2.47E-01 | |
| AR-41 | LLD<1.18E-01 | | LLD<1.18E-01 | |
| AU-198 | LLD<1.98E-01 | | LLD<1.98E-01 | |
| BA-133 | LLD<2.88E-01 | | LLD<2.88E-01 | |
| BA-139 | LLD<5.94E-01 | | LLD<5.94E-01 | |
| BA-140 | LLD<7.56E-01 | | LLD<7.56E-01 | |
| BA-141 | LLD<6.00E-01 | | LLD<6.00E-01 | |
| BE-7 | LLD<2.05E+00 | | LLD<2.05E+00 | |
| BI-207 | LLD<1.90E-01 | | LLD<1.90E-01 | |
| BI-212 | LLD<2.74E+00 | | LLD<2.74E+00 | |
| BI-214 | LLD<1.04E+00 | | LLD<1.04E+00 | |
| CD-109 | LLD<3.49E+00 | | LLD<3.49E+00 | |
| CE-139 | LLD<1.34E-01 | | LLD<1.34E-01 | |
| CE-141 | LLD<2.05E-01 | | LLD<2.05E-01 | |
| CEPR144 | LLD<1.74E+00 | | LLD<1.74E+00 | |
| CO-56 | LLD<1.99E-01 | | LLD<1.99E-01 | |
| CO-57 | LLD<1.09E-01 | | LLD<1.09E-01 | |
| CO-58 | LLD<1.86E-01 | | LLD<1.86E-01 | |
| CO-60 | 2.30E+01 | +-3.57E-01 | 2.30E+01 | +-3.57E-01 |
| CR-51 | LLD<1.54E+00 | | LLD<1.54E+00 | |
| CS-134 | 2.16E+01 | +-3.44E-01 | 2.16E+01 | +-3.44E-01 |
| CS-136 | LLD<1.91E-01 | | LLD<1.91E-01 | |
| CS-137 | 3.75E+01 | +-4.21E-01 | 3.75E+01 | +-4.21E-01 |
| CS-138 | LLD<2.14E-01 | | LLD<2.14E-01 | |
| EU-152 | LLD<2.36E-01 | | LLD<2.36E-01 | |
| EU-154 | LLD<3.72E-01 | | LLD<3.72E-01 | |
| EU-155 | LLD<4.23E-01 | | LLD<4.23E-01 | |
| FE-59 | LLD<4.06E-01 | | LLD<4.06E-01 | |
| HF-181 | LLD<2.26E-01 | | LLD<2.26E-01 | |
| HG-203 | LLD<1.77E-01 | | LLD<1.77E-01 | |
| I-131 | LLD<2.22E-01 | | LLD<2.22E-01 | |
| I-132 | LLD<2.34E-01 | | LLD<2.34E-01 | |
| I-133 | LLD<2.18E-01 | | LLD<2.18E-01 | |
| I-134 | LLD<2.86E-01 | | LLD<2.86E-01 | |
| I-135 | LLD<4.44E-01 | | LLD<4.44E-01 | |
| K-40 | 8.73E+00 | +-6.90E-01 | 8.73E+00 | +-6.90E-01 |
| KR-85 | LLD<4.50E+01 | | LLD<4.50E+01 | |
| KR-85M | LLD<1.33E-01 | | LLD<1.33E-01 | |
| KR-87 | LLD<5.10E-01 | | LLD<5.10E-01 | |
| KR-89 | LLD<7.39E+00 | | LLD<7.39E+00 | |
| LA-140 | LLD<7.82E-02 | | LLD<7.82E-02 | |
| LA-142 | LLD<4.32E-01 | | LLD<4.32E-01 | |
| MN-54 | LLD<1.89E-01 | | LLD<1.89E-01 | |

| | | |
|---|---|---|
| MN-56 | LLD<2.25E-01 | LLD<2.25E-01 |
| NA-22 | LLD<1.17E-01 | LLD<1.17E-01 |
| NA-24 | LLD<2.27E-01 | LLD<2.27E-01 |
| NB-94 | LLD<1.69E-01 | LLD<1.69E-01 |
| NB-95 | LLD<1.71E-01 | LLD<1.71E-01 |
| NB-97 | LLD<1.27E+00 | LLD<1.27E+00 |
| NP-238 | LLD<8.27E-01 | LLD<8.27E-01 |
| NP-239 | LLD<1.04E+00 | LLD<1.04E+00 |
| PA-233 | LLD<4.66E-01 | LLD<4.66E-01 |
| PA-234M | LLD<3.93E+01 | LLD<3.93E+01 |
| PB-210 | LLD<5.27E+00 | LLD<5.27E+00 |
| PB-212 | LLD<3.32E-01 | LLD<3.32E-01 |
| PB-214 | LLD<4.96E-01 | LLD<4.96E-01 |
| PO-210 | LLD<1.97E+04 | LLD<1.97E+04 |
| PO-214 | LLD<8.46E+03 | LLD<8.46E+03 |
| PO-216 | LLD<1.68E+04 | LLD<1.68E+04 |
| PU-239 | LLD<1.49E+03 | LLD<1.49E+03 |
| PU-241 | LLD<5.23E+04 | LLD<5.23E+04 |
| RA-224 | LLD<3.62E+00 | LLD<3.62E+00 |
| RA-226 | LLD<3.19E+00 | LLD<3.19E+00 |
| RB-88 | LLD<7.19E-01 | LLD<7.19E-01 |
| RB-89 | LLD<1.00E+00 | LLD<1.00E+00 |
| RN-220 | LLD<1.68E+02 | LLD<1.68E+02 |
| RU-103 | LLD<2.06E-01 | LLD<2.06E-01 |
| RURH106 | LLD<3.61E+00 | LLD<3.61E+00 |
| SB-124 | LLD<2.98E-01 | LLD<2.98E-01 |
| SB-125 | LLD<1.66E+00 | LLD<1.66E+00 |
| SC-46 | LLD<2.12E-01 | LLD<2.12E-01 |
| SE-75 | LLD<2.39E-01 | LLD<2.39E-01 |
| SN-113 | LLD<2.89E-01 | LLD<2.89E-01 |
| SR-85 | LLD<1.97E-01 | LLD<1.97E-01 |
| SR-91 | LLD<3.63E-01 | LLD<3.63E-01 |
| SR-92 | LLD<1.06E-01 | LLD<1.06E-01 |
| TA-182 | LLD<5.93E-01 | LLD<5.93E-01 |
| TC-99M | LLD<1.15E-01 | LLD<1.15E-01 |
| TE-123M | LLD<1.26E-01 | LLD<1.26E-01 |
| TE-125M | LLD<3.23E+01 | LLD<3.23E+01 |
| TE-132 | LLD<1.55E-01 | LLD<1.55E-01 |
| TH-228 | LLD<1.05E+01 | LLD<1.05E+01 |
| TL-208 | LLD<2.56E-01 | LLD<2.56E-01 |
| U-235 | LLD<2.12E-01 | LLD<2.12E-01 |
| U-237 | LLD<6.11E-01 | LLD<6.11E-01 |
| W-187 | LLD<5.64E-01 | LLD<5.64E-01 |
| XE-131M | LLD<5.58E+00 | LLD<5.58E+00 |
| XE-133 | LLD<3.85E-01 | LLD<3.85E-01 |
| XE-133M | LLD<1.39E+00 | LLD<1.39E+00 |
| XE-135 | LLD<1.63E-01 | LLD<1.63E-01 |
| XE-138 | LLD<1.20E+00 | LLD<1.20E+00 |
| Y-88 | LLD<6.82E-02 | LLD<6.82E-02 |
| Y-91 | LLD<4.84E+01 | LLD<4.84E+01 |
| Y-91M | LLD<2.75E-01 | LLD<2.75E-01 |
| ZN-65 | LLD<4.72E-01 | LLD<4.72E-01 |
| ZR-95 | LLD<3.26E-01 | LLD<3.26E-01 |
| ZR-97 | LLD<1.74E-01 | LLD<1.74E-01 |
| TOTAL | 9.08E+01 +-9.48E-01 | 9.08E+01 +-9.48E-01 |

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.59E-09 UC/LI
TOTAL MEASURED ACTIVITY = 9.08E+01 (+-9.48E-01) UC/LI

222-S COUNTING ROOM 11-MAY-90 12:42:14

# 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 | 1126.76 | 562.85 | 1.47 | 621. | 701. | 5.5 | CS-134, EU-152 |
| 2C | 1139.18 | 569.06 | 1.47 | 557. | 1378. | 4.6 | CS-134, BI-207 |
| 3 | 1209.86 | 604.39 | 1.49 | 629. | 8070. | 1.2 | CS-134 |
| 4 | 1323.69 | 661.29 | 1.50 | 330. | 12059. | 0.9 | CS-137 |
| 5C | 1592.03 | 795.44 | 1.54 | 278. | 5989. | 1.5 | CS-134 |
| 6C | 1604.20 | 801.53 | 1.54 | 265. | 603. | 3.9 | CS-134 |
| 7C | 2336.00 | 1167.55 | 1.78 | 138. | 133. | 9.2 | CS-134 |
| 8C | 2346.55 | 1172.83 | 1.78 | 127. | 5421. | 1.5 | CO-60 |
| 9 | 2665.02 | 1332.19 | 1.84 | 35. | 4837. | 1.5 | CO-60 |
| 10 | 2729.89 | 1364.65 | 2.05 | 11. | 175. | 8.1 | CS-134 |
| 11 | 2801.24 | 1400.36 | 1.63 | 21. | 51. | 20.3 | BI-214 |
| 12 | 2921.99 | 1460.80 | 1.81 | 9. | 182. | 7.9 | K-40 |

ERROR QUOTATION AT 1.00 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY

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

ERROR QUOTATION AT 1.00 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

| CENTROID CHANNEL | ENERGY KEV | NET AREA COUNTS | ERROR % | GAMMAS/SEC |
|---|---|---|---|---|
| 1126.76 | 562.85 | 701. | 5.5 | 3.00E+01 |
| 1139.18 | 569.06 | 1378. | 4.6 | 5.95E+01 |
| 1604.20 | 801.53 | 603. | 3.9 | 3.46E+01 |
| 2336.00 | 1167.55 | 133. | 9.2 | 1.04E+01 |
| 2729.89 | 1364.65 | 175. | 8.1 | 1.56E+01 |
| 2801.24 | 1400.36 | 51. | 20.3 | 4.66E+00 |

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

Uranium Analysis

Fusion Dissolution

| | |
|---|---|
| Instrument | WA77344 |
| Procedure / Rev | LA-925-106/A-2 |
| Technologist | 6C269 M. Franz |
| Date | 1-8-90 |
| Temperature | N/A |
| Starting Time | 10:00 |
| Ending Time | 14:30 |
| Chemist | S. A. Catlow |

| | Description | Lab. Id. |
|---|---|---|
| 1 | Initial LMCS Check Std | F0057 |
| 2 | Blank | F0748 |
| 3 | Sample 89-043 | F0058 |
| 4 | Duplicate 89-043 | F0059 |
| 5 | Spiked 89-043 | F0060 |
| 6 | Sample 89-082 | F0710 |
| 7 | Duplicate 89-082 | F0711 |
| 8 | Sample 89-083 | F0734 |
| 9 | Duplicate 89-083 | F0735 |
| 10 | Final LMCS Check Std | F0737 |
| 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 | 58B38/100 uL | | | 5.6 mL |
| Spike | 54B38/100 uL | F0060/100 uL | | 5.7 mL |
| | | | | |
| | | | | |
| | | | | |

Prepared by: Shirley Cervantes (Signature) S.A. Cervantes (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: 9-28-90

# WATER DIGESTION TEST ANALYSIS

Single Shell Tank

Water Digestion
Laboratory Results of Solids
Units are Sample Wet Weight

Tank : 241-U-110
Core: 6
Segment: 2
Customer ID: 89-043

Laboratory Segment Serial No.: F0053

| | Check Standard | Blank | | Sample | | Sample Duplicate | | Spike of Sample | | Check Standard |
|---|---|---|---|---|---|---|---|---|---|---|
| Laboratory ID | | | | F0063 | | F0064 | | F0065 | | |
| Water Digestion | | | | 10.1 | g/L | 10.4 | g/L | 10.1 | g/L | |
| Laboratory ID: | F0110 | F0122 | | F0063 | | F0064 | | F0113 | | F0066 |
| Ion Chromatograph * | | | | | | | | | | |
| Fluoride | 93.10% | <.10 | ppm | <1.00E+03 | ug/g | <9.71E+02 | ug/g | 96.30% | | 93.10% |
| Chloride | 97.90% | <.15 | ppm | 1.62E+03 | ug/g | <9.71E+02 | ug/g | 107.20% | | 96.30% |
| Nitrate | 98.30% | <1.0 | ppm | 5.46E+04 | ug/g | 4.49E+04 | ug/g | 104.40% | | 105.20% |
| Sulfate | 92.90% | <1.0 | ppm | <1.00E+04 | ug/g | <9.71E+03 | ug/g | 101.30% | | 98.80% |
| Laboratory ID: | F0110 | F0122 | | F0063 | | F0064 | | F0113 | | F0114 |
| Phosphate | 95.90% | <1.0 | ppm | <1.00E+04 | ug/g | ** | | 103.20% | | 101.00% |
| Laboratory ID: | F0426 | F0438 | | F0063 | | F0064 | | F0429 | | F0574 |
| Phosphate | 100.80% | <1.0 | ppm | *** | | <9.71E+03 | ug/g | 105.60% | | 101.50% |
| Laboratory ID: | F0062 | F0074 | | F0063 | | F0064 | | F0065 | | F0066 |
| Total Organic Carbon/ Carbonate | 98.60% | 5.32E+00 | ug | 2.76E+03 | ug/g | 2.49E+03 | ug/g | 87.40% | | 93.80% |

* Instrument Out Of Calibration For Phosphate.

** Not Reported

*** Sample Not Rerun.

Single Shell Tank Project

Water Digestion
Sample Results on Laboratory Digestion

Tank 241-U-110
Core 6
Segment 2
Customer ID 89-043

Laboratory Segment Serial No.: F0053

| | Check Standard | Blank | | Sample | | Sample Duplicate | | Spike of Sample | | Check Standard |
|---|---|---|---|---|---|---|---|---|---|---|
| Laboratory ID: | | | | F0063 | | F0064 | | F0065 | | F0066 |
| Water Digestion | | | | 10.1 | g/L | 10.4 | g/L | 10.1 | g/L | |
| Laboratory ID: | F0110 | F0122 | | F0063 | | F0064 | | F0113 | | F0066 |
| Ion Chromatograph * | | | | | | | | | | |
| Fluoride | 93.10% | <0.10 | ppm | <10.1 | ppm | <10.1 | ppm | 96.30% | | 93.10% |
| Chloride | 97.90% | <.15 | ppm | 1.64E+01 | ppm | <10.1 | ppm | 107.20% | | 96.30% |
| Nitrate | 98.30% | <1.0 | ppm | 5.51E+02 | ppm | 4.67E+02 | ppm | 104.40% | | 105.20% |
| Sulfate | 92.90% | <1.0 | ppm | <101 | ppm | <101 | ppm | 101.30% | | 98.90% |
| Laboratory ID: | F0110 | F0122 | | F0063 | | F0064 | | F0113 | | F0114 |
| Phosphate | 95.90% | <1.0 | ppm | <101 | ppm | ** | | 103.20% | | 101.00% |
| Laboratory ID: | F0426 | F0438 | | F0063 | | F0064 | | F0429 | | F0574 |
| Phosphate | 100.80% | <1.0 | ppm | *** | | <1.01E+02 | ppm | 105.60% | | 101.50% |
| Laboratory ID: | F0062 | F0074 | | F0063 | | F0064 | | F0065 | | F0066 |
| Total Organic Carbon/ Carbonate | 98.60% | 5.32E+00 | ug | 2.79E-02 | g/L | 2.59E-02 | g/L | 87.40% | | 93.80% |

* Instrument Out Of Calibration For Phosphate.

** Not Reported.

*** Sample Not Rerun.

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

| | |
|---|---|
| Instrument | N/A |
| Procedure / Rev | LA-504-101/A-2 |
| Technologist | 81098/L. Hughes-Standly |
| Date | 1-6-90 |
| Temperature | 25 C |
| Starting Time | 11:00 1-5-90 |
| Ending Time | 15:00 1-6-90 |
| 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 elements.

| | Description | Lab. Id. |
|---|---|---|
| 1 | Reagent Blank | F-0074 |
| 2 | Sample 89-043 | F-0063 |
| 3 | Duplicate 89-043 | F-0064 |
| 4 | Spike 89-043 | F-0065 |
| 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: [signature] Signature — H. S. Rich Printed Name — Date: 05-14-90

Verified by: Cary M Seidel Signature — C. M. Seidel Printed Name — Date: 05-14-90

Approved by: L.H. Taylor Signature — L.H. Taylor Printed Name — Date: 9-28-90

Interim

Rev E 4/04/90

SST-102

9 1 1 2 0 0 0 7 1 2

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

| | |
|---|---|
| Instrument | WB24721 |
| Procedure / Rev | LA-533-105/A-3 |
| Technologist | 6B107/N.E. Wright |
| Date | 02/16/90 |
| Temperature | 24 C |
| Starting Time | 11:30 |
| Ending Time | 14:00 |
| Chemist | H. S. Rich |

Ion Chromatograph Analysis

Water Digestion

Chromatographs are not calibrated for nitrite.
Peaks are for identification only

*Chromatogram Only

| | Description | Lab. Id. |
|---|---|---|
| 1 | Eluent Blank | * |
| 2 | Initial LMCS Check Std. | F0110 |
| 3 | Reagent Blank 89-045 | F0122 |
| 4 | Sample 89-045 | F0111 |
| 5 | Duplicate 89-045 | F0112 |
| 6 | Spike 89-045 | F0113 |
| 7 | Sample 89-043 | F0063 |
| 8 | Duplicate 89-043 | F0064 |
| 9 | Final LMCS Check Std. | F0066 |
| 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. | 6C11HI/10uL | | | 10.1 mL |
| Spike | 35C9-67/300uL | F0113/ 50 uL | | 5.35 mL |
| | | | | |
| | | | | |
| | | | | |

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

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

Approved by: L H Taylor (Signature) LH Taylor (Printed Name) Date: 9/28/90

9 1 1 2 1 5 1 0 7 1 3

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

DIONEX METHOD PARAMETERS - SST.MET

## Detector Parameters

| | |
|---|---|
| Number of Detectors | 1 |
| Detector 1 Type | CDM-1 |

## 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 | No |
| Record Raw Data | Yes |
| Raw Data File Name: c:\WINDOWS\AI400\DATA\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 |

DIONEX METHOD PARAMETERS - SST.MET

Component # 1 FLUORIDE Retention Time 0.97
Reference Peak FLUORIDE Window Size 2.00%
Least Squares Slope = 3.60283E-004
Least Squares Intercept = 1.37365E-002
Ka = -4.29870E-009

| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 9.38100E-002 | 1336 | 246 |
| 2 | 2.33800E-001 | 3478 | 616 |
| 3 | 4.65300E-001 | 7271 | 1226 |
| 4 | 9.21500E-001 | 15622 | 2625 |
| 5 | 1.80760E+000 | 37180 | 5315 |
| 6 | 3.48130E+000 | 74116 | 11092 |

Component # 2 CHLORIDE Retention Time 1.53
Reference Peak FLUORIDE Window Size 2.50%
Least Squares Slope = 6.25472E-004
Least Squares Intercept = -1.74138E-002
Ka = -1.51561E-008

| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 1.19800E-001 | 1267 | 200 |
| 2 | 2.98500E-001 | 2903 | 489 |
| 3 | 5.94100E-001 | 6430 | 1017 |
| 4 | 1.17650E+000 | 13713 | 2088 |
| 5 | 2.30760E+000 | 28370 | 4066 |
| 6 | 4.44430E+000 | 59291 | 9183 |

Component # 3 NITRITE Retention Time 1.90
Reference Peak FLUORIDE Window Size 5.00%
Least Squares Slope = 8.73497E-004
Least Squares Intercept = 5.05282E-001
Ka = 4.08720E-009

| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 1.28940E+000 | 8214 | 1202 |
| 2 | 3.21850E+000 | 20050 | 2969 |
| 3 | 6.39600E+000 | 43200 | 6258 |
| 4 | 1.26667E+001 | 91140 | 13081 |
| 5 | 2.48451E+001 | 181100 | 25092 |
| 6 | 4.78505E+001 | 353600 | 44776 |

Component # 4 NITRATE Retention Time 3.28
Reference Peak FLUORIDE Window Size 7.00%
Least Squares Slope = 1.95501E-003
Least Squares Intercept = -6.94769E-003
Ka = 4.87686E-009

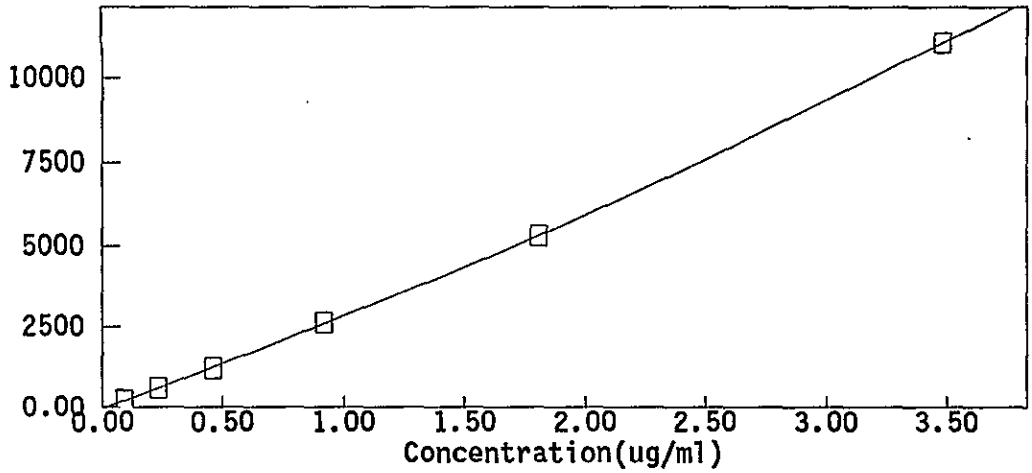
| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 9.60100E-001 | 5253 | 468 |
| 2 | 2.39300E+000 | 15077 | 1234 |
| 3 | 4.76240E+000 | 30767 | 2460 |
| 4 | 9.43140E+000 | 63964 | 4753 |
| 5 | 1.84992E+001 | 132213 | 9250 |
| 6 | 3.56286E+001 | 274103 | 17468 |

Component # 5 PHOSPHATE Retention Time 5.50
Reference Peak FLUORIDE Window Size 7.00%
Least Squares Slope = 5.16373E-003
Least Squares Intercept = 1.15944E-001
Ka = -7.81115E-008

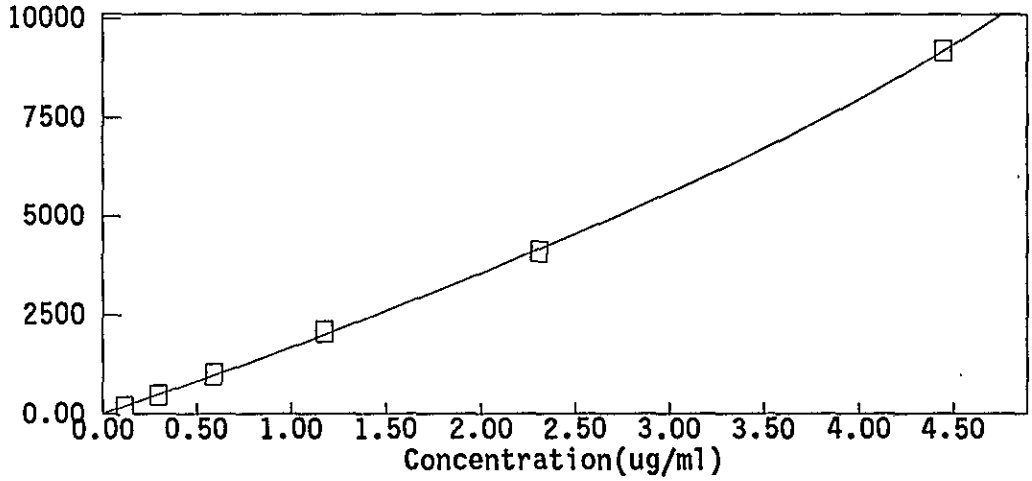
| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 9.82000E-001 | 2854 | 180 |
| 2 | 2.44770E+000 | 7216 | 437 |
| 3 | 4.87130E+000 | 16848 | 948 |
| 4 | 9.64710E+000 | 32539 | 1886 |
| 5 | 1.89223E+001 | 69406 | 3876 |
| 6 | 3.64434E+001 | 142872 | 8003 |

Component # 6 SULFATE Retention Time 6.43
Reference Peak FLUORIDE Window Size 5.00%
Least Squares Slope = 2.38873E-003
Least Squares Intercept = 2.12534E-001
Ka = -1.74248E-008

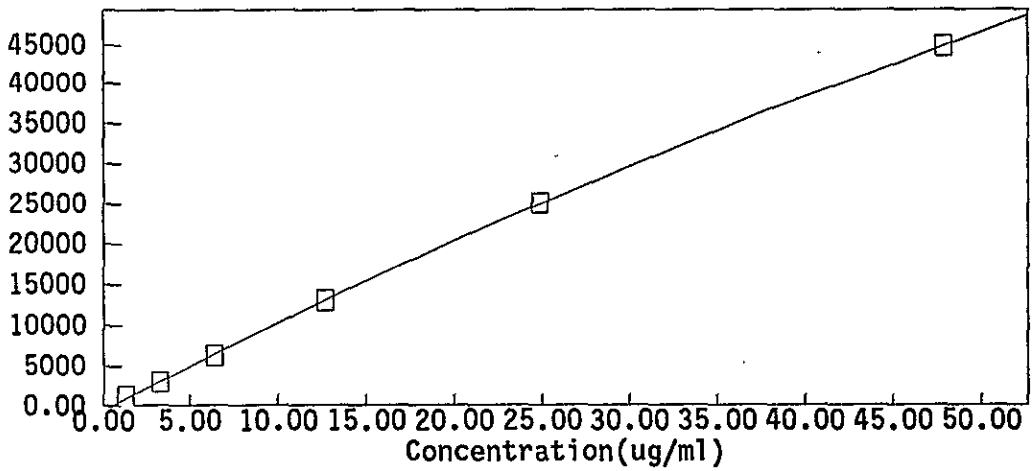
| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 9.62100E-001 | 6077 | 338 |
| 2 | 2.39800E+000 | 17483 | 922 |
| 3 | 4.77230E+000 | 36861 | 1890 |
| 4 | 9.45100E+000 | 79004 | 4005 |
| 5 | 1.85377E+001 | 163581 | 8158 |
| 6 | 3.57027E+001 | 343157 | 16953 |



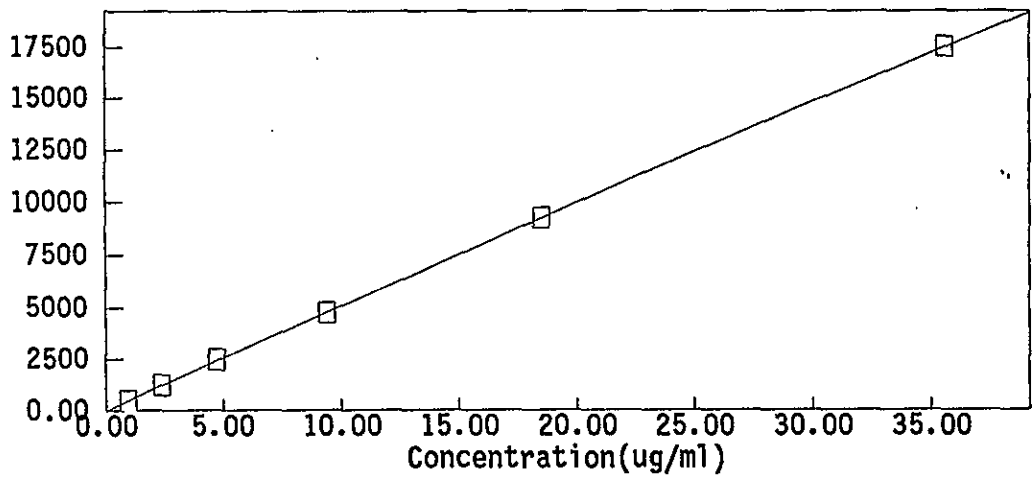

Component: FLUORIDE
Fit Type: Quadratic
Conc = ( -4.298701e-009
( 3.602831e-004 * Resp )+
Standardization:
Calibration: Height



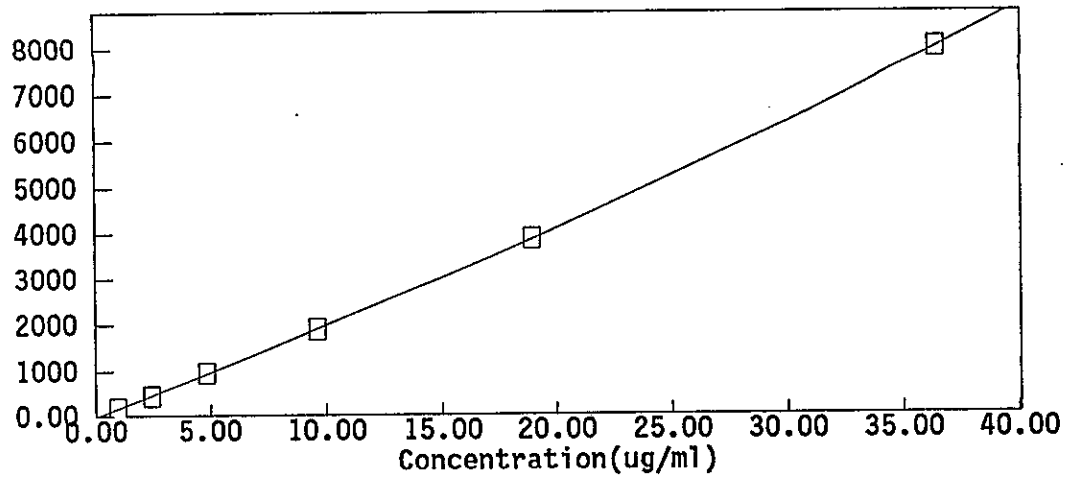

Component: CHLORIDE
Fit Type: Quadratic
Conc = ( -1.515615e-008
( 6.254716e-004 * Resp )+
Standardization:
Calibration: Height



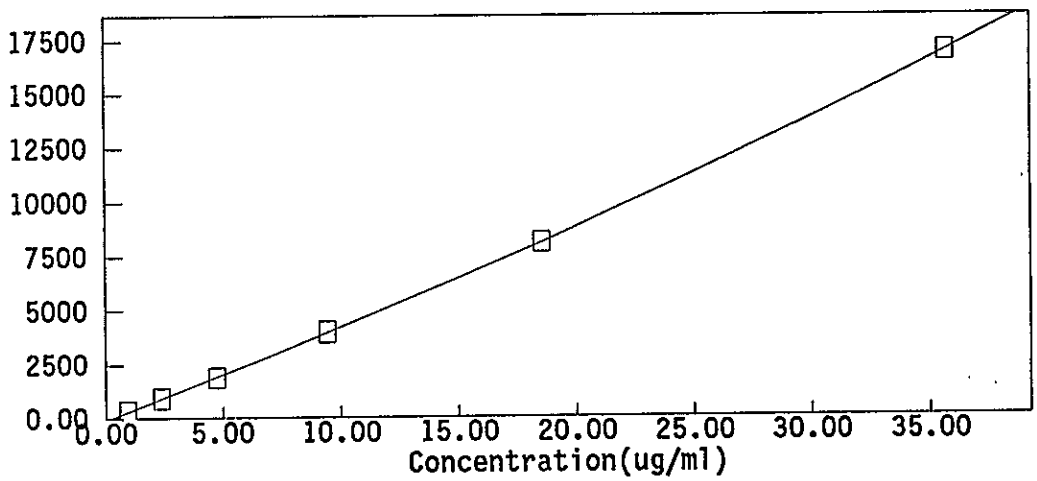

Component: NITRITE
Fit Type: Quadratic
Conc = ( 4.087201e-009 *
( 8.734971e-004 * Resp )+
Standardization:
Calibration: Height




Component: NITRATE
Fit Type: Quadratic
Conc = ( 4.876863e-009 *
( 1.955009e-003 * Resp )+
Standardization:
Calibration: Height




Component: PHOSPHATE
Fit Type: Quadratic
Conc = ( -7.811152e-008
( 5.163732e-003 * Resp )+
Standardization:
Calibration: Height




Component: SULFATE
Fit Type: Quadratic
Conc = ( -1.742481e-008
( 2.388730e-003 * Resp )+
Standardization:
Calibration: Height

********** AUTOMATIC CALIBRATION UPDATE **********
Method File: C:\WINDOWS\AI400\METHOD\SST.MET
Calibration Level : 1
********** PEAKS NOT FOUND IN THIS RUN **********

| Name | Adjusted Ret Time | Reference Peak |
|---|---|---|
| NITRITE | 1.90 | 0 |
| NITRATE | 3.28 | 0 |
| Oxalate | 9.94 | 1 |

********** COMPONENTS FOUND IN THIS RUN **********

| COMP NUM | COMPONENT NAME | OLD RET.TIME | MEASURED RET.TIME | NEW RET.TIME | OLD HEIGHT | MEASURED HEIGHT | NEW HEIGHT |
|---|---|---|---|---|---|---|---|
| 1 | FLUORIDE | 0.97 | 0.98 | 0.98 | 2.459e+002 | 2.459e+002 | 2.459e+002 |
| 2 | CHLORIDE | 1.53 | 1.55 | 1.55 | 1.998e+002 | 1.998e+002 | 1.998e+002 |
| 5 | PHOSPHATE | 5.15 | 5.40 | 5.40 | 1.795e+002 | 1.795e+002 | 1.795e+002 |
| 6 | SULFATE | 6.43 | 6.60 | 6.60 | 3.379e+002 | 3.379e+002 | 3.379e+002 |

DATA REPROCESSED ON Sun May 06 14:38:29 1990

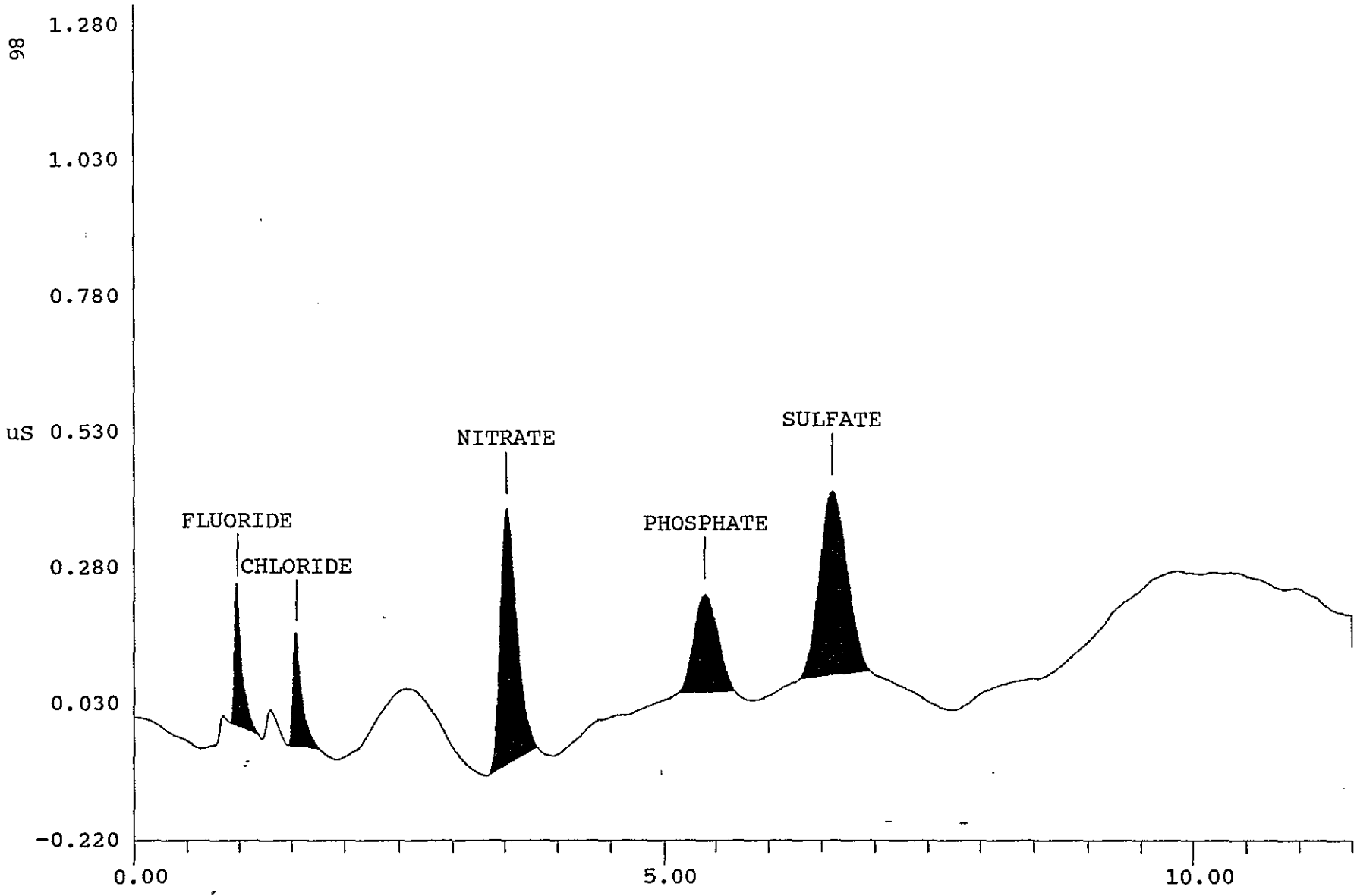
Sample Name: AUTOCAL1R Date: Wed Feb 14 14:51:13 1990
Data File : A:\90021401.D03
Method : C:\WINDOWS\AI400\METHOD\SST.MET
Interface : 1 System : 1 Inject#: 3 Detector: CDM

********** 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 | 9.381e-002 | 1.336e+003 | 246 | 1 | 0 | 0.00% |
| 2 | 1.55 | CHLORIDE | 1.198e-001 | 1.267e+003 | 200 | 1 | 0 | 0.00% |
| 3 | 3.52 | | 0.000e+000 | 5.253e+003 | 468 | 1 | | |
| 4 | 5.40 | PHOSPHATE | 9.820e-001 | 2.854e+003 | 180 | 1 | 0 | 0.00% |
| 5 | 6.60 | SULFATE | 9.621e-001 | 6.077e+003 | 338 | 1 | 0 | 0.00% |

File: A:\90021401.D03 Sample: AUTOCALIR



********** AUTOMATIC CALIBRATION UPDATE **********
Method File: C:\WINDOWS\AI400\METHOD\SST.MET
Calibration Level : 2
********** PEAKS NOT FOUND IN THIS RUN **********

| Name | Adjusted Ret Time | Reference Peak |
|---|---|---|
| NITRITE | 1.90 | 0 |
| Oxalate | 9.60 | 1 |

********** COMPONENTS FOUND IN THIS RUN **********

| COMP NUM | COMPONENT NAME | OLD RET.TIME | MEASURED RET.TIME | NEW RET.TIME | OLD HEIGHT | MEASURED HEIGHT | NEW HEIGHT |
|---|---|---|---|---|---|---|---|
| 1 | FLUORIDE | 0.98 | 0.97 | 0.97 | 6.160e+002 | 6.160e+002 | 6.160e+002 |
| 2 | CHLORIDE | 1.55 | 1.53 | 1.53 | 4.890e+002 | 4.890e+002 | 4.890e+002 |
| 4 | NITRATE | 3.28 | 3.48 | 3.48 | 1.234e+003 | 1.234e+003 | 1.234e+003 |
| 5 | PHOSPHATE | 5.40 | 5.30 | 5.30 | 4.366e+002 | 4.366e+002 | 4.366e+002 |
| 6 | SULFATE | 6.60 | 6.55 | 6.55 | 9.218e+002 | 9.218e+002 | 9.218e+002 |

DATA REPROCESSED ON Sun May 06 14:39:14 1990

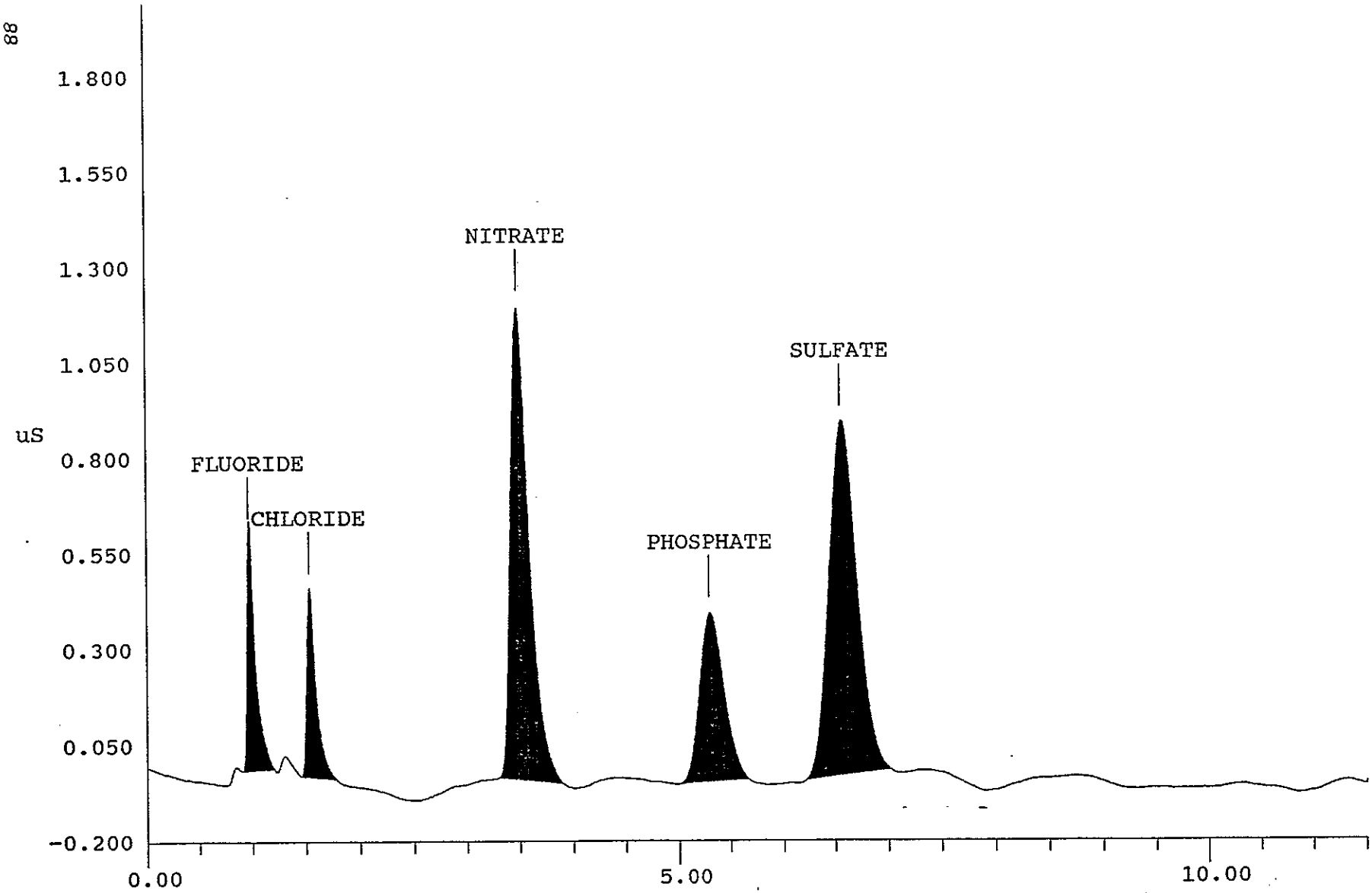
Sample Name: AUTOCAL2R Date: Wed Feb 14 15:03:32 1990
Data File : A:\90021401.D04
Method : C:\WINDOWS\AI400\METHOD\SST.MET
Interface : 1 System : 1 Inject#: 4 Detector: CDM

********** 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



********** AUTOMATIC CALIBRATION UPDATE **********
Method File: C:\WINDOWS\AI400\METHOD\SST.MET
Calibration Level : 3
********** PEAKS NOT FOUND IN THIS RUN **********

| Name | Adjusted Ret Time | Reference Peak |
|---|---|---|
| NITRITE | 1.90 | 0 |
| Oxalate | 9.77 | 1 |

********** COMPONENTS FOUND IN THIS RUN **********

| COMP NUM | COMPONENT NAME | OLD RET.TIME | MEASURED RET.TIME | NEW RET.TIME | OLD HEIGHT | MEASURED HEIGHT | NEW HEIGHT |
|---|---|---|---|---|---|---|---|
| 1 | FLUORIDE | 0.97 | 0.97 | 0.97 | 1.226e+003 | 1.226e+003 | 1.226e+003 |
| 2 | CHLORIDE | 1.53 | 1.53 | 1.53 | 1.017e+003 | 1.017e+003 | 1.017e+003 |
| 4 | NITRATE | 3.48 | 3.45 | 3.45 | 2.460e+003 | 2.460e+003 | 2.460e+003 |
| 5 | PHOSPHATE | 5.30 | 5.32 | 5.32 | 9.477e+002 | 9.477e+002 | 9.477e+002 |
| 6 | SULFATE | 6.55 | 6.57 | 6.57 | 1.890e+003 | 1.890e+003 | 1.890e+003 |

DATA REPROCESSED ON Sun May 06 14:39:59 1990

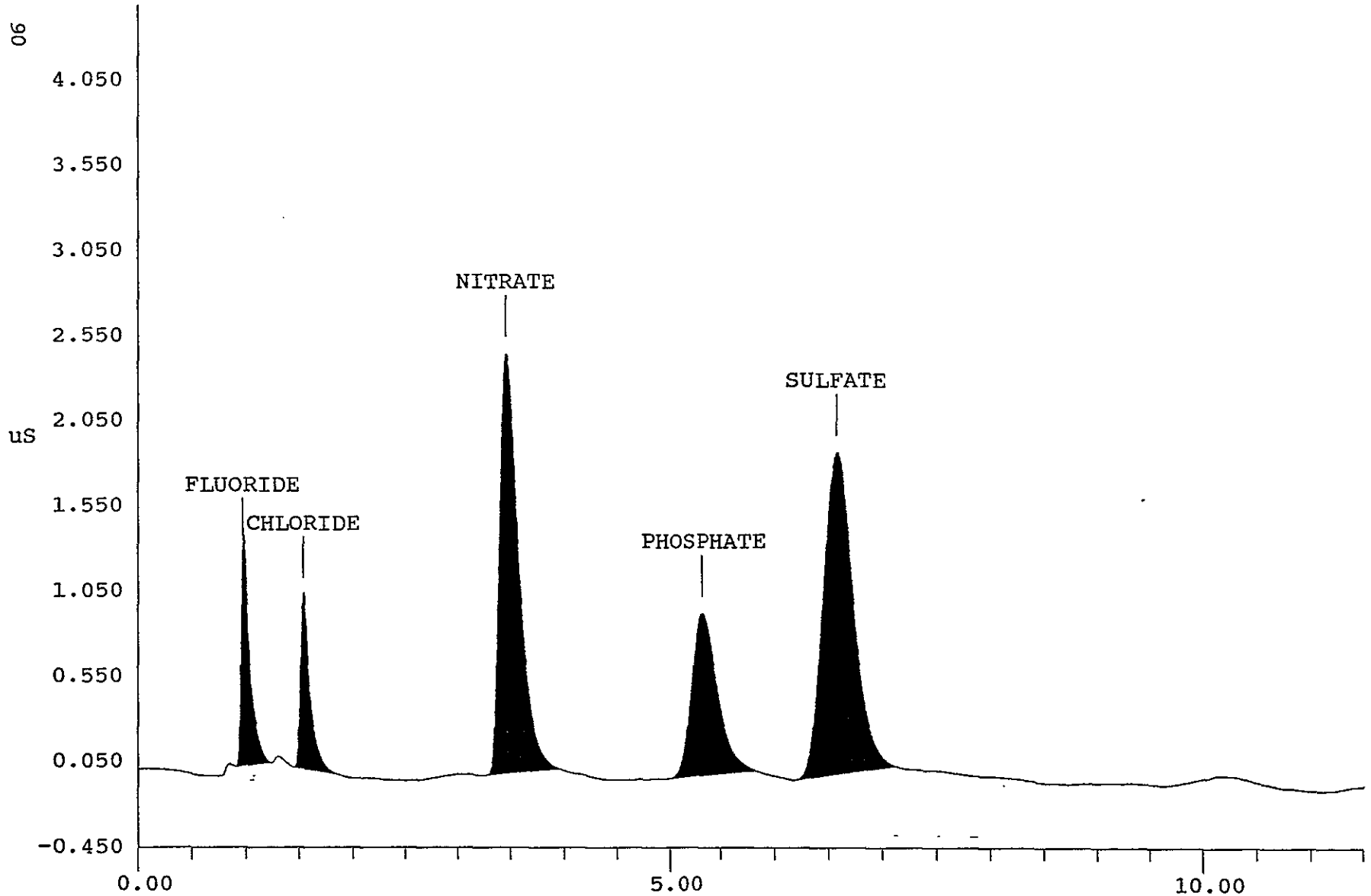
Sample Name: AUTOCAL3R Date: Wed Feb 14 15:15:50 1990
Data File : A:\90021401.D05
Method : C:\WINDOWS\AI400\METHOD\SST.MET
Interface : 1 System : 1 Inject#: 5 Detector: CDM

********** 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



********** AUTOMATIC CALIBRATION UPDATE **********
Method File: C:\WINDOWS\AI400\METHOD\SST.MET
Calibration Level : 4
********** PEAKS NOT FOUND IN THIS RUN **********

| Name | Adjusted Ret Time | Reference Peak |
|---|---|---|
| NITRITE | 1.90 | 0 |
| Oxalate | 9.77 | 1 |

********** COMPONENTS FOUND IN THIS RUN **********

| COMP NUM | COMPONENT NAME | OLD RET.TIME | MEASURED RET.TIME | NEW RET.TIME | OLD HEIGHT | MEASURED HEIGHT | NEW HEIGHT |
|---|---|---|---|---|---|---|---|
| 1 | FLUORIDE | 0.97 | 0.97 | 0.97 | 2.625e+003 | 2.625e+003 | 2.625e+003 |
| 2 | CHLORIDE | 1.53 | 1.53 | 1.53 | 2.088e+003 | 2.088e+003 | 2.088e+003 |
| 4 | NITRATE | 3.45 | 3.40 | 3.40 | 4.753e+003 | 4.753e+003 | 4.753e+003 |
| 5 | PHOSPHATE | 5.32 | 5.33 | 5.33 | 1.886e+003 | 1.886e+003 | 1.886e+003 |
| 6 | SULFATE | 6.57 | 6.57 | 6.57 | 4.005e+003 | 4.005e+003 | 4.005e+003 |

DATA REPROCESSED ON Sun May 06 14:40:45 1990

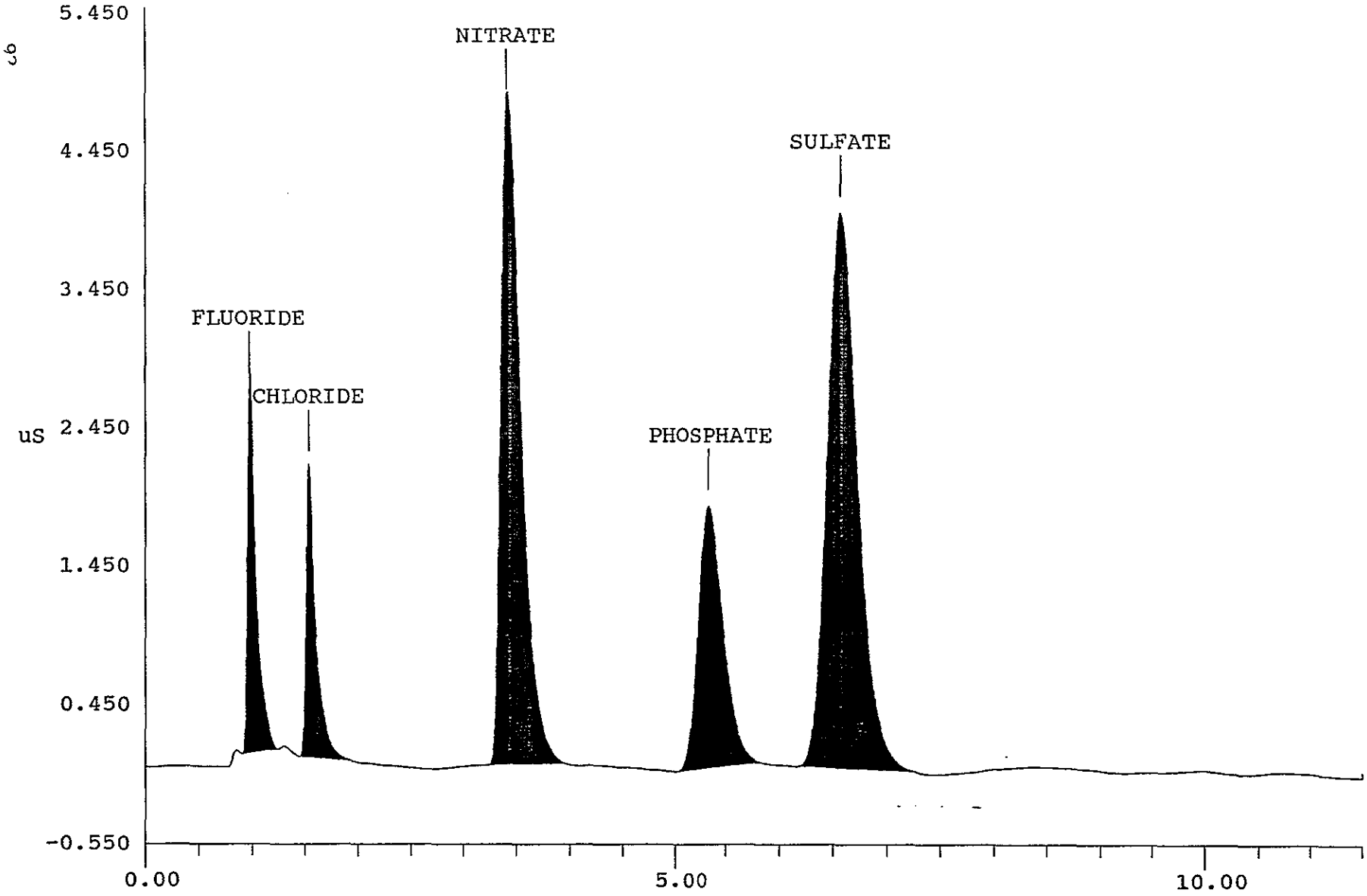
Sample Name: AUTOCAL4R Date: Wed Feb 14 15:28:08 1990
Data File : A:\90021401.D06
Method : C:\WINDOWS\AI400\METHOD\SST.MET
Interface : 1 System : 1 Inject#: 6 Detector: CDM

********** 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



********** AUTOMATIC CALIBRATION UPDATE **********
Method File: C:\WINDOWS\AI400\METHOD\SST.MET
Calibration Level : 5
********** PEAKS NOT FOUND IN THIS RUN **********

| Name | Adjusted Ret Time | Reference Peak |
|---|---|---|
| NITRITE | 1.90 | 0 |
| Oxalate | 9.77 | 1 |

********** COMPONENTS FOUND IN THIS RUN **********

| COMP NUM | COMPONENT NAME | OLD RET.TIME | MEASURED RET.TIME | NEW RET.TIME | OLD HEIGHT | MEASURED HEIGHT | NEW HEIGHT |
|---|---|---|---|---|---|---|---|
| 1 | FLUORIDE | 0.97 | 0.97 | 0.97 | 5.315e+003 | 5.315e+003 | 5.315e+003 |
| 2 | CHLORIDE | 1.53 | 1.53 | 1.53 | 4.066e+003 | 4.066e+003 | 4.066e+003 |
| 4 | NITRATE | 3.40 | 3.37 | 3.37 | 9.250e+003 | 9.250e+003 | 9.250e+003 |
| 5 | PHOSPHATE | 5.33 | 5.37 | 5.37 | 3.876e+003 | 3.876e+003 | 3.876e+003 |
| 6 | SULFATE | 6.57 | 6.58 | 6.58 | 8.158e+003 | 8.158e+003 | 8.158e+003 |

DATA REPROCESSED ON Sun May 06 14:41:30 1990

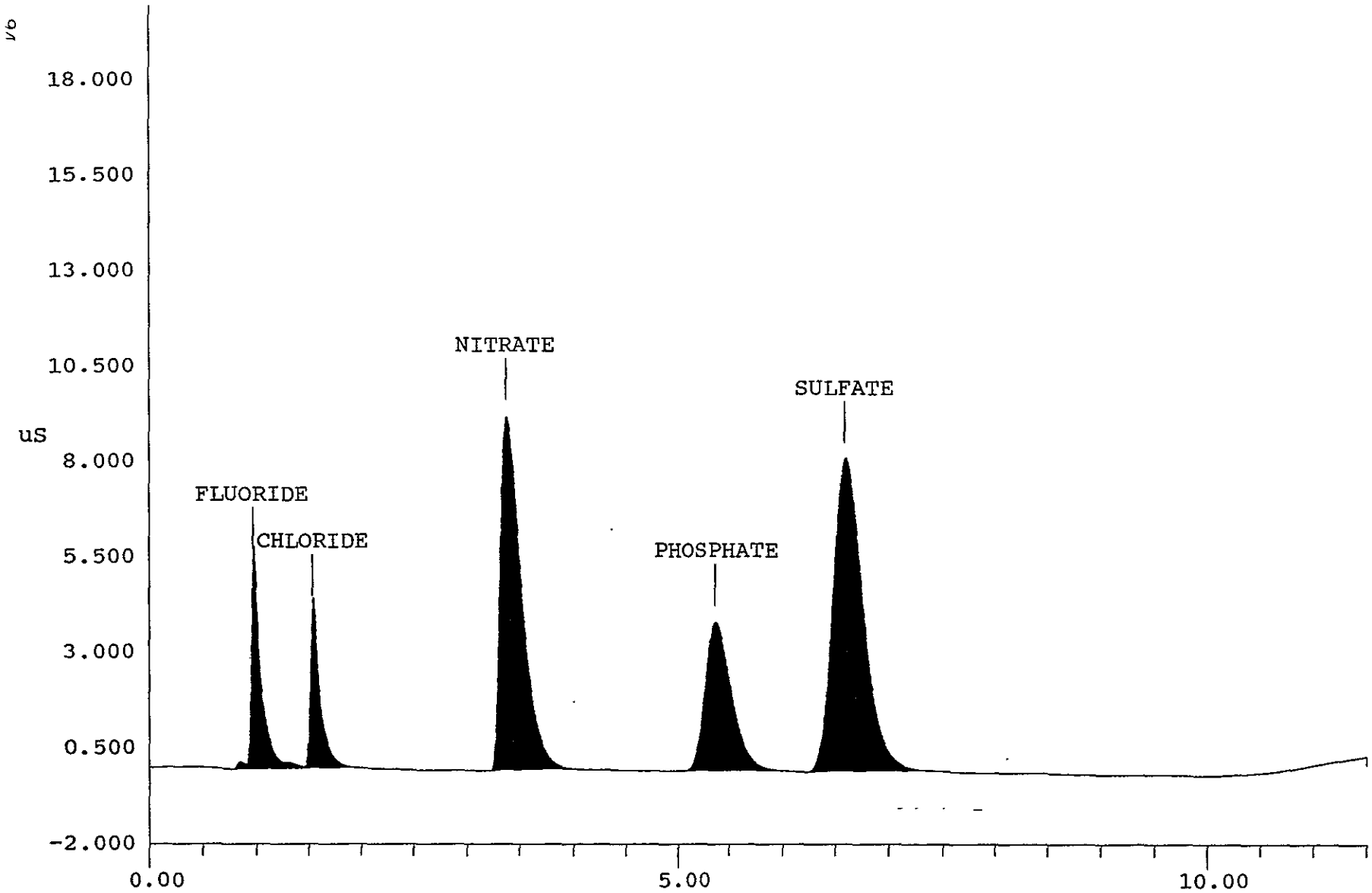
Sample Name: AUTOCAL5R Date: Wed Feb 14 15:40:27 1990
Data File : A:\90021401.D07
Method : C:\WINDOWS\AI400\METHOD\SST.MET
Interface : 1 System : 1 Inject#: 7 Detector: CDM

********** 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



********** AUTOMATIC CALIBRATION UPDATE **********
Method File: C:\WINDOWS\AI400\METHOD\SST.MET
Calibration Level : 6
********** PEAKS NOT FOUND IN THIS RUN **********

| Name | Adjusted Ret Time | Reference Peak |
|---|---|---|
| NITRITE | 1.90 | 0 |
| Oxalate | 9.77 | 1 |

********** COMPONENTS FOUND IN THIS RUN **********

| COMP NUM | COMPONENT NAME | OLD RET.TIME | MEASURED RET.TIME | NEW RET.TIME | OLD HEIGHT | MEASURED HEIGHT | NEW HEIGHT |
|---|---|---|---|---|---|---|---|
| 1 | FLUORIDE | 0.97 | 0.97 | 0.97 | 1.109e+004 | 1.109e+004 | 1.109e+004 |
| 2 | CHLORIDE | 1.53 | 1.53 | 1.53 | 9.183e+003 | 9.183e+003 | 9.183e+003 |
| 4 | NITRATE | 3.37 | 3.28 | 3.28 | 1.747e+004 | 1.747e+004 | 1.747e+004 |
| 5 | PHOSPHATE | 5.37 | 5.15 | 5.15 | 8.003e+003 | 8.003e+003 | 8.003e+003 |
| 6 | SULFATE | 6.58 | 6.43 | 6.43 | 1.695e+004 | 1.695e+004 | 1.695e+004 |

DATA REPROCESSED ON Sun May 06 14:42:15 1990

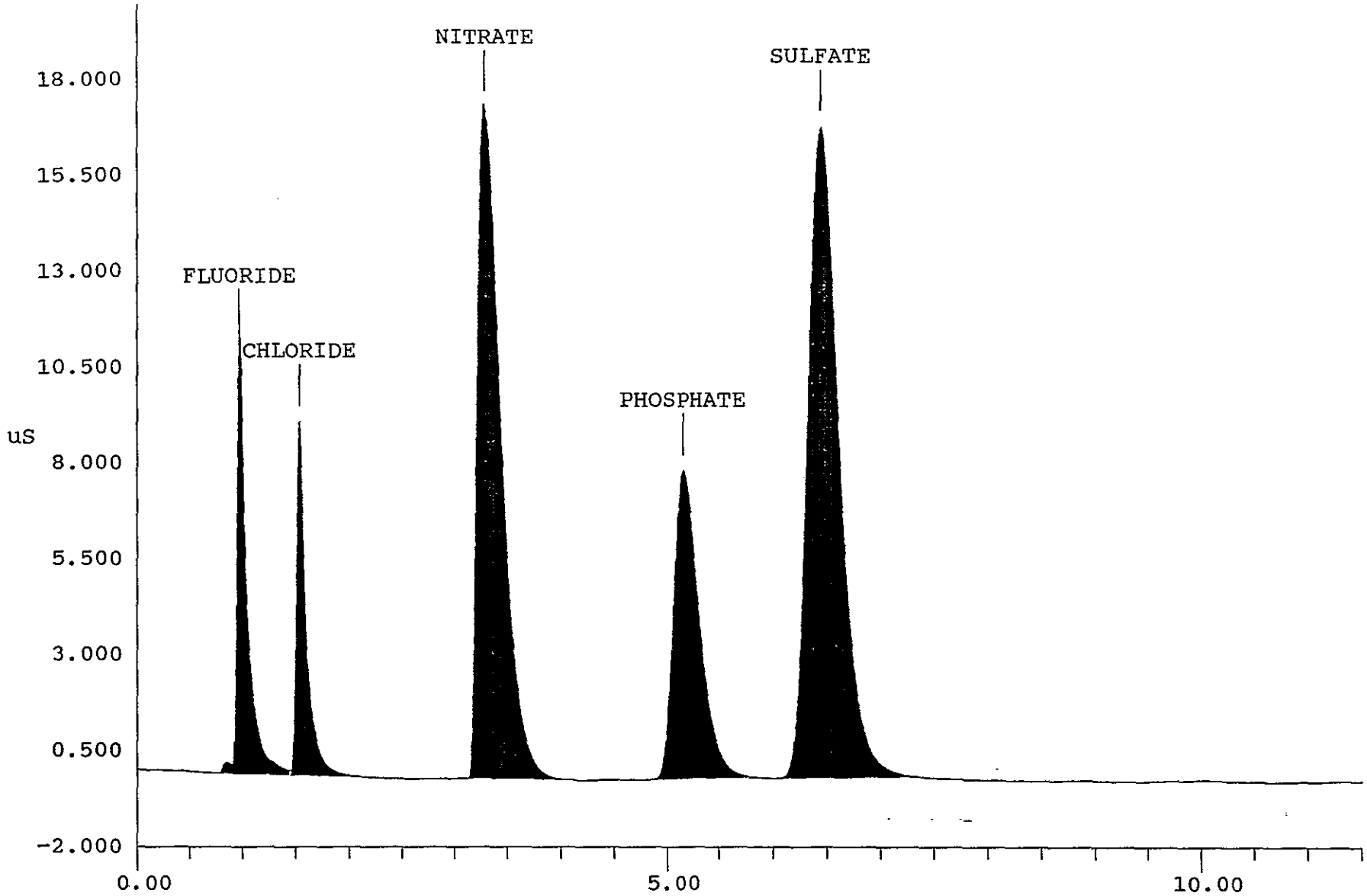
Sample Name: AUTOCAL6R Date: Wed Feb 14 15:52:46 1990
Data File : A:\90021401.D08
Method : C:\WINDOWS\AI400\METHOD\SST.MET
Interface : 1 System : 1 Inject#: 8 Detector: CDM

********** 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:\90021500.SCH

| Inj# | Sample Name | Method Name | Data File | Vol. | Dil. | Int.Std. |
|---|---|---|---|---|---|---|
| 1 | SETUP | ...\sst | ...\900215001 | | 1 | 0 |
| 2 | BLANK | ...\sst | ...\900215001 | | 1 | 0 |
| 3 | LMCS/6C11HI | ...\sst | ...\900215001 | | 101 | 0 |
| 4 | 6294 | ...\sst | ...\900215001 | | 1111 | 0 |
| 5 | LMCS/6C11HI | ...\sst | ...\900215001 | | 101 | 0 |
| 6 | LMCS/73C11J | ...\sst | ...\900215001 | | 101 | 0 |
| 7 | 122B | ...\sst | ...\900215001 | | 1 | 0 |
| 8 | 111 | ...\sst | ...\900215001 | | 101 | 0 |
| 9 | 112D | ...\sst | ...\900215001 | | 101 | 0 |
| 10 | 113S | ...\sst | ...\900215001 | | 101 | 0 |
| 11 | 63 | ...\sst | ...\900215001 | | 101 | 0 |
| 12 | 64D | ...\sst | ...\900215001 | | 101 | 0 |
| 13 | LMCS/6C11HI | ...\sst | ...\900215001 | | 101 | 0 |
| 14 | LMCS/73C11J | ...\sst | ...\900215001 | | 101 | 0 |

DATA REPROCESSED ON Sun May 06 13:51:47 1990

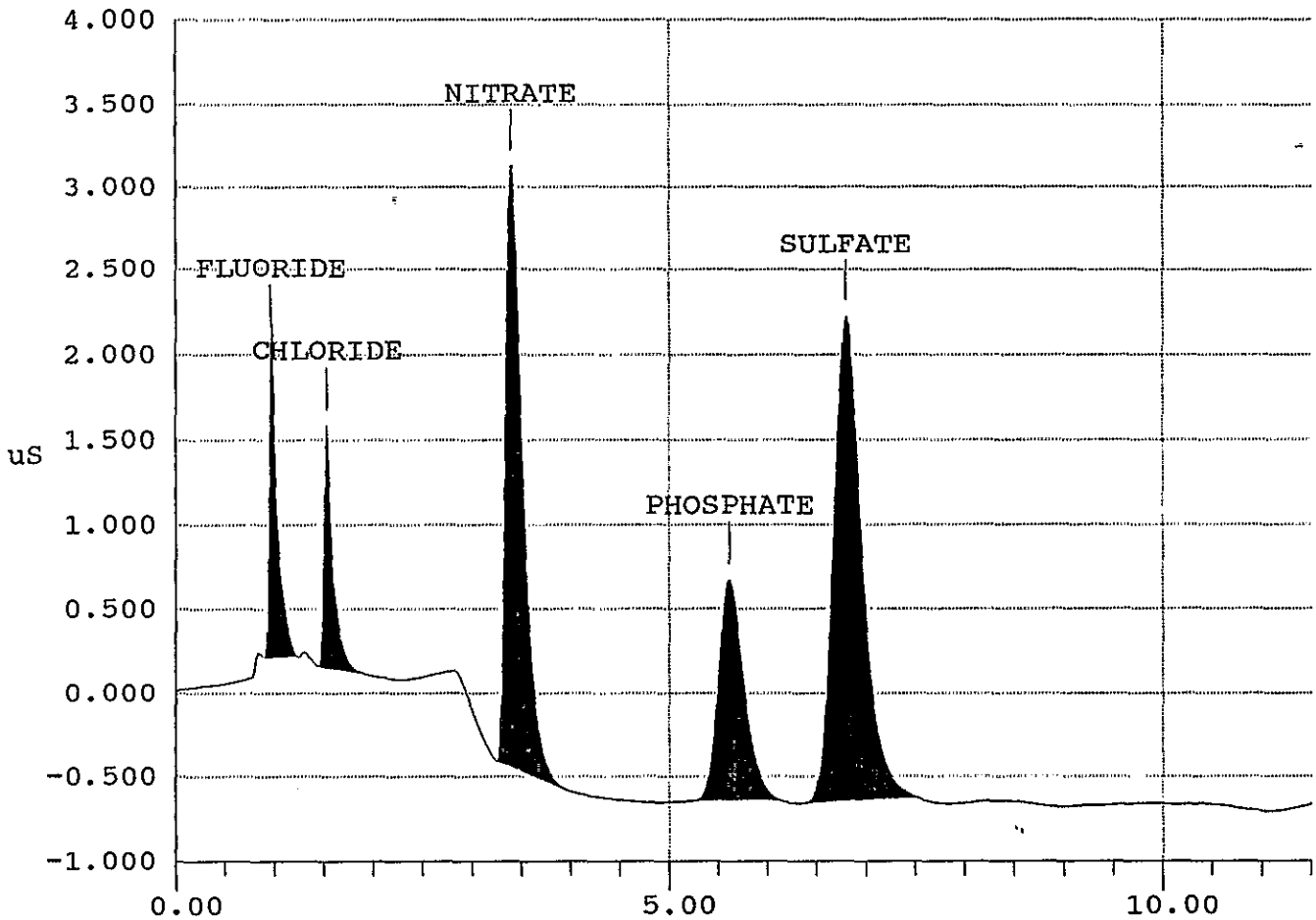
| | |
|---|---|
| Sample Name: LMCS/6C11HI | Date: Thu Feb 15 12:19:28 1990 |
| Data File : A:\90021500.D05 | |
| Method : c:\windows\ai400\method\sst.met | |
| ACI Address: 1 System : 1 Inject#: 5 | Detector: CDM |

********** 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 = 101

| PEAK NUM | RET TIME | PEAK NAME | CONC. in ug/ml | AREA | HEIGHT | BL | REF PEAK | % DELTA RET TIME |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.97 | FLUORIDE | 6.704e+001 | 1.122e+004 | 1845 | 1 | 0 | 0.00% |
| 2 | 1.53 | CHLORIDE | 8.524e+001 | 9.110e+003 | 1426 | 1 | 0 | 0.00% |
| 3 | 3.40 | NITRATE | 7.100e+002 | 4.452e+004 | 3567 | 1 | 0 | 0.00% |
| 4 | 5.62 | PHOSPHATE | 6.809e+002 | 2.401e+004 | 1309 | 1 | 0 | 0.00% |
| 5 | 6.80 | SULFATE | 6.960e+002 | 5.899e+004 | 2855 | 1 | 0 | 5.70% |

File: A:\90021500.D05 Sample: LMCS/6C11HI



DATA REPROCESSED ON Sun May 06 13:45:02 1990

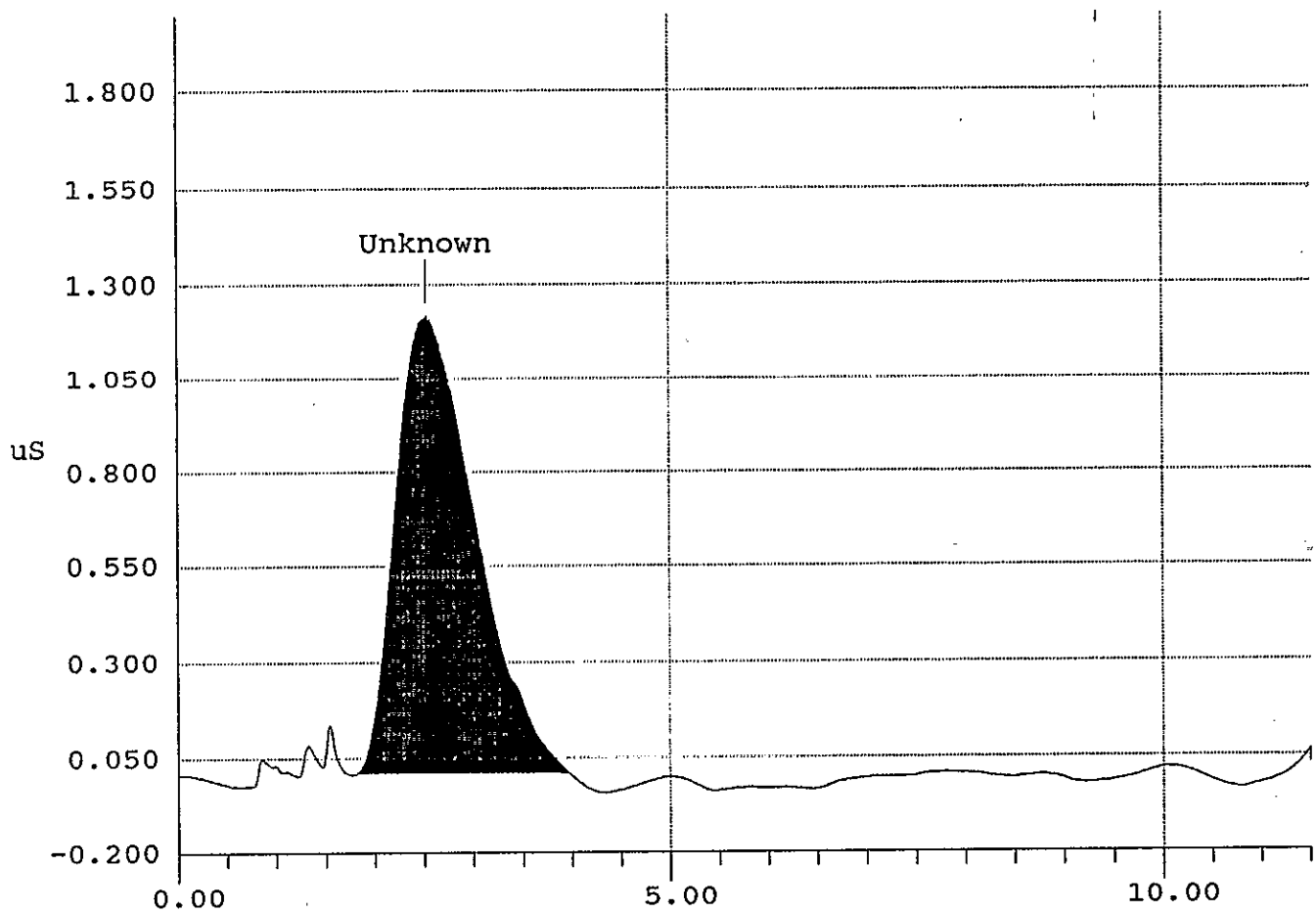
| | |
|---|---|
| Sample Name: BLANK | Date: Thu Feb 15 11:42:40 1990 |
| Data File : A:\90021500.D02 | |
| Method : c:\windows\ai400\method\sst.met | |
| ACI Address: 1 System : 1 Inject#: 2 | Detector: CDM |

********** 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 |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.53 | | 0.000e+000 | 6.737e+004 | 1200 | 1 | | |

File: A:\90021500.D02 Sample: BLANK



DATA REPROCESSED ON Mon May 21 07:24:20 1990

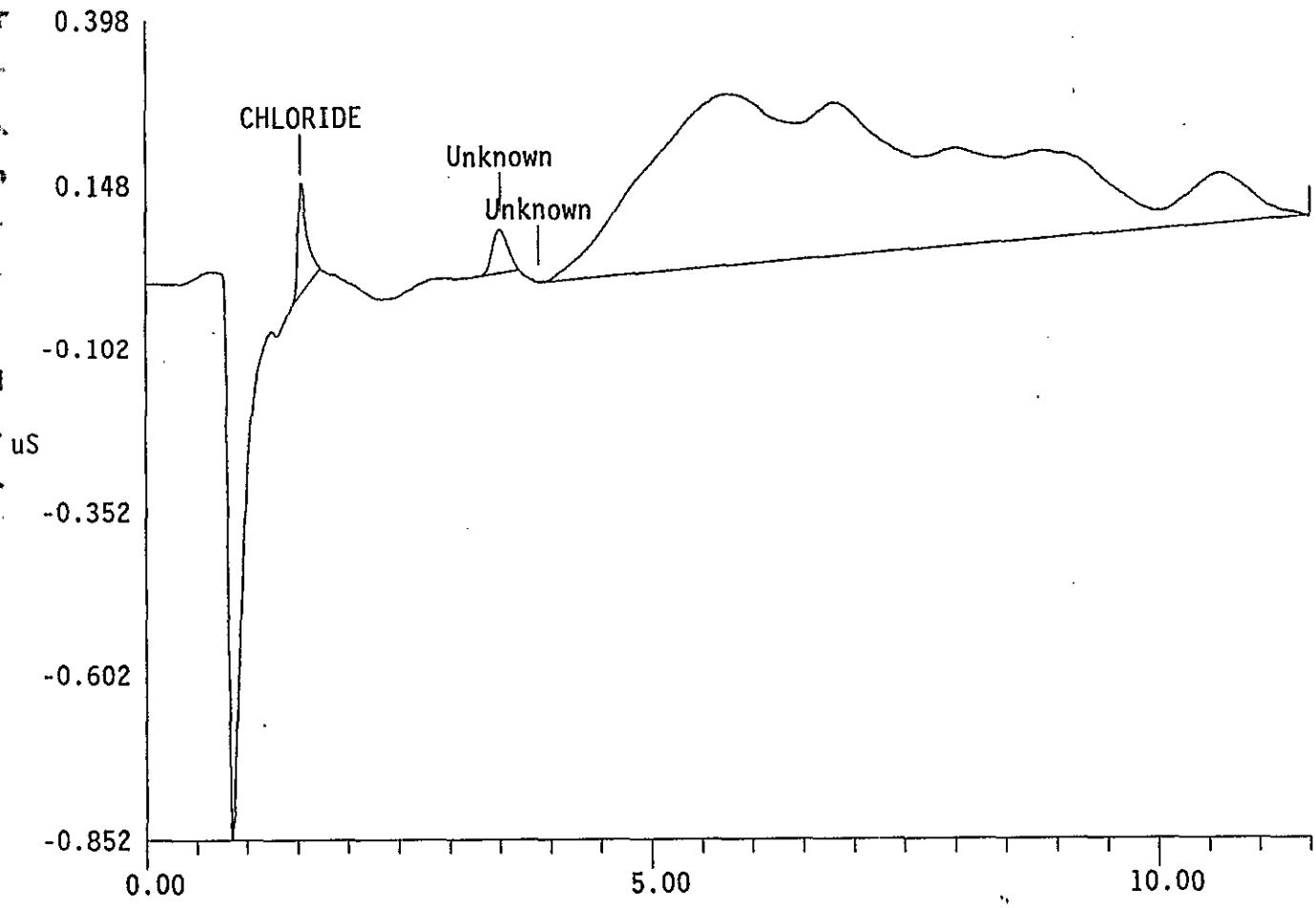
| | |
|---|---|
| Sample Name: 122B | Date: Thu Feb 15 12:44:01 1990 |
| Data File : C:\DX\DATA\90021500.D07 | |
| Method : c:\windows\ai400\method\sst.met | |
| ACI Address: 1 System : 1 Inject#: 7 | Detector: CDM |

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes  Number of Data Points = 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 | 7.990e-002 | 1.008e+003 | 156 | 1 | 0 | 0.00% |
| 3 | 3.89 | | 0.000e+000 | 5.763e+004 | -1 | 1 | | |

File: C:\DX\DATA\90021500.D07 Sample: 122B



DATA REPROCESSED ON Thu May 24 07:45:05 1990

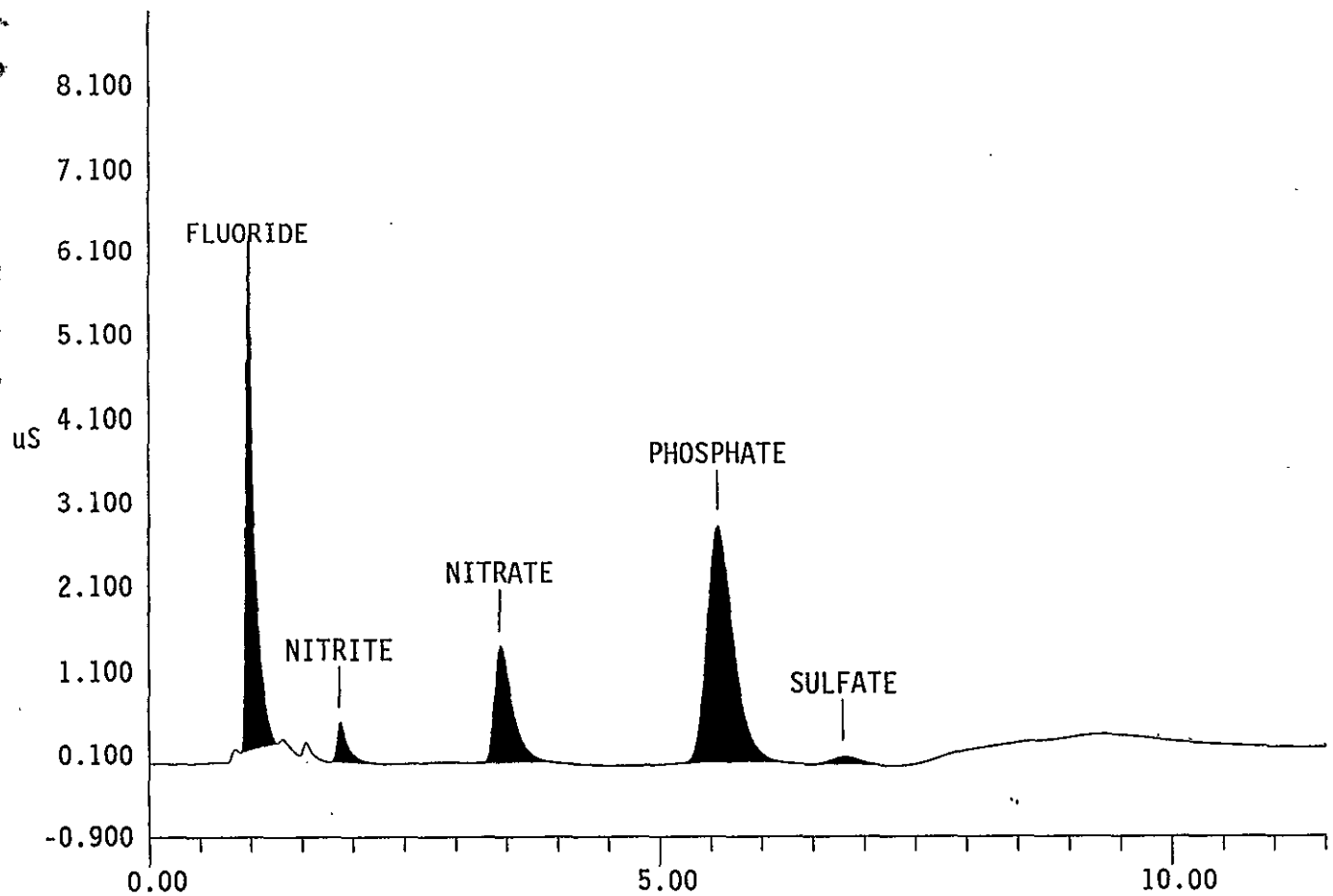
| | |
|---|---|
| Sample Name: 111 | Date: Thu Feb 15 12:56:16 1990 |
| Data File : A:\90021500.D08 | |
| Method : c:\windows\ai400\method\sst.met | |
| ACI Address: 1 System : 1 Inject#: 8 | Detector: CDM |

********** 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 | 1.819e+002 | 3.635e+004 | 5295 | 1 | 0 | 0.00% |
| 2 | 1.87 | NITRITE | 9.151e+001 | 3.375e+003 | 458 | 1 | 0 | 0.00% |
| 3 | 3.43 | NITRATE | 2.703e+002 | 1.737e+004 | 1368 | 1 | 0 | 0.00% |
| 4 | 5.57 | PHOSPHATE | 1.411e+003 | 5.179e+004 | 2803 | 1 | 0 | 0.00% |
| 5 | 6.80 | SULFATE | 4.313e+001 | 1.605e+003 | 90 | 1 | 0 | 5.70% |

File: A:\90021500.D08 Sample: 111




Note: Chromatogram included for spike calculation. See batch sheet.

DATA REPROCESSED ON Thu May 24 07:18:55 1990

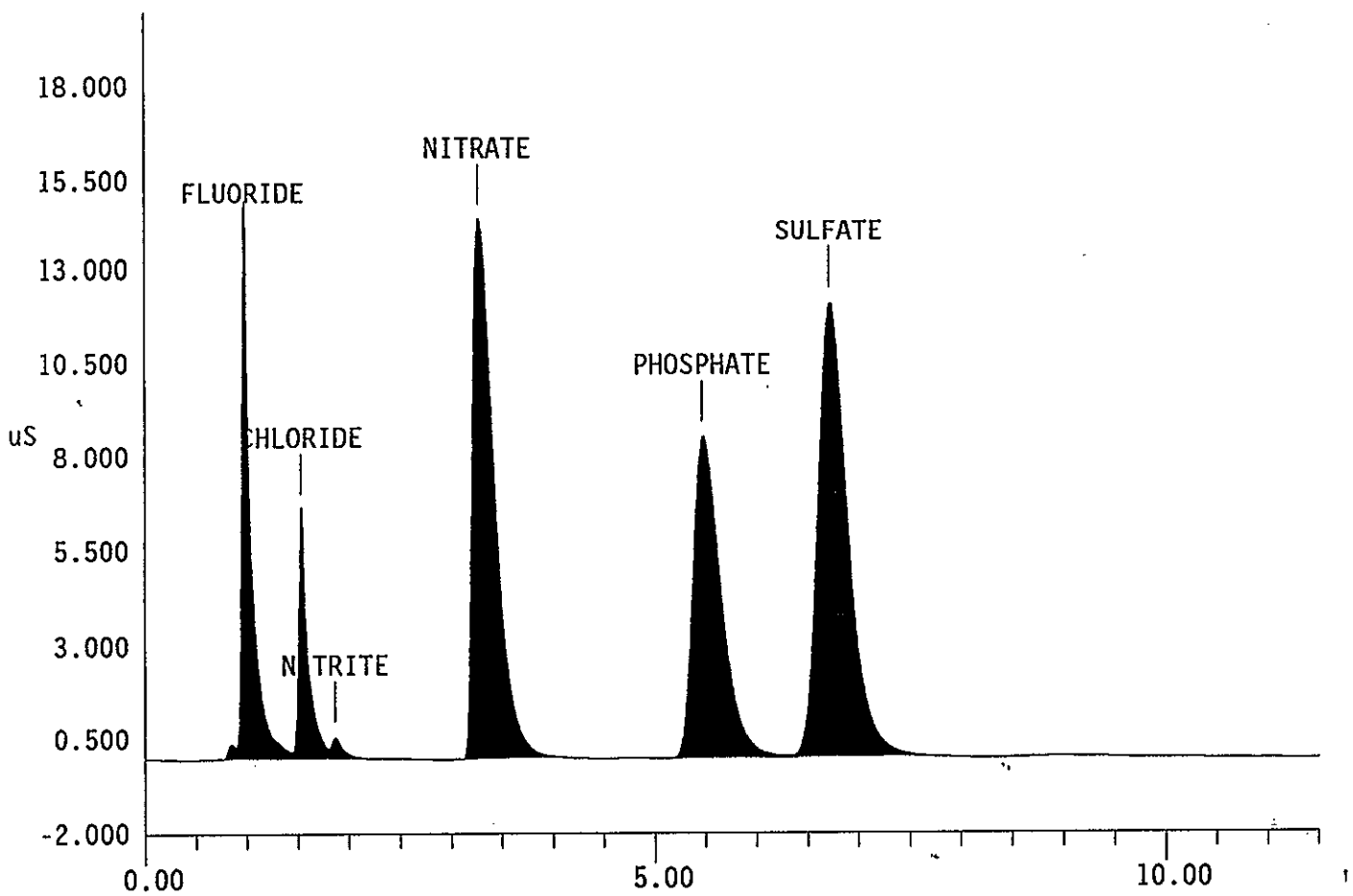
| | |
|---|---|
| Sample Name: 113S | Date: Thu Feb 15 13:20:49 1990 |
| Data File : A:\90021500.D10 | |
| Method : c:\windows\ai400\method\sst.met | |
| ACI Address: 1 System : 1 Inject#: 10 | Detector: CDM |

********** 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 | 4.069e+002 | 1.000e+005 | 13231 | 2 | 0 | 0.00% |
| 2 | 1.53 | CHLORIDE | 3.470e+002 | 4.432e+004 | 6565 | 3 | 0 | 0.00% |
| 3 | 1.87 | NITRITE | 9.066e+001 | 3.394e+003 | 448 | 4 | 0 | 0.00% |
| 4 | 3.27 | NITRATE | 2.951e+003 | 2.218e+005 | 14428 | 1 | 0 | 0.00% |
| 5 | 5.47 | PHOSPHATE | 3.877e+003 | 1.676e+005 | 8506 | 2 | 0 | 0.00% |
| 6 | 6.72 | SULFATE | 2.672e+003 | 2.529e+005 | 12046 | 2 | 0 | 0.00% |

File: A:\90021500.D10 Sample: 113S



DATA REPROCESSED ON Wed May 09 15:10:24 1990

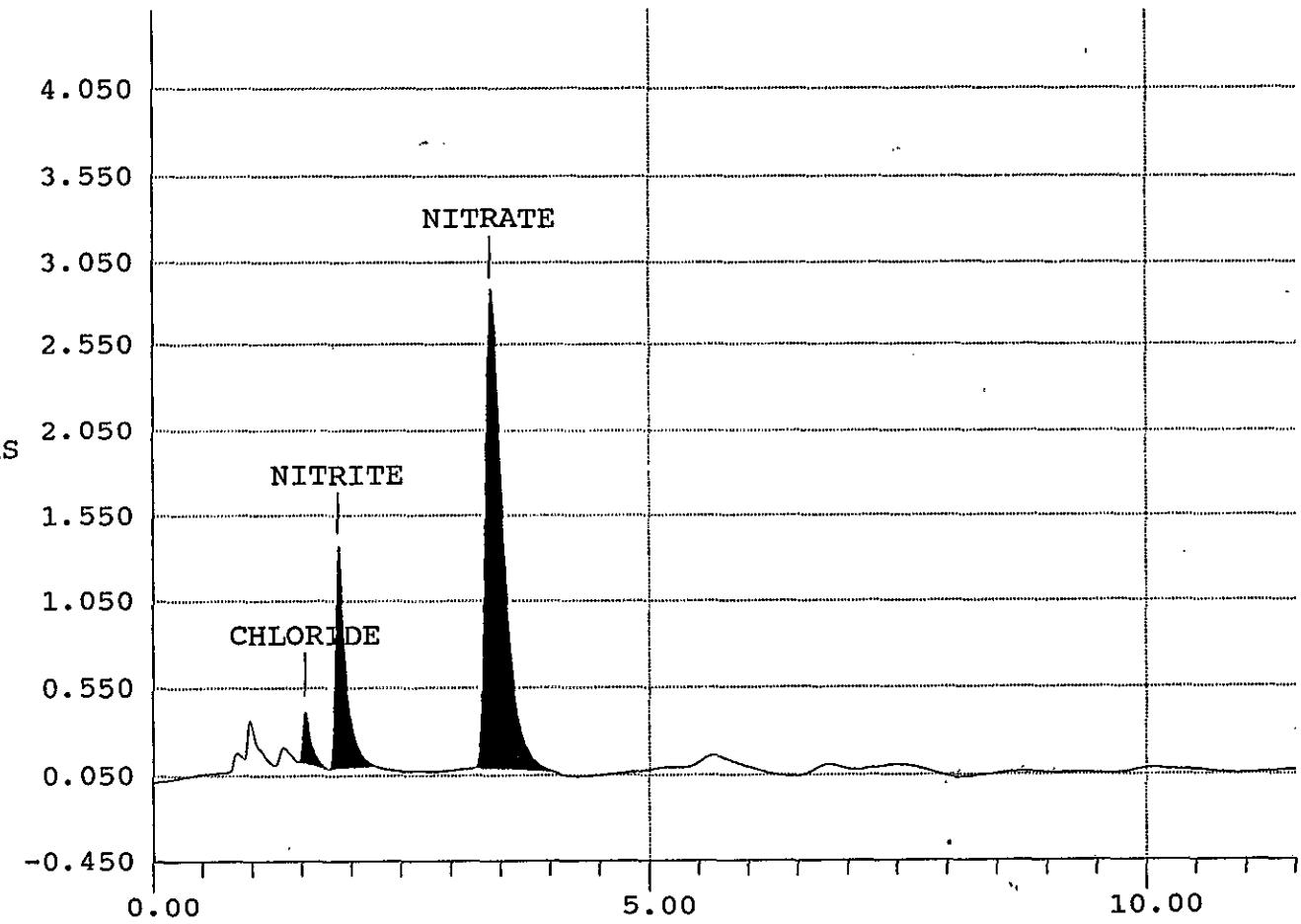
Sample Name: 63 Date: Thu Feb 15 13:33:07 1990
Data File : A:\90021500.D11
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 11 Detector: CDM

********** 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 | 1.53 | CHLORIDE | 1.642e+001 | 1.736e+003 | 290 | 1 | 0 | 0.00% |
| 2 | 1.87 | NITRITE | 1.624e+002 | 9.463e+003 | 1255 | 1 | 0 | 0.00% |
| 3 | 3.40 | NITRATE | 5.510e+002 | 3.598e+004 | 2775 | 1 | 0 | 0.00% |

File: A:\90021500.D11 Sample: 63



DATA REPROCESSED ON Wed May 09 15:04:39 1990

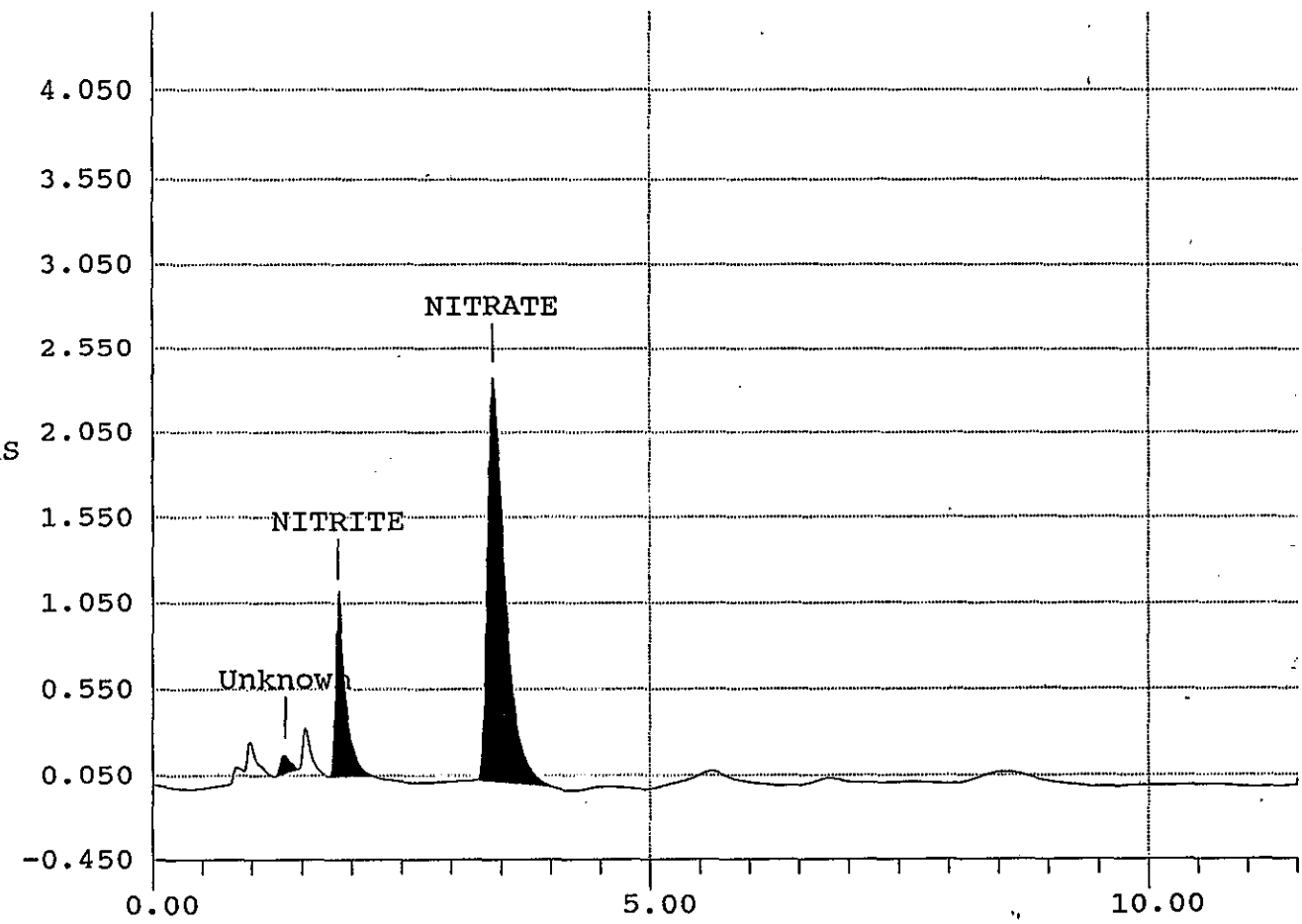
| | |
|---|---|
| Sample Name: 64D | Date: Thu Feb 15 13:45:22 1990 |
| Data File : A:\90021500.D12 | |
| Method : c:\windows\ai400\method\sst.met | |
| ACI Address: 1 System : 1 Inject#: 12 | Detector: CDM |

********** 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 |
|---|---|---|---|---|---|---|---|---|
| 2 | 1.87 | NITRITE | 1.434e+002 | 7.697e+003 | 1042 | 1 | 0 | 0.00% |
| 3 | 3.42 | NITRATE | 4.672e+002 | 3.054e+004 | 2356 | 1 | 0 | -0.00% |

File: A:\90021500.D12 Sample: 64D



DATA REPROCESSED ON Wed May 09 15:07:23 1990

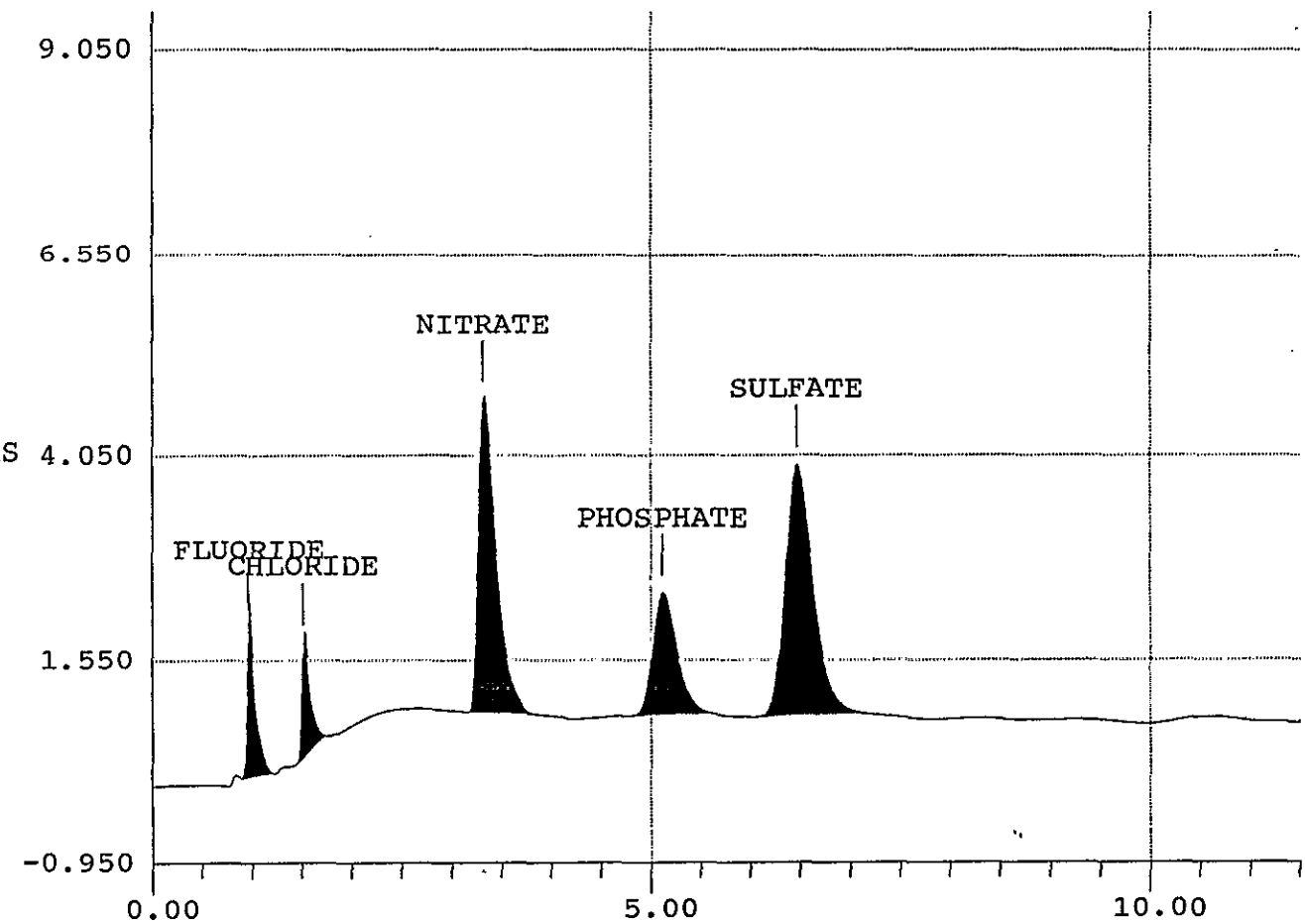
Sample Name: LMCS/6C11HI Date: Thu Feb 15 13:57:37 1990
Data File : A:\90021500.D13
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 13 Detector: CDM

********** 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 | 6.706e+001 | 1.166e+004 | 1845 | 1 | 0 | 0.00% |
| 2 | 1.52 | CHLORIDE | 8.379e+001 | 8.963e+003 | 1402 | 1 | 0 | 0.00% |
| 3 | 3.32 | NITRATE | 7.593e+002 | 4.930e+004 | 3813 | 1 | 0 | 0.00% |
| 4 | 5.12 | PHOSPHATE | 7.649e+002 | 2.497e+004 | 1477 | 1 | 0 | -6.97% |
| 5 | 6.47 | SULFATE | 7.410e+002 | 5.990e+004 | 3050 | 1 | 0 | 0.00% |

File: A:\90021500.D13 Sample: LMCS/6C11HI



# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

| | |
|---|---|
| Instrument | AL10653 |
| Procedure / Rev | LA-533-105/A-3 |
| Technologist | 6B107/N.E. Wright |
| Date | 02/22/90 |
| Temperature | 24 C |
| Starting Time | 12:00 |
| Ending Time | 14:40 |
| Chemist | H. S. Rich |

Ion Chromatograph Analysis

Water Digestion

Re-Ran For Phosphate Only

*Chromatogram Only

| | Description | Lab. Id. |
|---|---|---|
| 1 | Eluent Blank | * |
| 2 | Initial LMCS Check Std. | F0110 |
| 3 | Reagent Blank 89-045 | F0122 |
| 4 | Sample 89-045 | F0111 |
| 5 | Duplicate 89-045 | F0112 |
| 6 | Spike 89-045 | F0113 |
| 7 | Sample 89-043 | F0063 |
| 8 | Duplicate 89-043 | F0064 |
| 9 | Final LMCS Check Std. | F0114 |
| 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. | 6C11HI/100ul | | | 10.10mL |
| Spike | 35C9-67/300uL | F0113/3.02mg | | 5.3mL |
| | | | | |
| | | | | |
| | | | | |

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

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

Approved by: L H Taylor (Signature) L H Taylor (Printed Name) Date: 9/28/90

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

9 1 1 2 1 0 7 1 0

DIONEX SCHEDULE - A:\90022200.SCH

| Inj# | Sample Name | Method Name | Data File | Vol. | Dil. | Int.Std. |
|---|---|---|---|---|---|---|
| 1 | SETUP | ...\sst | ...\900222001 | | 1 | 0 |
| 2 | BLANK | ...\sst | ...\900222001 | | 1 | 0 |
| 3 | LMCS/6C11HI | ...\sst | ...\900222001 | | 101 | 0 |
| 4 | LMCS/73C11J | ...\sst | ...\900222001 | | 101 | 0 |
| 5 | 122B | ...\sst | ...\900222001 | | 1 | 0 |
| 6 | 111 | ...\sst | ...\900222001 | | 101 | 0 |
| 7 | 112D | ...\sst | ...\900222001 | | 101 | 0 |
| 8 | 113S | ...\sst | ...\900222001 | | 101 | 0 |
| 9 | 63 | ...\sst | ...\900222001 | | 101 | 0 |
| 10 | 64D | ...\sst | ...\900222001 | | 101 | 0 |
| 11 | LMCS/6C11HI | ...\sst | ...\900222001 | | 101 | 0 |
| 12 | LMCS/73C11J | ...\sst | ...\900222001 | | 101 | 0 |

DATA REPROCESSED ON Wed Aug 29 13:45:59 1990

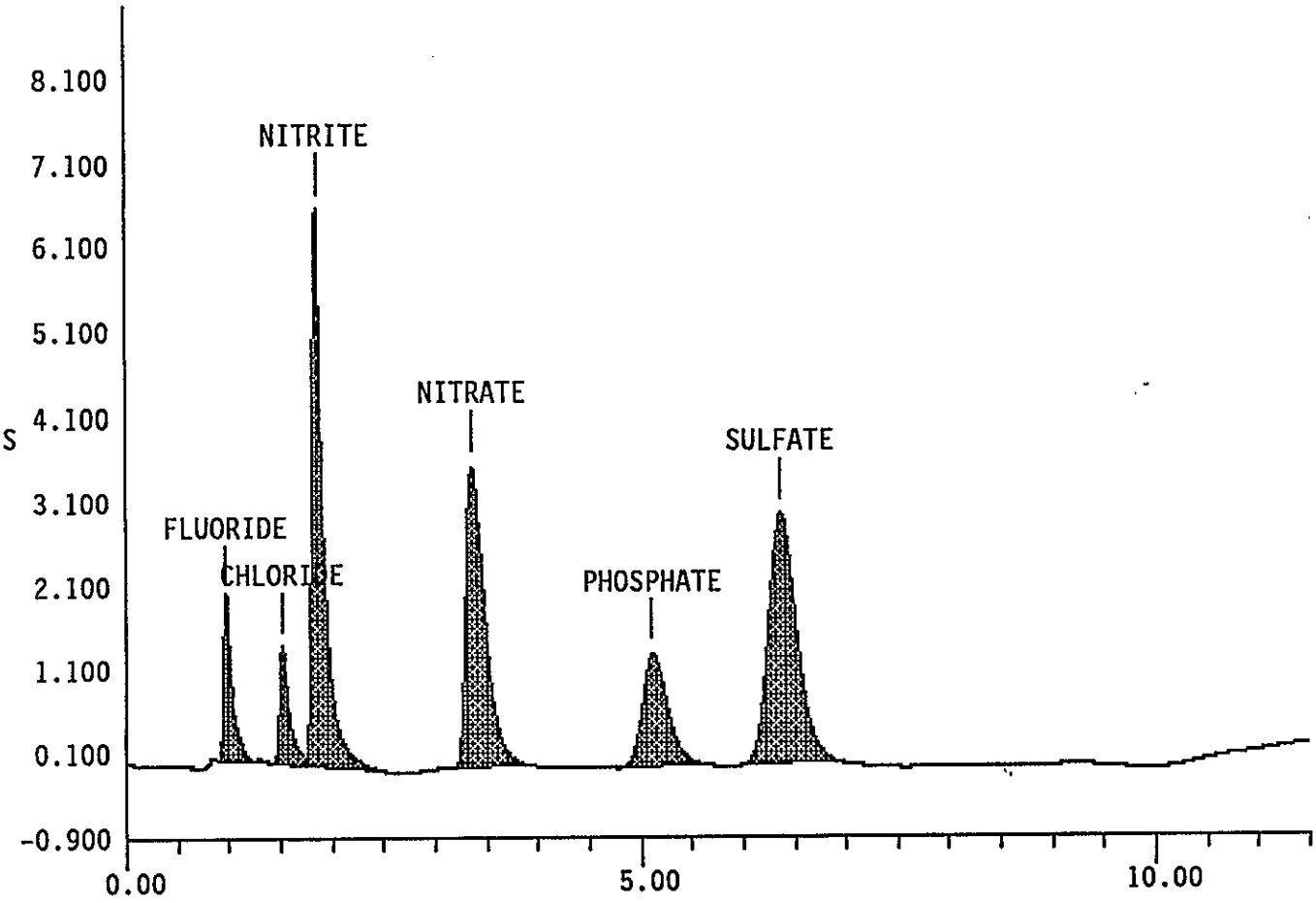
| | |
|---|---|
| Sample Name: LMCS/73C11J | Date: Thu Feb 22 12:13:15 1990 |
| Data File : A:\90-24263.D04 | |
| Method : c:\windows\ai400\method\sst.met | |
| ACI Address: 1 System : 1 Inject#: 4 | Detector: CDM |

********** 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 = 101

| PEAK NUM | RET TIME | PEAK NAME | CONC. in ug/ml | AREA | HEIGHT | BL | REF PEAK | % DELTA RET TIME |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.97 | FLUORIDE | 6.938e+001 | 1.095e+004 | 1912 | 1 | 0 | 0.00% |
| 2 | 1.52 | CHLORIDE | 8.285e+001 | 9.123e+003 | 1386 | 2 | 0 | 0.00% |
| 3 | 1.85 | NITRITE | 6.540e+002 | 5.051e+004 | 6629 | 2 | 0 | 0.00% |
| 4 | 3.37 | NITRATE | 7.114e+002 | 4.580e+004 | 3575 | 1 | 0 | 0.00% |
| 5 | 5.12 | PHOSPHATE | 6.922e+002 | 2.241e+004 | 1331 | 1 | 0 | -6.97% |
| 6 | 6.37 | SULFATE | 7.285e+002 | 5.774e+004 | 2996 | 1 | 0 | 0.00% |

File: A:\90-24263.D04 Sample: LMCS/73C11J



DATA REPROCESSED ON Wed Aug 29 13:22:25 1990

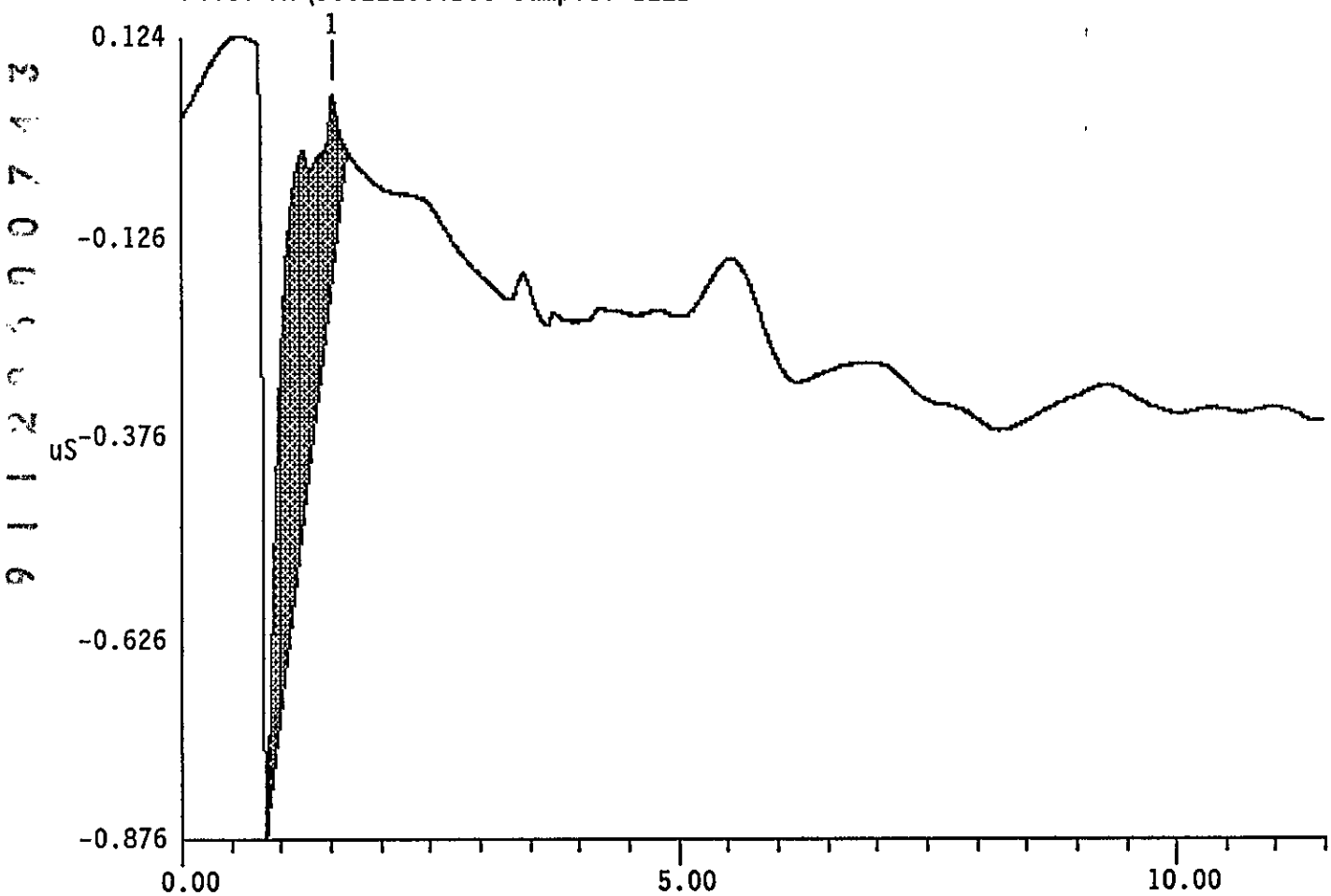
| | |
|---|---|
| Sample Name: 122B | Date: Thu Feb 22 12:25:34 1990 |
| Data File : A:\90022200.D05 | |
| Method : C:\WINDOWS\AI400\METHOD\SST.MET | |
| ACI Address: 1 System : 1 Inject#: 5 | Detector: CDM |

********** 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 | 1.52 | CHLORIDE | 1.244e-001 | 1.564e+004 | 228 | 1 | 0 | 0.00% |

File: A:\90022200.D05 Sample: 122B



DATA REPROCESSED ON Wed Aug 29 13:35:02 1990

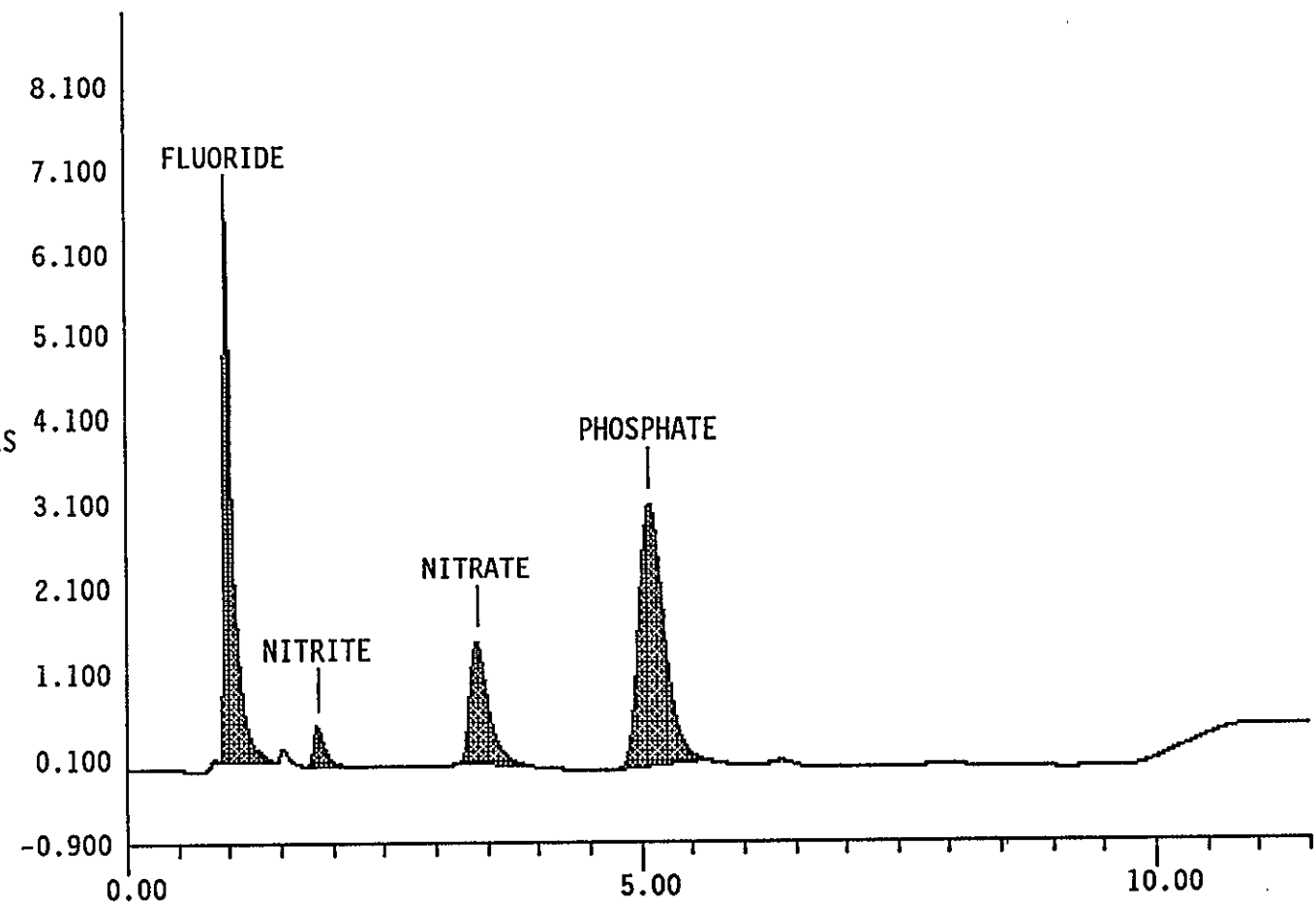
Sample Name: 111 Date: Thu Feb 22 12:37:50 1990
Data File : A:\90022200.D06
Method : C:\WINDOWS\AI400\METHOD\SST.MET
ACI Address: 1 System : 1 Inject#: 6 Detector: CDM

********** 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 | 2.135e+002 | 3.996e+004 | 6302 | 1 | 0 | 0.00% |
| 2 | 1.85 | NITRITE | 9.251e+001 | 3.218e+003 | 469 | 1 | 0 | 0.00% |
| 3 | 3.40 | NITRATE | 2.813e+002 | 1.800e+004 | 1423 | 1 | 0 | 0.00% |
| 4 | 5.08 | PHOSPHATE | 1.550e+003 | 5.343e+004 | 3095 | 1 | 0 | 0.00% |

File: A:\90022200.D06 Sample: 111



DATA REPROCESSED ON Wed Aug 29 13:37:02 1990

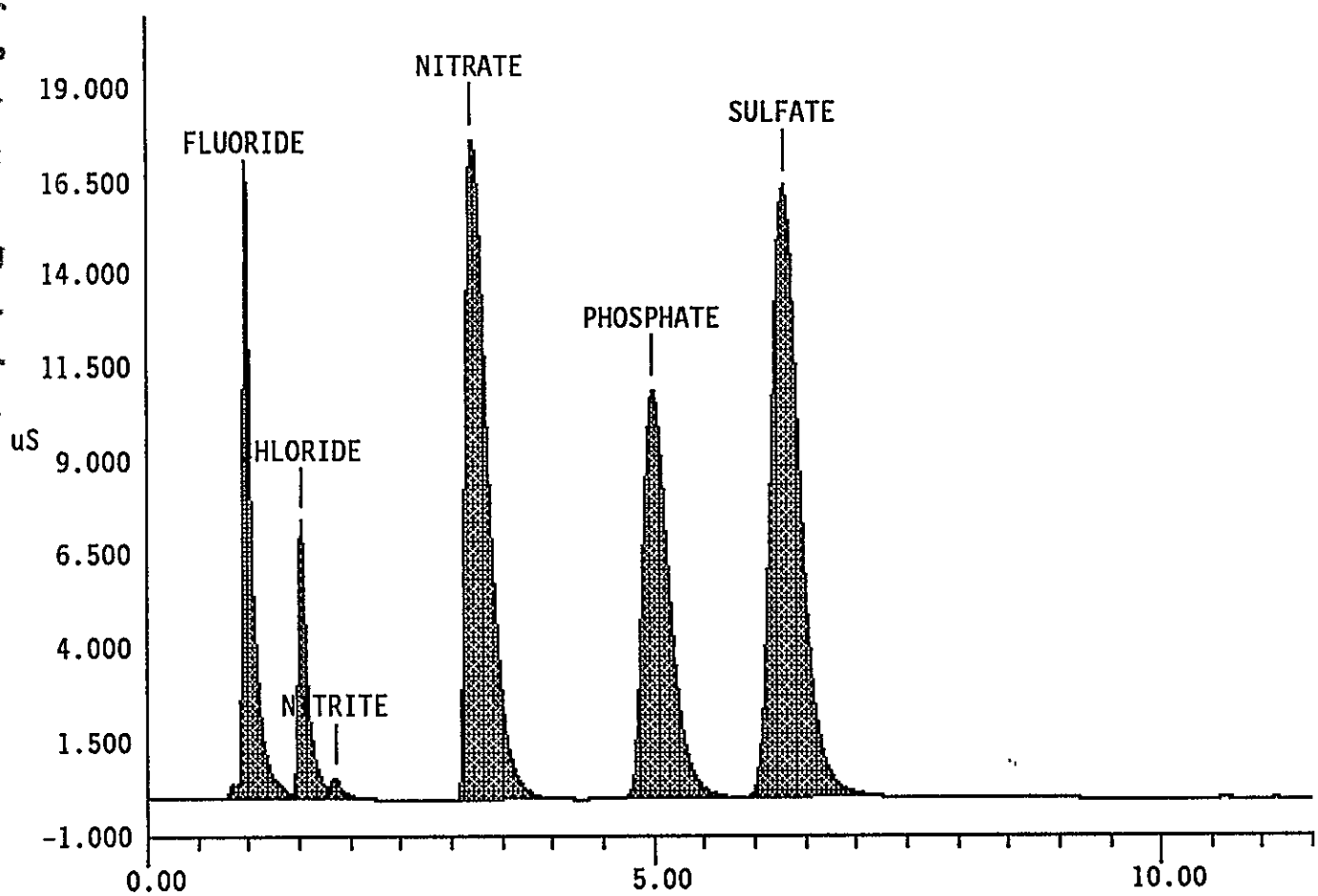
| | |
|---|---|
| Sample Name: 113S | Date: Thu Feb 22 13:02:23 1990 |
| Data File : A:\90022200.D08 | |
| Method : C:\WINDOWS\AI400\METHOD\SST.MET | |
| ACI Address: 1 System : 1 Inject#: 8 | Detector: CDM |

********** 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 = 101

| PEAK NUM | RET TIME | PEAK NAME | CONC. in ug/ml | AREA | HEIGHT | BL | REF PEAK | % DELTA RET TIME |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.97 | FLUORIDE | 4.640e+002 | 1.078e+005 | 15623 | 2 | 0 | 0.00% |
| 2 | 1.52 | CHLORIDE | 3.794e+002 | 4.754e+004 | 7338 | 3 | 0 | 0.00% |
| 3 | 1.85 | NITRITE | 9.137e+001 | 3.247e+003 | 456 | 4 | 0 | 0.00% |
| 4 | 3.20 | NITRATE | 3.645e+003 | 2.721e+005 | 17684 | 1 | 0 | 0.00% |
| 5 | 4.98 | PHOSPHATE | 4.739e+003 | 1.959e+005 | 10839 | 1 | 0 | 0.00% |
| 6 | 6.28 | SULFATE | 3.501e+003 | 3.236e+005 | 16378 | 1 | 0 | 0.00% |

File: A:\90022200.D08 Sample: 113S



DATA REPROCESSED ON Wed Aug 29 13:39:02 1990

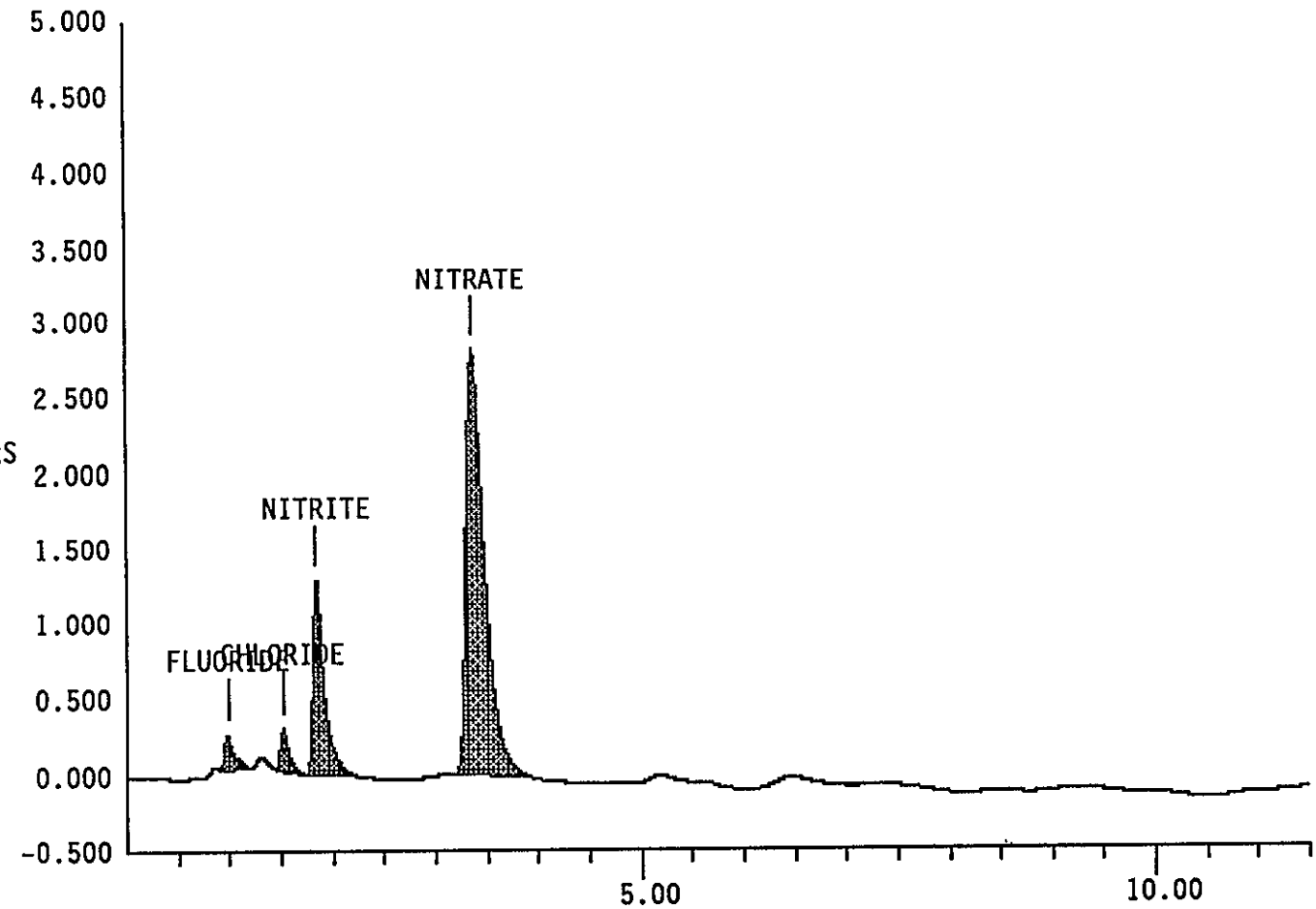
Sample Name: 63 Date: Thu Feb 22 13:14:42 1990
Data File : A:\90022200.D09
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 9 Detector: CDM

********** 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 | 0.98 | FLUORIDE | 9.127e+000 | 1.366e+003 | 213 | 1 | 0 | 0.00% |
| 2 | 1.52 | CHLORIDE | 1.474e+001 | 1.473e+003 | 263 | 1 | 0 | 0.00% |
| 3 | 1.85 | NITRITE | 1.640e+002 | 9.247e+003 | 1273 | 1 | 0 | 0.00% |
| 4 | 3.37 | NITRATE | 5.540e+002 | 3.478e+004 | 2790 | 1 | 0 | 0.00% |

File: A:\90022200.D09 Sample: 63



DATA REPROCESSED ON Wed Aug 29 13:40:23 1990

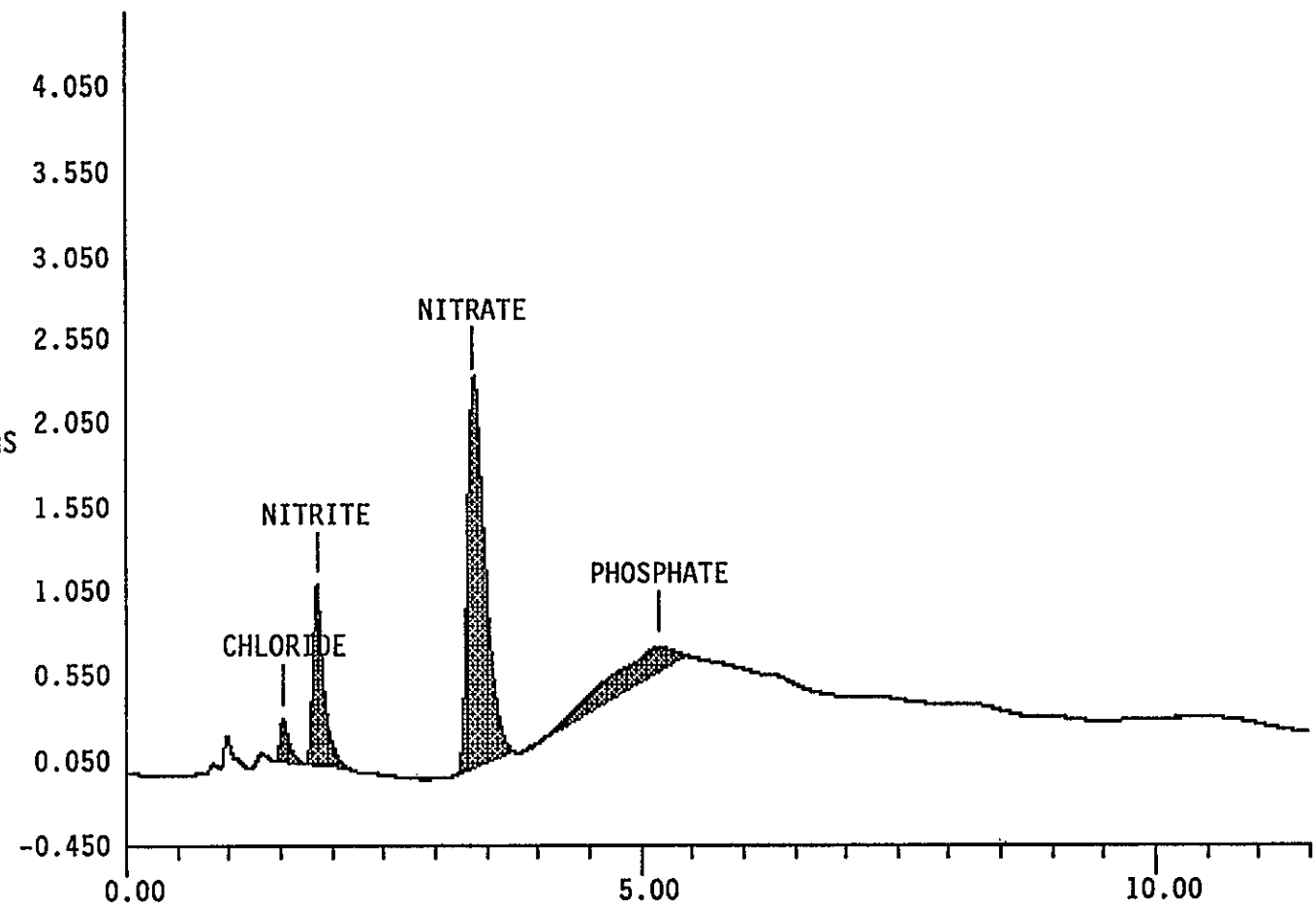
| | |
|---|---|
| Sample Name: 64D | Date: Thu Feb 22 13:26:58 1990 |
| Data File : A:\90022200.D10 | |
| Method : c:\windows\ai400\method\sst.met | |
| ACI Address: 1 System : 1 Inject#: 10 | Detector: CDM |

********** 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 | 1.53 | CHLORIDE | 1.343e+001 | 1.523e+003 | 242 | 2 | 0 | 0.00% |
| 2 | 1.85 | NITRITE | 1.438e+002 | 7.613e+003 | 1046 | 2 | 0 | 0.00% |
| 3 | 3.37 | NITRATE | 4.514e+002 | 2.770e+004 | 2277 | 1 | 0 | 0.00% |
| 4 | 5.18 | PHOSPHATE | 8.670e+001 | 8.244e+003 | 144 | 1 | 0 | -5.76% |

File: A:\90022200.D10 Sample: 64D



DATA REPROCESSED ON Wed Aug 29 13:41:58 1990

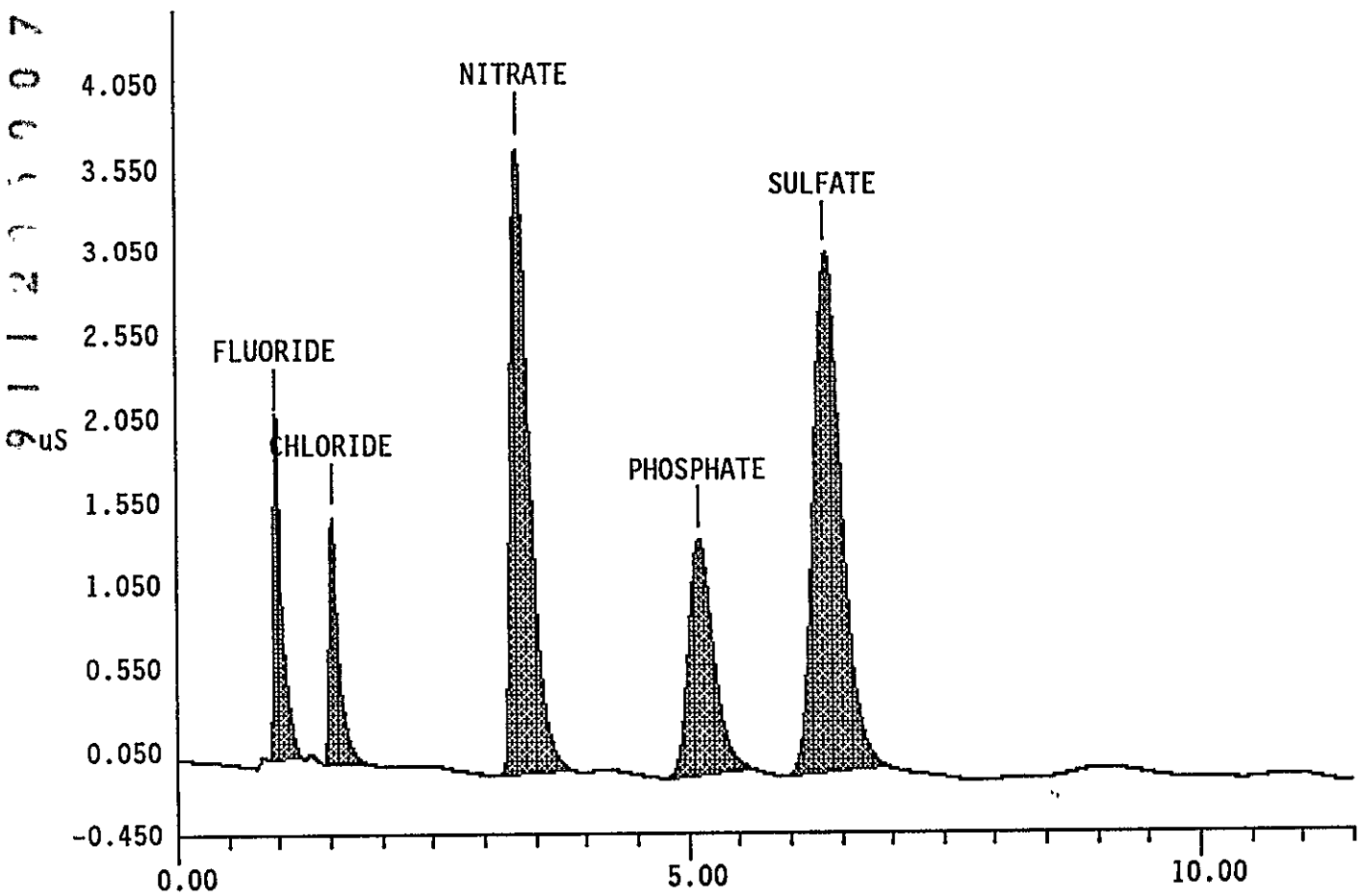
Sample Name: LMCS/6C11HI Date: Thu Feb 22 13:39:15 1990
Data File : A:\90022200.D11
Method : C:\WINDOWS\AI400\METHOD\SST.MET
ACI Address: 1 System : 1 Inject#: 11 Detector: CDM

********** 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 | 7.285e+001 | 1.157e+004 | 2012 | 1 | 0 | 0.00% |
| 2 | 1.52 | CHLORIDE | 8.801e+001 | 9.378e+003 | 1474 | 1 | 0 | 0.00% |
| 3 | 3.33 | NITRATE | 7.474e+002 | 4.753e+004 | 3753 | 1 | 0 | 0.00% |
| 4 | 5.10 | PHOSPHATE | 7.289e+002 | 2.432e+004 | 1405 | 1 | 0 | 0.00% |
| 5 | 6.35 | SULFATE | 7.537e+002 | 5.982e+004 | 3105 | 1 | 0 | 0.00% |

File: A:\90022200.D11 Sample: LMCS/6C11HI



# Analytical Batch

Lab Segment Serial #: F0053

Customer ID: 89-043

| | |
|---|---|
| Instrument | Dionex 4000 |
| Procedure/Rev | LA-533-105/A-3 |
| Technologist | N. E. Wright |
| Date | April 06, 1990 |
| Temperature | 22 C |
| Starting Time | 1100 |
| Ending Time | 1515 |
| Chemist | H. S. Rich |

Ion Chromatograph Analysis

Water Digestion

| | Description | Lab ID |
|---|---|---|
| 1 | Initial LMCS Check Std | F0426 |
| 2 | Reagent Blank 89-070 | F0438 |
| 3 | Sample 89-070 | F0427 |
| 4 | Duplicate Sample 89-070 | F0428 |
| 5 | Spike Sample 89-070 | F0429 |
| 6 | Sample 89-071 | F0451 |
| 7 | Duplicate Sample 89-071 | F0452 |
| 8 | Sample 89-072 | F0475 |
| 9 | Duplicate Sample 89-072 | F0476 |
| 10 | Sample 89-075 | F0547 |
| 11 | Duplicate Sample 89-075 | F0548 |

| | Description | Lab ID |
|---|---|---|
| 12 | Sample 89-076 | F0571 |
| 13 | Duplicate Sample 89-076 | F0572 |
| 14 | Sample Comp 7 | F0983 |
| 15 | Duplicate Sample Comp 7 | F0984 |
| 16 | Duplicate Sample 89-043 | F0064 |
| 17 | Final LMCS Ck Std 89-076 | F0574 |
| 18 | | |
| 19 | | |
| 20 | | |
| 21 | | |
| 22 | | |

| Standard Type | Primary Book # & Aliquot Vol. | Second Book # & Aliquot Vol. | Third Book # & Aliquot Vol. | Final Vol. of Std. |
|---|---|---|---|---|
| LMCS Check Std | 6C11H0/100 uL | | | 10.1 mL |
| Spike | 35C977/300 uL | | | 5.3 mL |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

SST-102 Rev. I 10/2/90 Interim

## 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:\90040300.D05 | |
| 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 |

Component # 1 FLUORIDE Retention Time 1.02
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 4.11817E-004
Least Squares Intercept = -6.11181E-002
Ka = -3.36922E-010

| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 1.19800E-001 | 1733 | 320 |
| 2 | 2.98500E-001 | 4705 | 821 |
| 3 | 5.94100E-001 | 9348 | 1644 |
| 4 | 1.17650E+000 | 21998 | 3547 |
| 5 | 2.30800E+000 | 37180 | 5315 |
| 6 | 4.44440E+000 | 74116 | 11092 |

Component # 2 CHLORIDE Retention Time 1.62
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 7.20825E-004
Least Squares Intercept = -7.89437E-002
Ka = -1.05413E-008

| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 1.51700E-001 | 1456 | 241 |
| 2 | 3.78110E-001 | 4024 | 594 |
| 3 | 7.52480E-001 | 8080 | 1191 |
| 4 | 1.49020E+000 | 17215 | 2702 |
| 5 | 2.92300E+000 | 28370 | 4066 |
| 6 | 5.62950E+000 | 59291 | 9183 |

Component # 3 NITRITE Retention Time 1.95
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 6.03697E-004
Least Squares Intercept = 4.43064E-001
Ka = 3.82504E-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 3.70
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 2.26506E-003
Least Squares Intercept = -5.58779E-001
Ka = 2.11324E-008

| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 1.21960E+000 | 7363 | 607 |
| 2 | 3.03970E+000 | 19564 | 1518 |
| 3 | 6.04950E+000 | 39111 | 2906 |
| 4 | 1.19805E+001 | 83794 | 5858 |
| 5 | 2.34991E+001 | 132213 | 9250 |
| 6 | 4.52580E+001 | 274103 | 17468 |

Component # 6 PHOSPHATE Retention Time 6.03
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 6.51026E-003
Least Squares Intercept = -2.98628E-001
Ka = -1.07878E-007

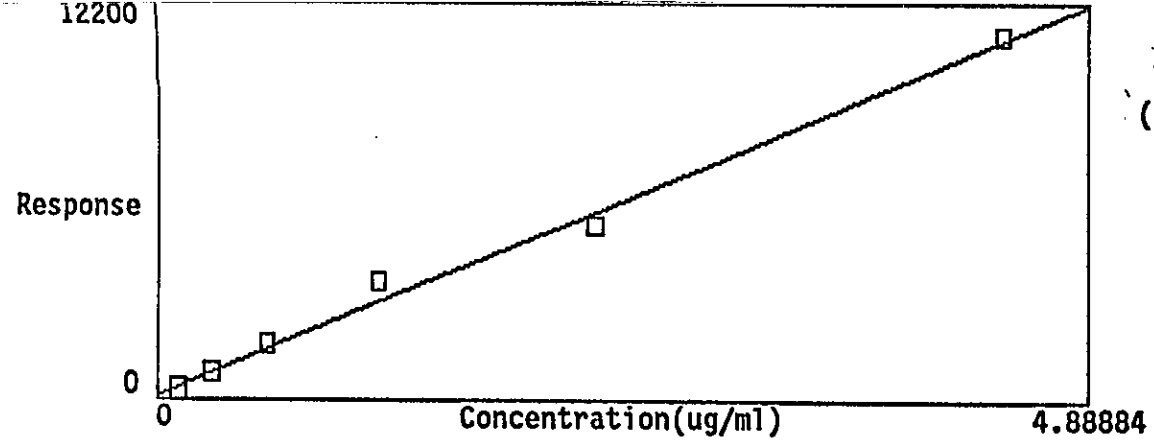
| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 1.20960E+000 | 3420 | 198 |
| 2 | 3.01490E+000 | 9585 | 519 |
| 3 | 6.00000E+000 | 19755 | 1057 |
| 4 | 1.18824E+001 | 32539 | 1886 |
| 5 | 2.33068E+001 | 69406 | 3876 |
| 6 | 4.48876E+001 | 142872 | 8003 |

Component # 7 SULFATE Retention Time 7.48
Reference Peak C:\WINDOWS\AI400\METHOD\SST.MET Window Size
Least Squares Slope = 3.09635E-003
Least Squares Intercept = -7.42866E-001
Ka = -2.82182E-008

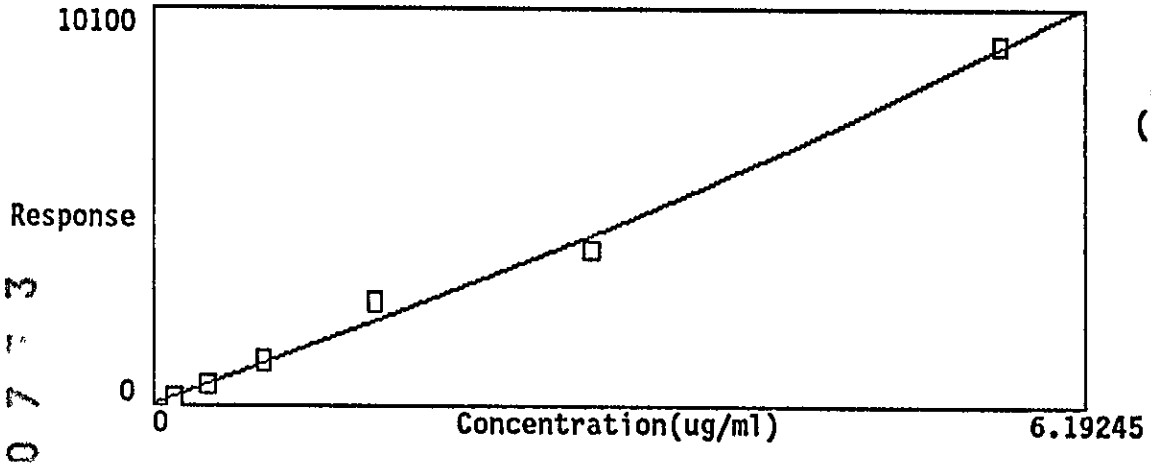
| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 1.17560E+000 | 10745 | 515 |
| 2 | 2.93030E+000 | 26326 | 1236 |
| 3 | 5.83170E+000 | 50588 | 2357 |
| 4 | 1.15491E+001 | 79004 | 4005 |
| 5 | 2.26530E+001 | 163581 | 8158 |
| 6 | 4.36284E+001 | 343157 | 16953 |

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

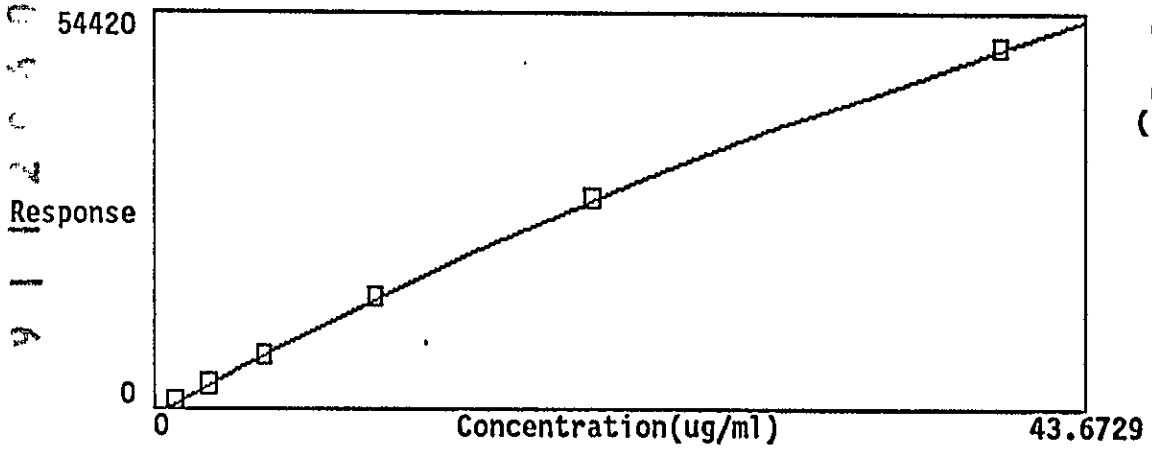
| Level | Amount | Area | Height |
|---|---|---|---|
| 1 | 0.00000E+000 | 0 | 0 |
| 2 | 0.00000E+000 | 0 | 0 |
| 3 | 0.00000E+000 | 0 | 0 |
| 4 | 0.00000E+000 | 0 | 0 |
| 5 | 0.00000E+000 | 0 | 0 |
| 6 | 0.00000E+000 | 98993 | 5848 |



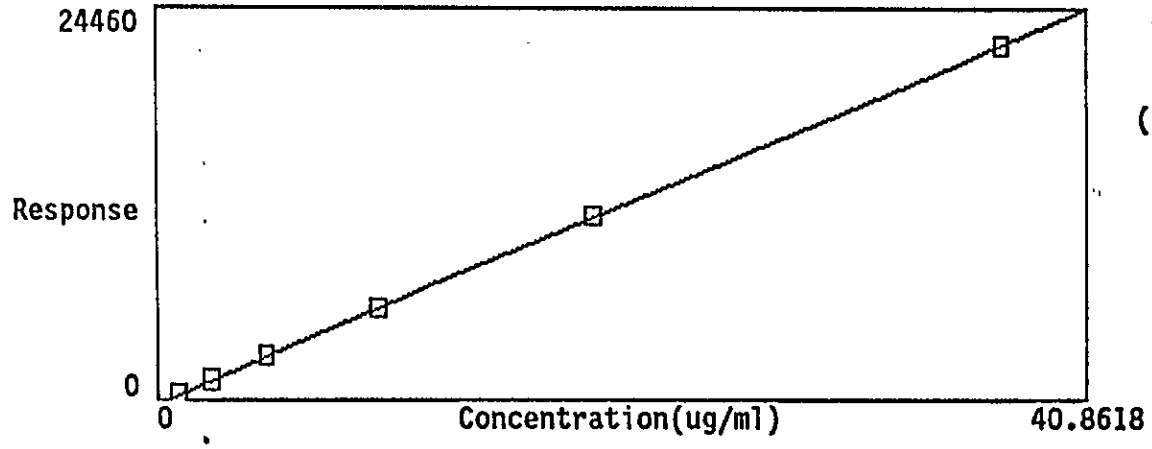

Component: FLUORIDE
Fit Type: Quadratic
Conc = ( -3.369224e-010
( 4.118173e-004 * Resp )+



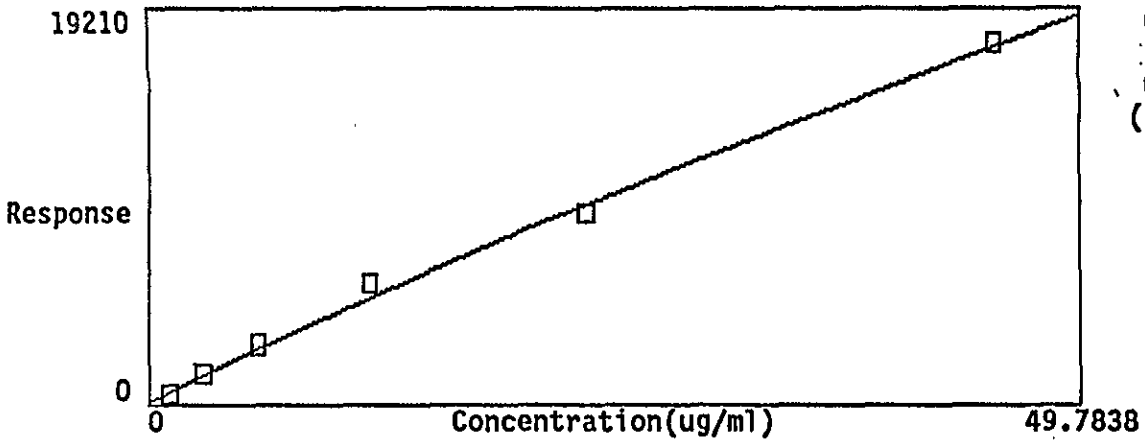

Component: CHLORIDE
Fit Type: Quadratic
Conc = ( -1.054134e-008
( 7.208249e-004 * Resp )+



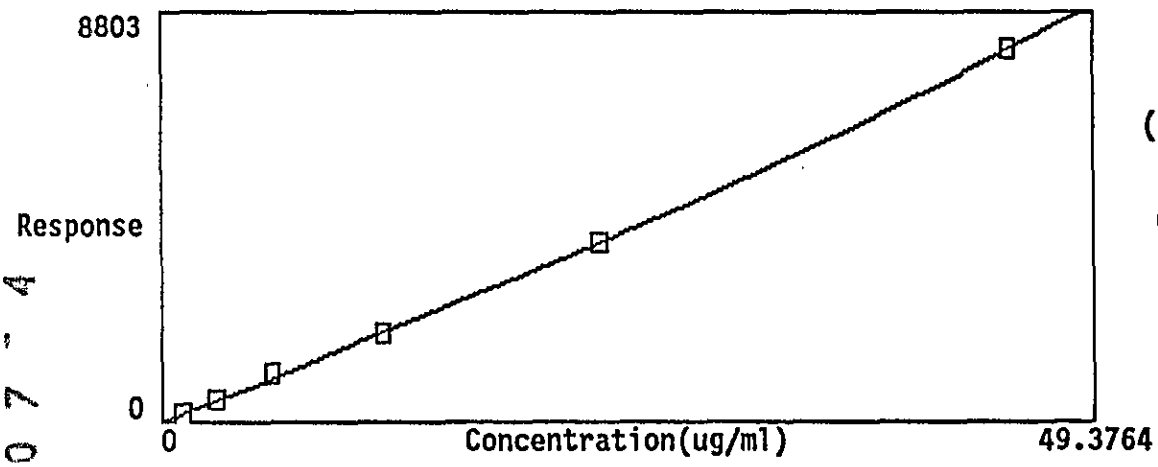

Component: NITRITE
Fit Type: Quadratic
Conc = ( 3.824921e-009 *
( 6.037006e-004 * Resp )+



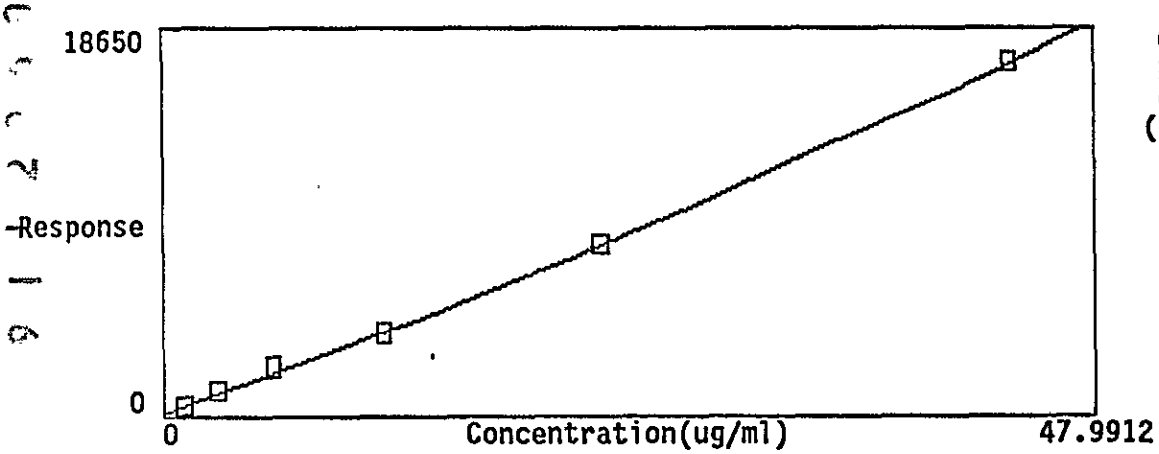

Component: BROMIDE
Fit Type: Quadratic
Conc = ( -5.766983e-010
( 1.669477e-003 * Resp )+




Component: NITRATE
Fit Type: Quadratic
Conc = ( 2.113242e-008 *
( 2.265060e-003 * Resp )+




Component: PHOSPHATE
Fit Type: Quadratic
Conc = ( -1.078779e-007
( 6.510264e-003 * Resp )+




Component: SULFATE
Fit Type: Quadratic
Conc = ( -2.821818e-008
( 3.096352e-003 * Resp )+

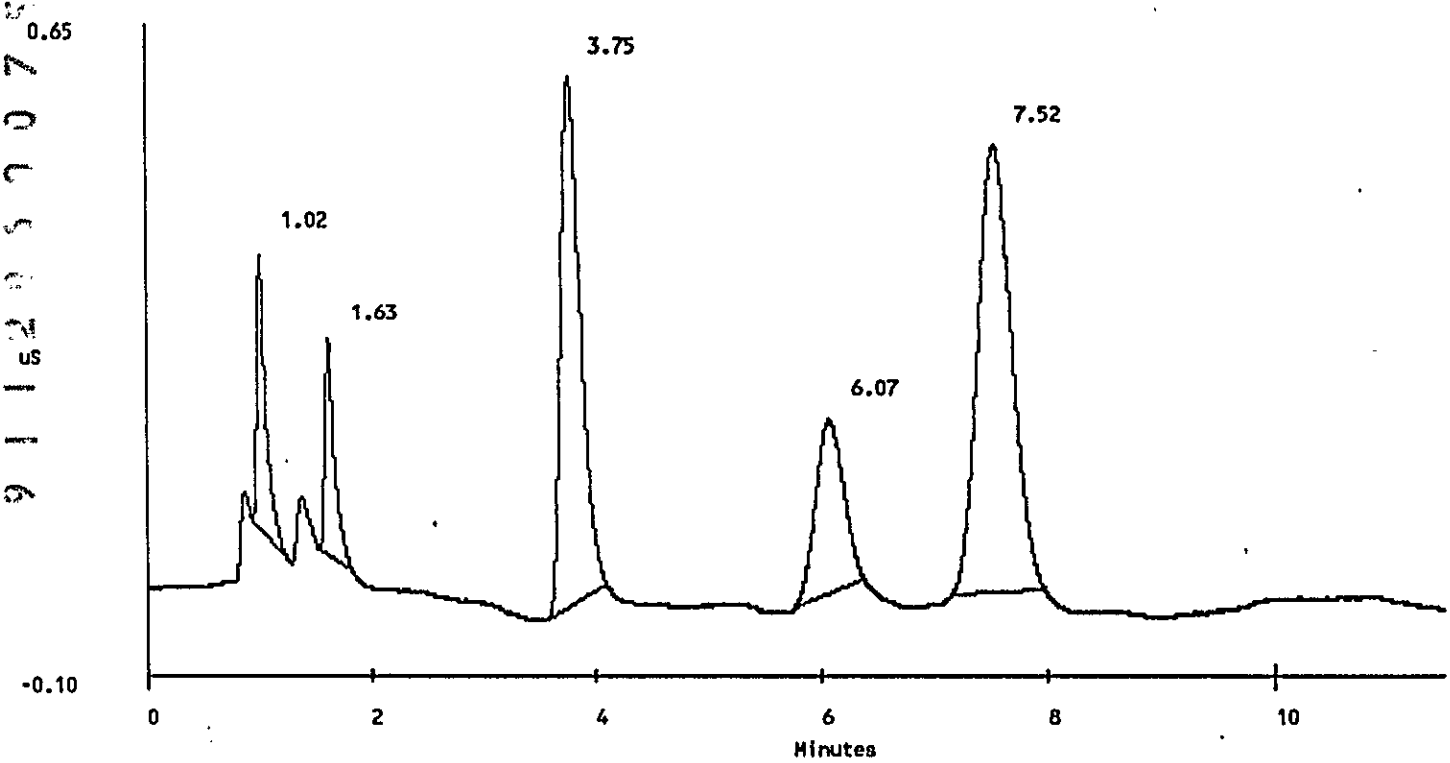
DATA REPROCESSED ON Mon Jul 02 13:05:05 1990

Sample Name: AUTOCAL1R Date: Tue Apr 03 10:17:01 1990
Data File : A:\90040300.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 = 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 | 1.02 | FLUORIDE | 1.198e-001 | 1.733e+003 | 320 | 1 | 0 | 0.00% |
| 2 | 1.63 | CHLORIDE | 1.517e-001 | 1.456e+003 | 241 | 1 | 0 | 0.00% |
| 3 | 3.75 | NITRATE | 1.220e+000 | 7.363e+003 | 607 | 1 | 0 | 0.00% |
| 4 | 6.07 | PHOSPHATE | 1.210e+000 | 3.420e+003 | 198 | 1 | 0 | 0.00% |
| 5 | 7.52 | SULFATE | 1.176e+000 | 1.075e+004 | 515 | 1 | 0 | 0.00% |



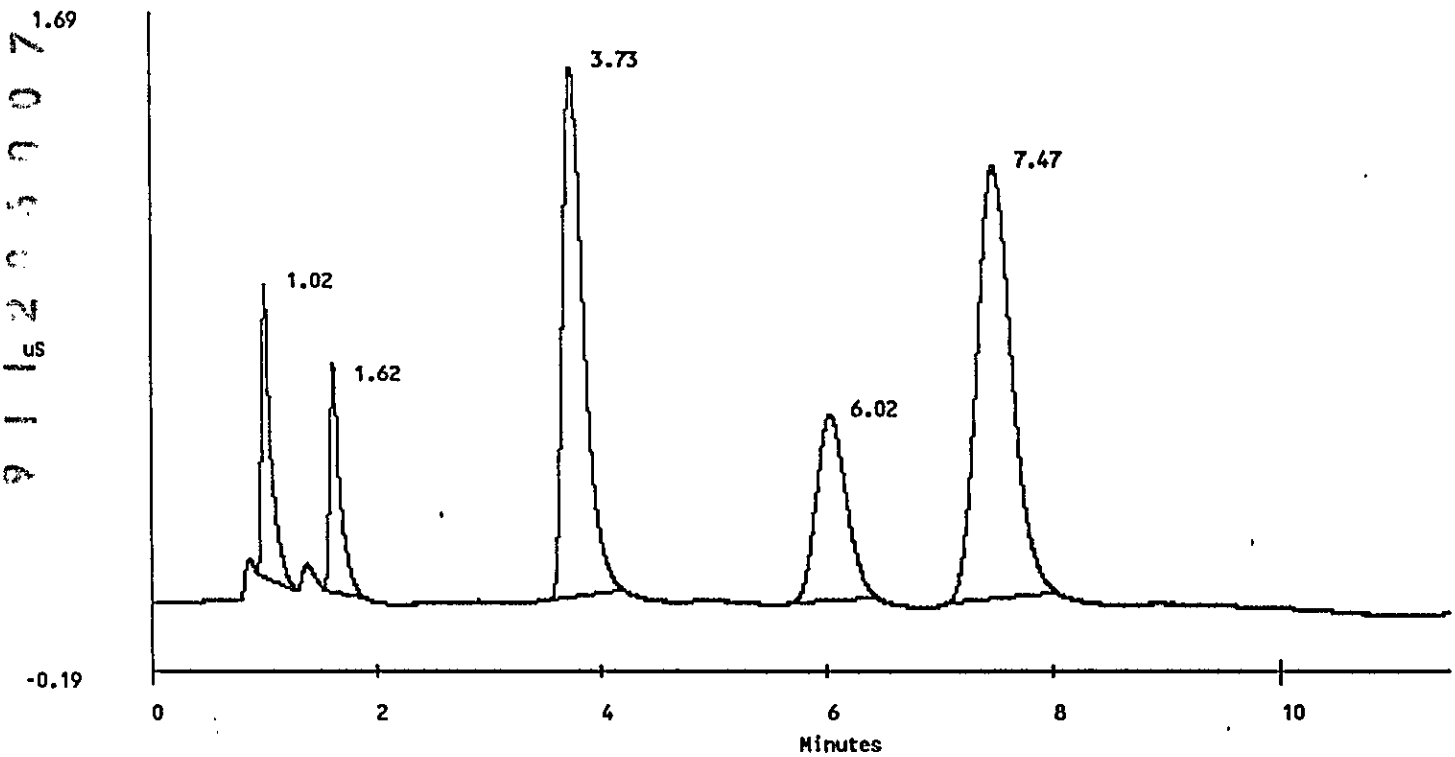
DATA REPROCESSED ON Mon Jul 02 14:37:19 1990

Sample Name: AUTOCAL2R Date: Tue Apr 03 10:29:21 1990
Data File : A:\90040300.D04
Method : C:\WINDOWS\AI400\METHOD\SST.MET
CIM Address: 1 System : 1 Cycle#: 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 | 1.02 | FLUORIDE | 2.984e-001 | 4.705e+003 | 821 | 1 | 0 | 0.00% |
| 2 | 1.62 | CHLORIDE | 3.783e-001 | 4.024e+003 | 594 | 1 | 0 | -1.02% |
| 3 | 3.73 | NITRATE | 3.039e+000 | 1.956e+004 | 1518 | 1 | 0 | -0.44% |
| 4 | 6.02 | PHOSPHATE | 5.755e+000 | 9.585e+003 | 519 | 1 | 0 | -0.82% |
| 5 | 7.47 | SULFATE | 6.145e+000 | 2.633e+004 | 1236 | 1 | 0 | -0.67% |



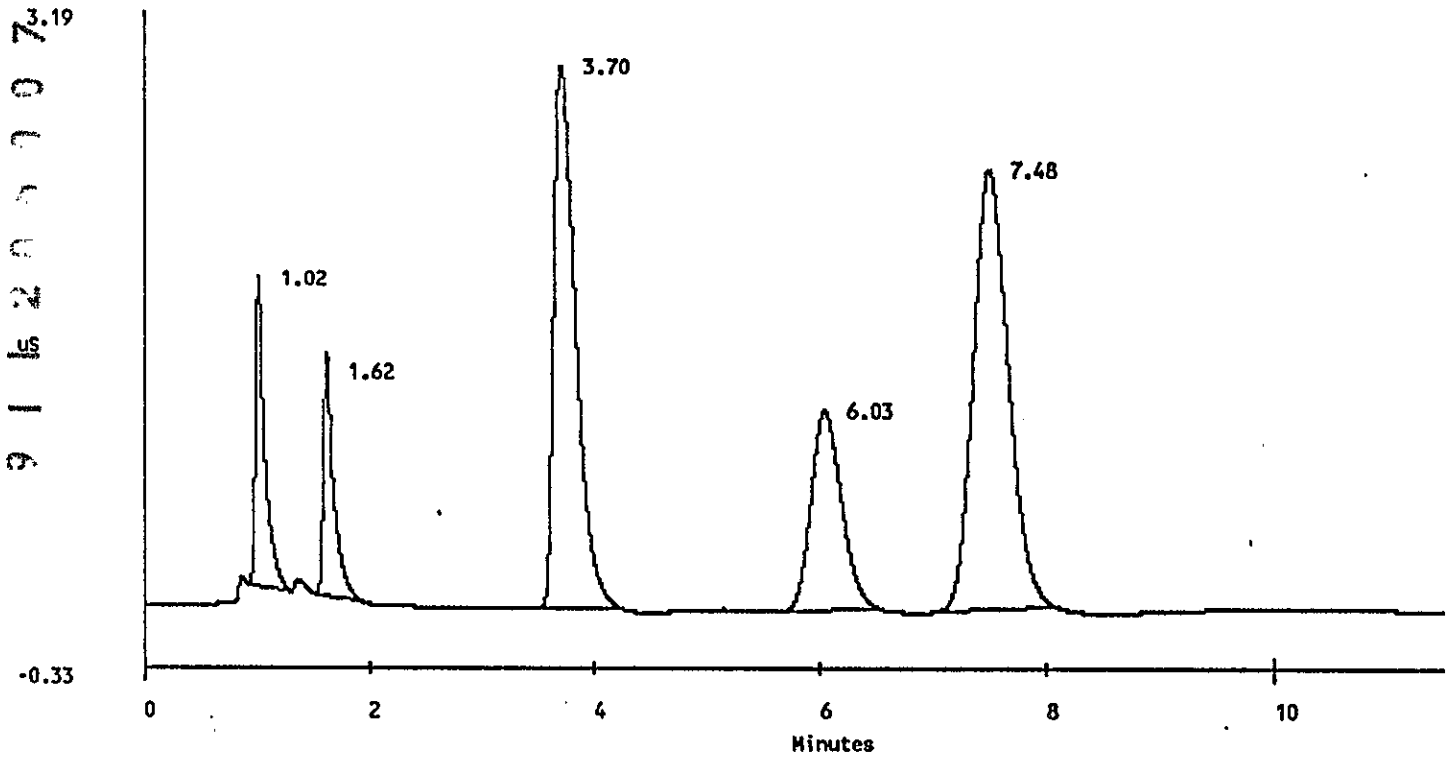
DATA REPROCESSED ON Mon Jul 02 14:37:59 1990

Sample Name: AUTOCAL3R Date: Tue Apr 03 10:41:41 1990
Data File : A:\90040300.D05
Method : C:\WINDOWS\AI400\METHOD\SST.MET
CIM Address: 1 System : 1 Cycle#: 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 | 1.02 | FLUORIDE | 5.941e-001 | 9.348e+003 | 1644 | 1 | 0 | 0.00% |
| 2 | 1.62 | CHLORIDE | 7.523e-001 | 8.080e+003 | 1191 | 1 | 0 | -1.02% |
| 3 | 3.70 | NITRATE | 6.051e+000 | 3.911e+004 | 2906 | 1 | 0 | -1.33% |
| 4 | 6.03 | PHOSPHATE | 8.564e+000 | 1.976e+004 | 1057 | 1 | 0 | -0.55% |
| 5 | 7.48 | SULFATE | 8.817e+000 | 5.059e+004 | 2357 | 1 | 0 | -0.44% |



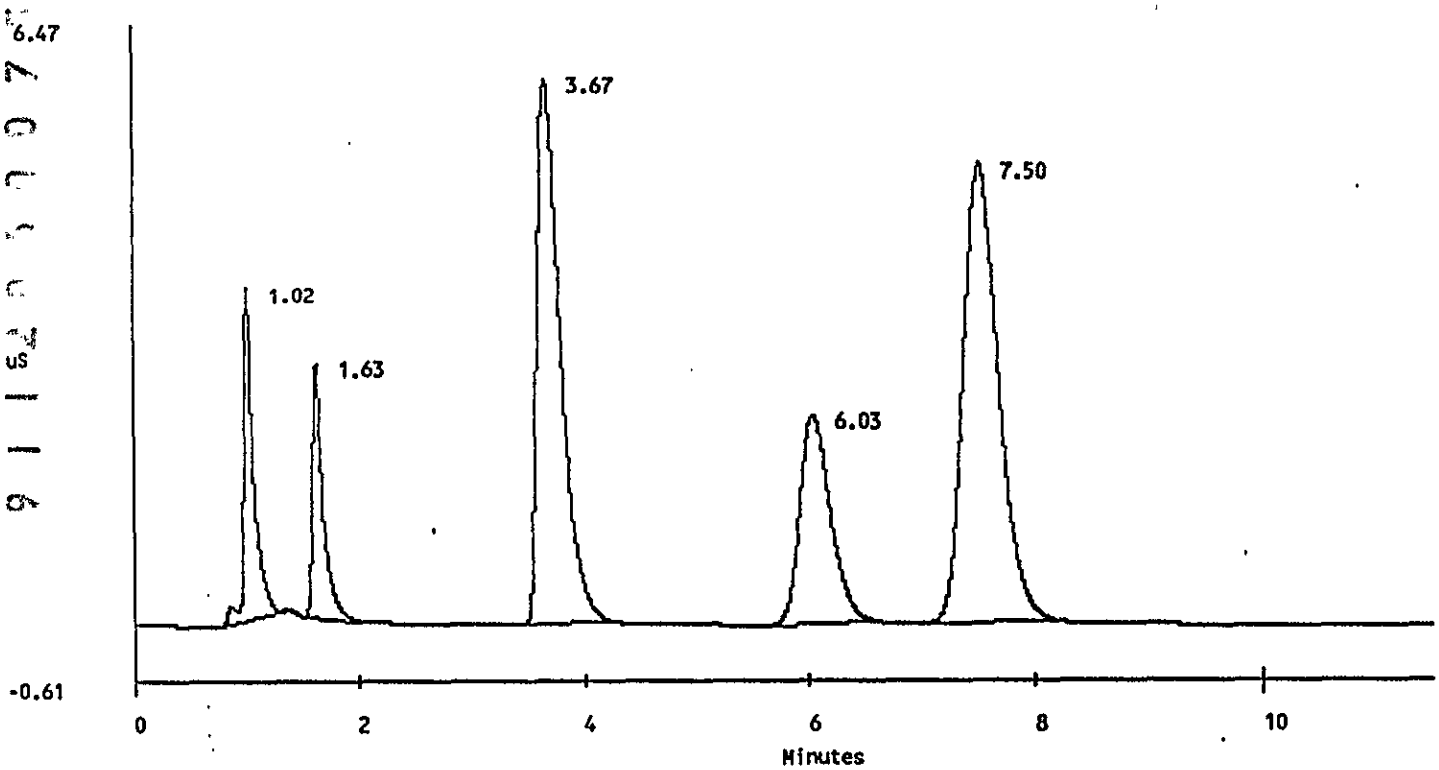
DATA REPROCESSED ON Mon Jul 02 14:38:33 1990

Sample Name: AUTOCAL4R Date: Tue Apr 03 10:54:02 1990
Data File : A:\90040300.D06
Method : C:\WINDOWS\AI400\METHOD\SST.MET
CIM Address: 1 System : 1 Cycle#: 6 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 | 1.02 | FLUORIDE | 1.177e+000 | 2.200e+004 | 3547. | 1 | 0 | 0.00% |
| 2 | 1.63 | CHLORIDE | 1.490e+000 | 1.722e+004 | 2702 | 1 | 0 | 0.00% |
| 3 | 3.67 | NITRATE | 1.198e+001 | 8.379e+004 | 5858 | 1 | 0 | -2.22% |
| 4 | 6.03 | PHOSPHATE | 1.460e+001 | 4.206e+004 | 2212 | 1 | 0 | -0.55% |
| 5 | 7.50 | SULFATE | 1.496e+001 | 1.068e+005 | 4931 | 1 | 0 | -0.22% |



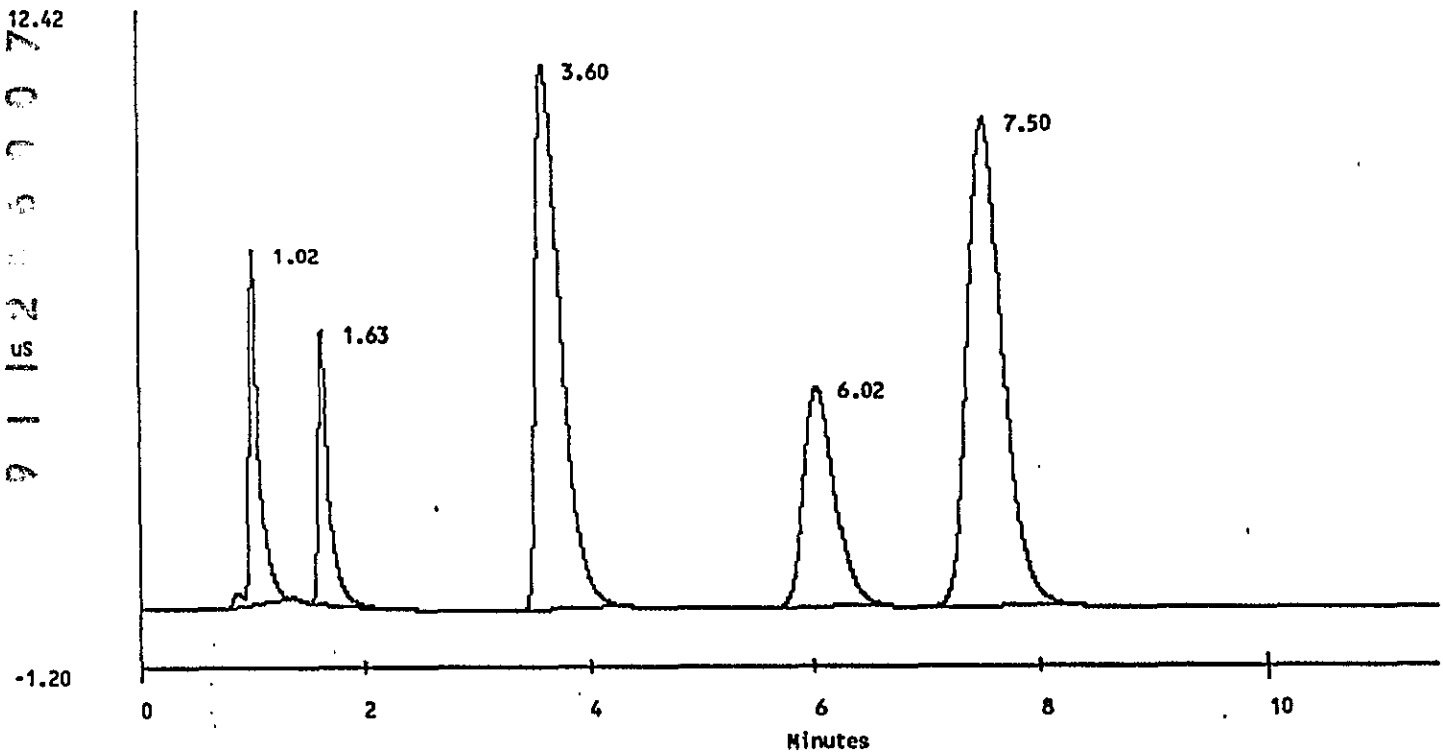
DATA REPROCESSED ON Mon Jul 02 14:39:07 1990

| | |
|---|---|
| Sample Name: AUTOCAL5R | Date: Tue Apr 03 11:06:22 1990 |
| Data File : A:\90040300.D07 | |
| Method : C:\WINDOWS\AI400\METHOD\SST.MET | |
| CIM Address: 1 System : 1 Cycle#: 7 | 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 | 1.02 | FLUORIDE | 3.050e+000 | 4.520e+004 | 7323 | 1 | 0 | 0.00% |
| 2 | 1.63 | CHLORIDE | 3.751e+000 | 3.558e+004 | 5631 | 1 | 0 | 0.00% |
| 3 | 3.60 | NITRATE | 2.869e+001 | 1.757e+005 | 11209 | 1 | 0 | -4.00% |
| 4 | 6.02 | PHOSPHATE | 2.675e+001 | 8.811e+004 | 4535 | 1 | 0 | -0.82% |
| 5 | 7.50 | SULFATE | 2.728e+001 | 2.192e+005 | 10100 | 1 | 0 | -0.22% |



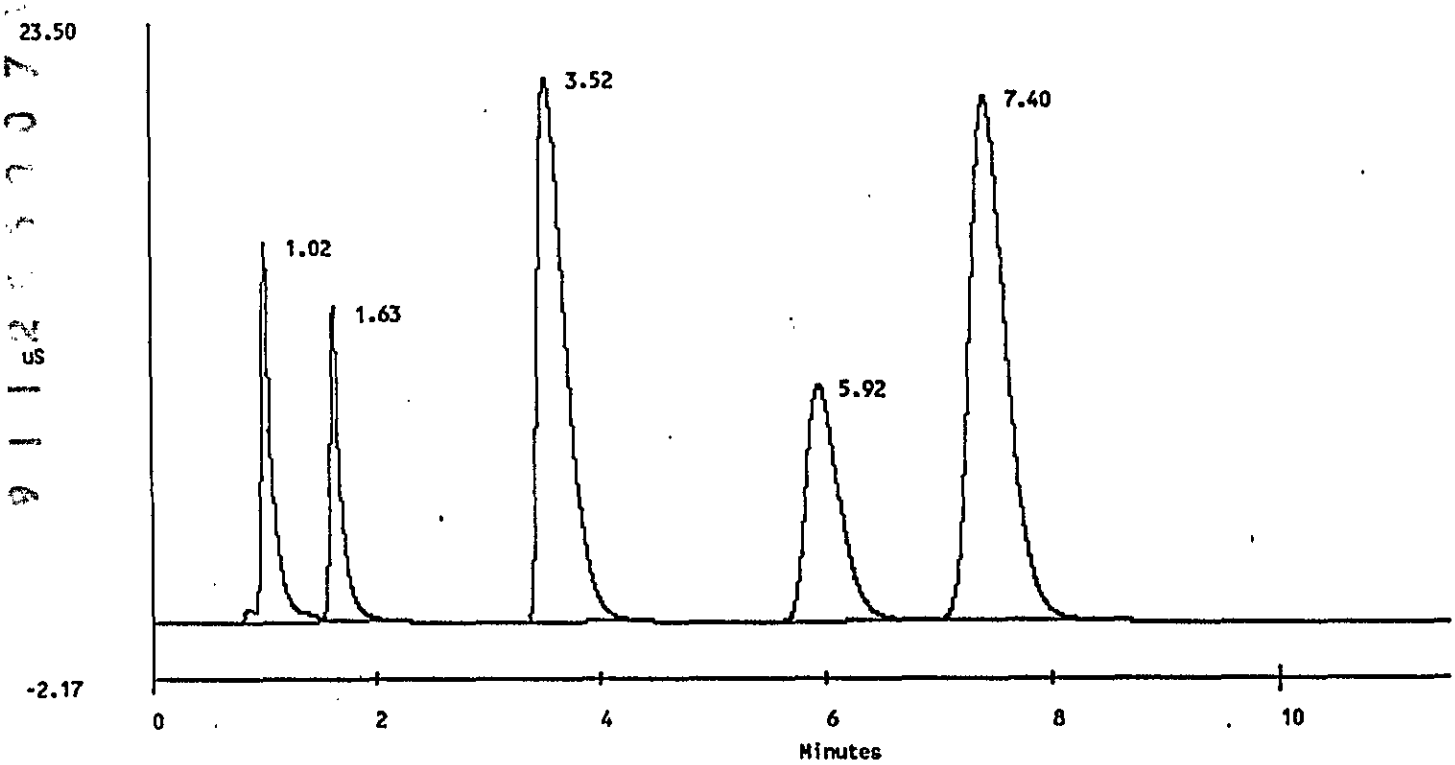
DATA REPROCESSED ON Mon Jul 02 14:39:42 1990

Sample Name: AUTOCAL6R Date: Tue Apr 03 11:18:42 1990
Data File : A:\90040300.D08
Method : C:\WINDOWS\AI400\METHOD\SST.MET
CIM Address: 1 System : 1 Cycle#: 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 | 1.02 | FLUORIDE | 5.778e+000 | 9.886e+004 | 14697 | 2 | 0 | 0.00% |
| 2 | 1.63 | CHLORIDE | 7.060e+000 | 7.699e+004 | 11887 | 2 | 0 | 0.00% |
| 3 | 3.52 | NITRATE | 5.544e+001 | 3.641e+005 | 21314 | 1 | 0 | -6.22% |
| 4 | 5.92 | PHOSPHATE | 5.042e+001 | 1.851e+005 | 9060 | 1 | 0 | -2.47% |
| 5 | 7.40 | SULFATE | 5.218e+001 | 4.591e+005 | 20537 | 1 | 0 | -1.55% |



DIONEX SCHEDULE - A:\90040500.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/6C11-HO | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 4 | 438B | c:\windows\ai | c:\windows\ai | 1 | 1 | 0 |
| 5 | 427 | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 6 | 428D | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 7 | 429S | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 8 | 451 | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 9 | 452D | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 10 | 475 | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 11 | 476D | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 12 | 547 | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 13 | 548D | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 14 | 571 | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 15 | 572D | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 16 | 983 | c:\windows\ai | c:\windows\ai | 1 | 51 | 0 |
| 17 | 984D | c:\windows\ai | c:\windows\ai | 1 | 51 | 0 |
| 18 | 64D | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |
| 19 | LMCS/6C11-HO | c:\windows\ai | c:\windows\ai | 1 | 101 | 0 |

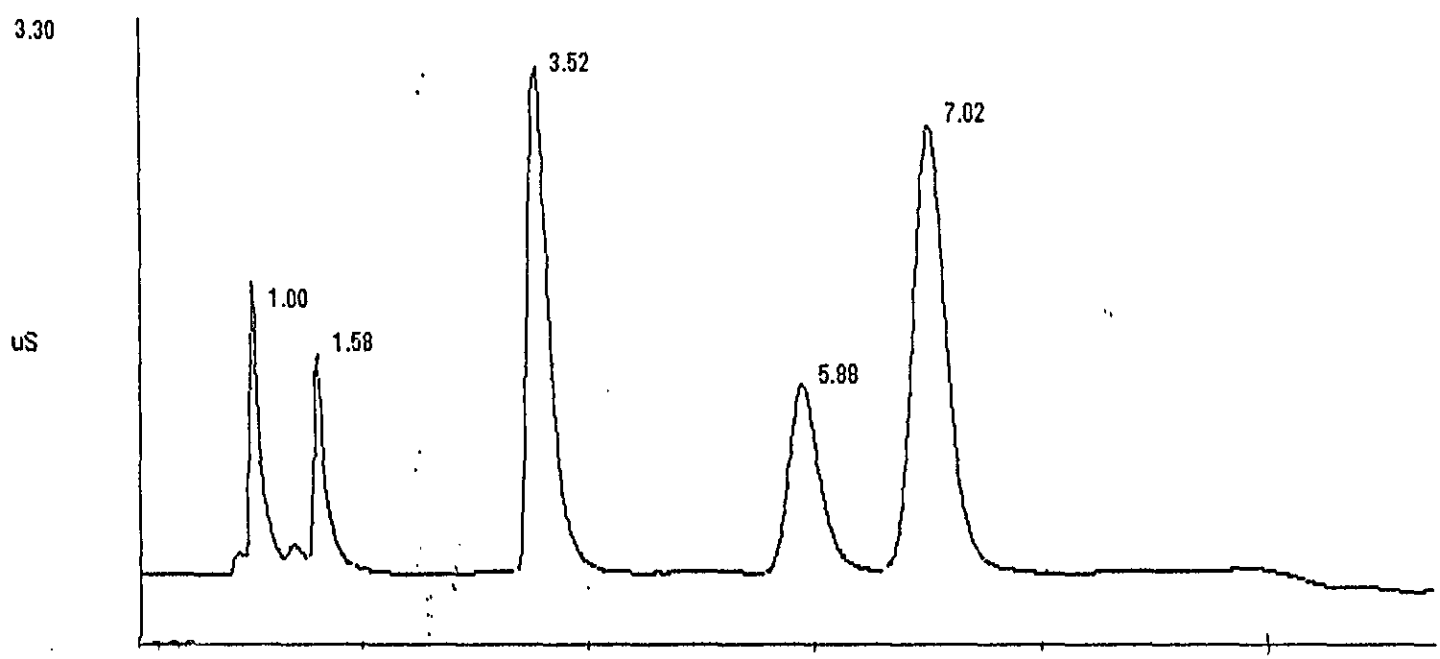
data\900-5943.dd

Sample Name: LMCS/6C11-HO  Date: Thu Apr 05 12:09:18 1990
Data File : c:\windows\ai400\data\900-5963.d03
Method : c:\windows\ai400\method\sst.met
CIM Address: 1  System : 1  Cycle#: 3  Detector: CDM

**********  EXTERNAL STANDARD REPORT  **********

Start Time = 0.00 minutes  Stop time = 11.50 Minutes
Number of Data Points = 3450  One Data Point per 0.2 seconds
Areareject = 1000
Amount Injected = 1  Dilution factor = 101

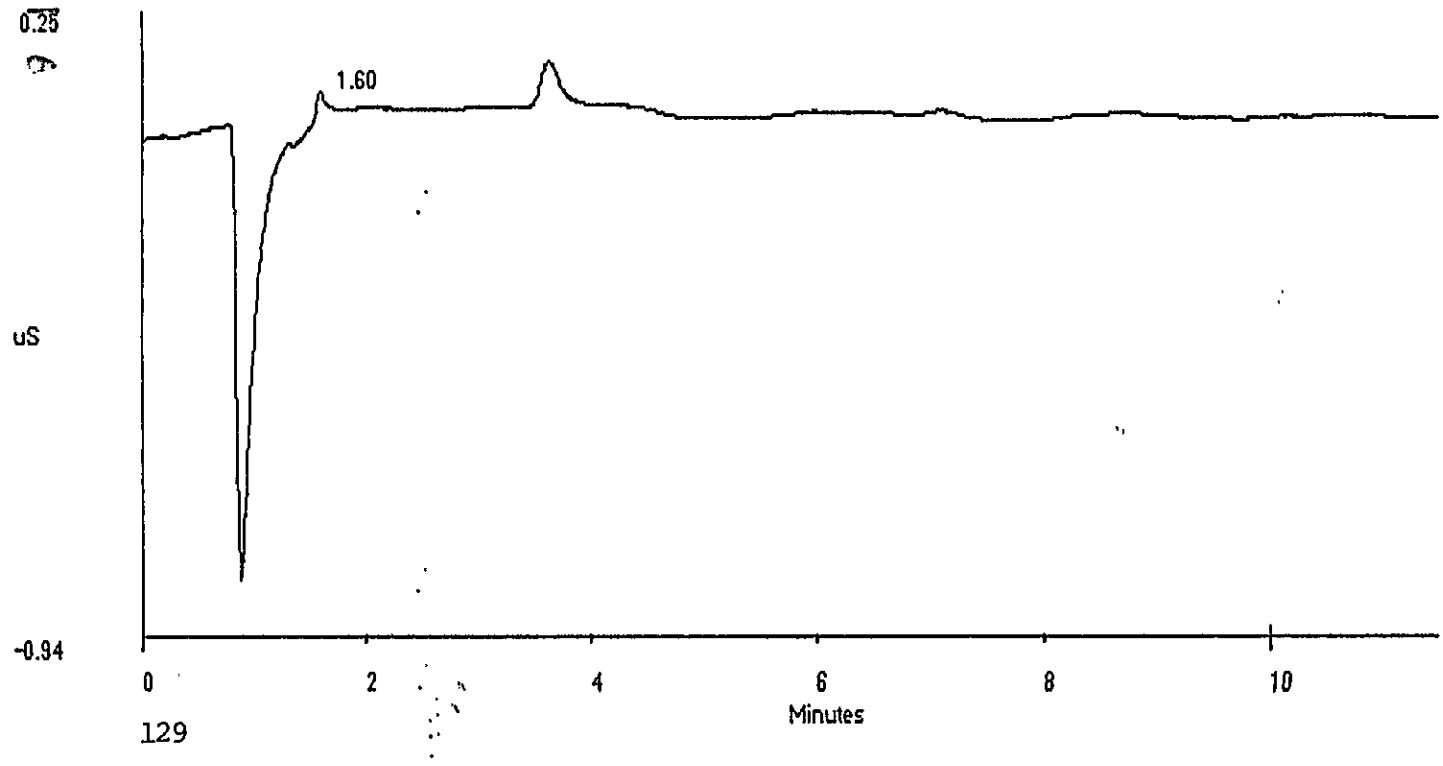
| PEAK NUM | RET TIME | PEAK NAME | CONC. in ug/ml | AREA | HEIGHT | BL | REF PEAK | % DELTA RET TIME |
|---|---|---|---|---|---|---|---|---|
| 1 | 1.00 | FLUORIDE | 5.097e+001 | 9.542e+003 | 1452 | 1 | 0 | -1.64% |
| 2 | 1.58 | CHLORIDE | 7.181e+001 | 7.920e+003 | 1209 | 1 | 0 | -3.06% |
| 3 | 3.52 | NITRATE | 6.106e+002 | 3.939e+004 | 2949 | 1 | 0 | 0.00% |
| 4 | 5.88 | PHOSPHATE | 6.038e+002 | 2.002e+004 | 1084 | 1 | 0 | -0.56% |
| 5 | 7.02 | SULFATE | 6.268e+002 | 5.312e+004 | 2626 | 1 | 0 | -5.18% |



```
==========================================================================
| Sample Name: 438B                          Date: Thu Apr 05 12:21:34 1990|
| Data File  : c:\windows\ai400\data\900-5963.d04                          |
| Method     : c:\windows\ai400\method\sst.met                             |
| CIM Address: 1        System : 1        Cycle#:   4      Detector: CDM   |
==========================================================================
*********************  EXTERNAL STANDARD REPORT  *************************

Start Time =  0.00 minutes              Stop time = 11.50 Minutes
Number of Data Points  =  3450          One Data Point per 0.2 seconds
Areareject = 1000
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 | 1.60 | CHLORIDE | 2.017e-001 | 1.746e+004 | 266 | 1 | 0 | -2.04% |



DATA REPROCESSED ON Thu Aug 23 13:17:53 1990

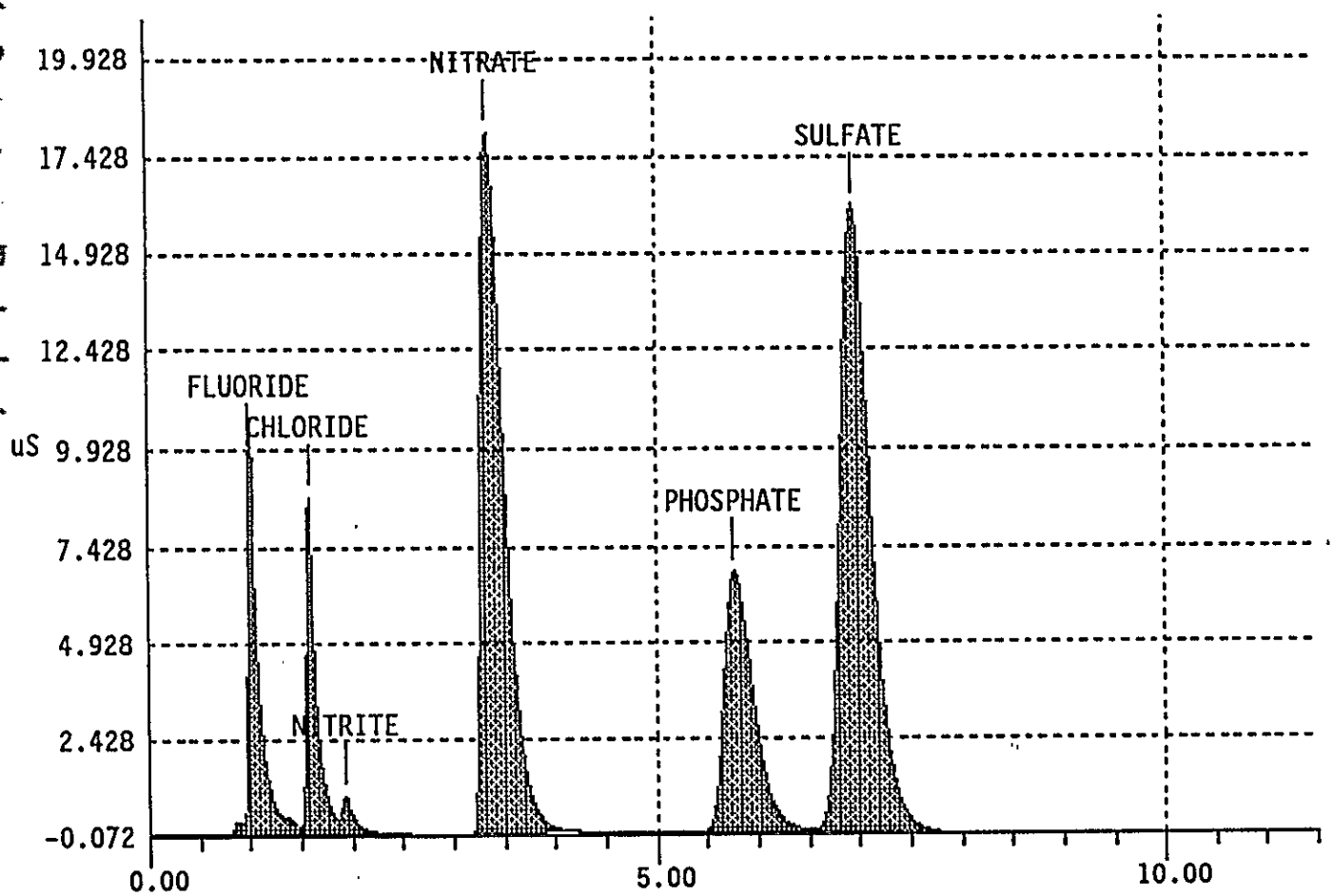
Sample Name: 429S Date: Thu Apr 05 13:58:17 1990
Data File : A:\90040500.D07
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 7 Detector: CDM

********** EXTERNAL STANDARD REPORT **********

Stop time = 11.50 Minutes Number of Data Points = 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 | 1.00 | FLUORIDE | 3.052e+002 | 7.634e+004 | 9685 | 2 | 0 | 0.00% |
| 2 | 1.58 | CHLORIDE | 4.348e+002 | 5.743e+004 | 8656 | 3 | 0 | 0.00% |
| 3 | 1.93 | NITRITE | 1.089e+002 | 6.323e+003 | 836 | 4 | 0 | 0.00% |
| 4 | 3.35 | NITRATE | 3.839e+003 | 2.908e+005 | 17987 | 1 | 0 | 0.00% |
| 5 | 5.77 | PHOSPHATE | 3.452e+003 | 1.356e+005 | 6762 | 2 | 0 | 0.00% |
| 6 | 6.93 | SULFATE | 3.527e+003 | 3.404e+005 | 16085 | 2 | 0 | -6.31% |

File: A:\90040500.D07 Sample: 429S



DATA REPROCESSED ON Thu Aug 23 13:35:41 1990

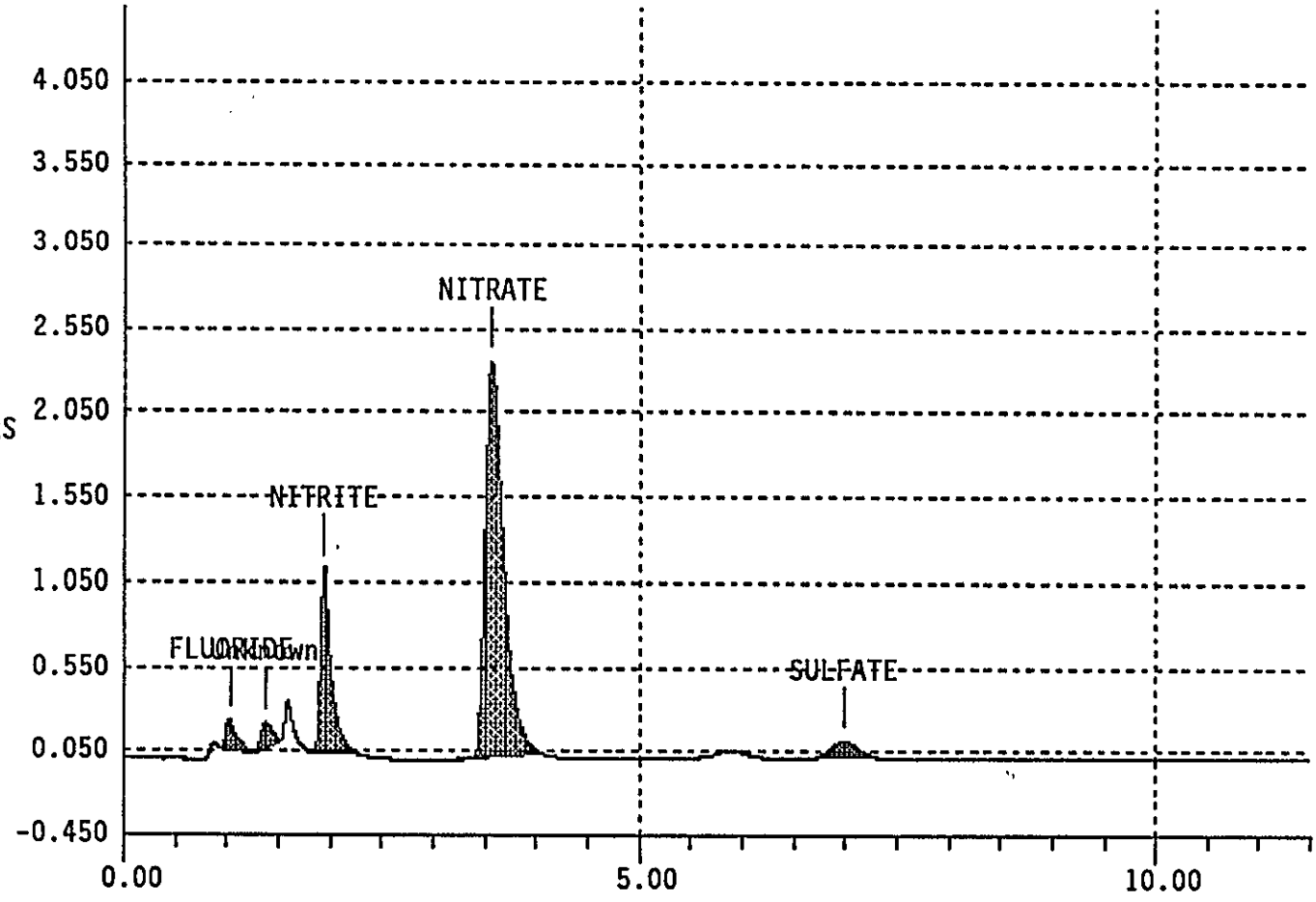
Sample Name: 64D Date: Thu Apr 05 16:13:19 1990
Data File : A:\90040500.D18
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 18 Detector: CDM

********** 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 | 1.03 | FLUORIDE | 9.202e+000 | 1.240e+003 | 167 | 1 | 0 | 0.00% |
| 2 | 1.37 | | 0.000e+000 | 1.122e+003 | 154 | 1 | | |
| 3 | 1.93 | NITRITE | 1.316e+002 | 7.996e+003 | 1079 | 1 | 0 | 0.00% |
| 4 | 3.57 | NITRATE | 4.812e+002 | 2.970e+004 | 2332 | 1 | 0 | 0.00% |
| 5 | 6.98 | SULFATE | 2.971e+001 | 1.380e+003 | 86 | 1 | 0 | -5.63% |

File: A:\90040500.D18 Sample: 64D



DATA REPROCESSED ON Thu Aug 23 13:37:04 1990

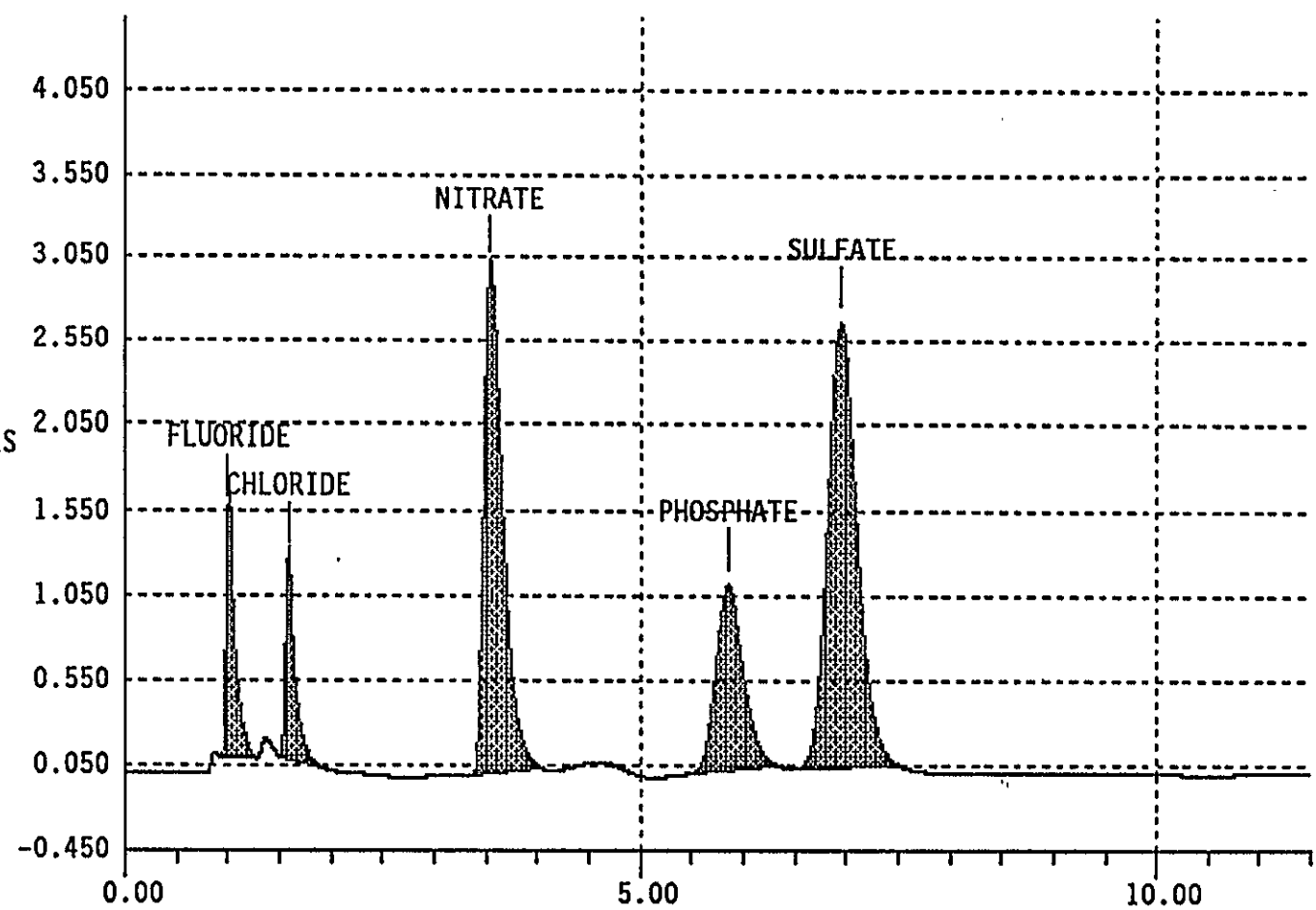
Sample Name: LMCS/6C11-HO Date: Thu Apr 05 16:25:34 1990
Data File : A:\90040500.D19
Method : c:\windows\ai400\method\sst.met
ACI Address: 1 System : 1 Inject#: 19 Detector: CDM

********** 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 | 1.00 | FLUORIDE | 5.094e+001 | 9.493e+003 | 1451 | 1 | 0 | 0.00% |
| 2 | 1.58 | CHLORIDE | 7.021e+001 | 7.816e+003 | 1180 | 1 | 0 | 0.00% |
| 3 | 3.53 | NITRATE | 6.154e+002 | 3.890e+004 | 2971 | 1 | 0 | 0.00% |
| 4 | 5.85 | PHOSPHATE | 6.079e+002 | 2.009e+004 | 1091 | 1 | 0 | 0.00% |
| 5 | 6.95 | SULFATE | 6.252e+002 | 5.262e+004 | 2619 | 1 | 0 | -6.08% |

File: A:\90040500.D19 Sample: LMCS/6C11-HO



# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

| | |
|---|---|
| Instrument | WB39937 |
| Procedure / Rev | LA-344-105/A-3 |
| Technologist | E. Colvin/80028 |
| Date | 1-11-90 |
| Temperature | N/A |
| Starting Time | 0800 |
| Ending Time | 1600 |
| Chemist | R. E. Brandt |

Total Organic Carbon

Water Digestion

Samples were not acidified before analysis. Results reported are TOC and carbonate combined.

| | Description | Lab. Id. |
|---|---|---|
| 1 | Blank 89-043 | F0074 |
| 2 | Initial LMCS Check Std | F0062 |
| 3 | Sample 89-043 | F0063 |
| 4 | Duplicate 89-043 | F0064 |
| 5 | Spike 89-043 | F0065 |
| 6 | Final LMCS Check Std | F0066 |
| 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 | 70C11B/200 uL | | | 2.2 mL |
| Spike | 70C11B/200 uL | F0063/200 uL | | .4 mL |
| | | | | |
| | | | | |
| | | | | |

Prepared by: Shirley Cervantes (Signature) S. A. Cervantes (Printed Name) Date: Aug. 29, 1990

Verified by: Carry M Seidel (Signature) C. M. Seidel (Printed Name) Date: Sept. 1, 1990

Approved by: L H Taylor (Signature) LH Taylor (Printed Name) Date: 9/28/90

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

9 1 1 2 0 0 0 7 7

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-74 Date: 01-11-1990 Time: 10:32:43

Blank = N/A Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 10

| == Reading | ==== Analysis Time | ==== Coulometer | ==== % Difference == |
|---|---|---|---|
| 1 | 1.01 | 0.00 | 0.00 |
| 2 | 2.01 | 1.60 | 100.00 |
| 3 | 3.01 | 2.80 | 35.71 |
| 4 | 4.01 | 3.30 | 15.15 |
| 5 | 5.01 | 4.10 | 17.51 |
| 6 | 6.01 | 4.70 | 16.33 |
| 7 | 7.01 | 5.50 | 10.71 |
| 8 | 8.01 | 6.20 | 11.29 |
| 9 | 9.01 | 6.70 | 10.14 |
| 10 | 10.01 | 7.60 | 7.21 |

BLANK VALUE = 7.6 / 10.00568 = .7595688 ug/minute



Sample Run By: 80028 _____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-62 Date: 01-11-1990 Time: 10:44:12

Blank = .7595688 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 10

| == Reading | ==== Analysis Time | ==== Coulometer | ==== % Difference == |
|---|---|---|---|
| 1 | 1.01 | 0.00 | 0.00 |
| 2 | 2.01 | 42.90 | 100.00 |
| 3 | 3.01 | 52.10 | 17.66 |
| 4 | 4.01 | 55.50 | 6.13 |
| 5 | 5.01 | 57.00 | 2.63 |
| 6 | 6.01 | 58.10 | 1.89 |
| 7 | 7.01 | 57.10 | 1.67 |

( 57.1 - 5.321386 )( 11 )/( 200 ) = 2.957824 g/L Carbon

( 59.1 - 5.321386 )( 11 )/( 200 )(12) = .2464853 Molar Carbon

Sample Run By: 80028_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-63 Date: 01-11-1990 Time: 10:50:05

Blank = .7595688 Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 10

| == Reading | ==== Analysis Time | ==== Coulometer | ==== % Difference == |
|---|---|---|---|
| 1 | 1.01 | 0.00 | 0.00 |
| 2 | 2.01 | 5.70 | 100.00 |
| 3 | 3.01 | 7.00 | 22.37 |
| 4 | 4.01 | 8.50 | 10.59 |
| 5 | 5.01 | 9.30 | 8.60 |
| 6 | 6.01 | 10.30 | 7.71 |
| 7 | 7.01 | 10.90 | 5.50 |

( 10.9 - 5.322035 )( 1 )/( 200 ) = 2.788982E-02 g/L Carbon

( 10.9 - 5.322035 )( 1 )/( 200 )(12) = 2.324152E-03 Molar Carbon

Sample Run By: 80028_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-04 Date: 01-11-1990 Time: 11:04:51

Blank = .7595688 Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 10

| == Reading | ==== Analysis Time | ==== Coulometer | ==== % Difference == |
|---|---|---|---|
| 1 | 1.01 | 0.00 | 0.00 |
| 2 | 2.01 | 5.70 | 100.00 |
| 3 | 3.01 | 7.20 | 20.63 |
| 4 | 4.01 | 8.20 | 12.20 |
| 5 | 5.01 | 9.10 | 9.87 |
| 6 | 6.01 | 9.80 | 7.14 |
| 7 | 7.01 | 10.50 | 6.67 |

( 10.5 - 5.32134 )( 1 )/( 200 ) = .0258933 g/L Carbon

( 10.5 - 5.32134 )( 1 )/( 200 )(12) = 2.157775E-03 Molar Carbon

Sample Run By: 80028_____

COULOMETER ANALYSIS REPORT
TICTOC Rev. 0

Sample: F-65 Date: 01-11-1990 Time: 14:32:38

Blank = .7595688 Sample Size = 200 Dilution Factor = 1
% Difference = 10 Min Readings = 7 Max Readings = 10

| == Reading ===== | Analysis Time ===== | Coulometer ===== | % Difference == |
|---|---|---|---|
| 1 | 1.01 | 0.00 | 0.00 |
| 2 | 2.01 | 133.50 | 100.00 |
| 3 | 3.01 | 163.60 | 18.40 |
| 4 | 4.01 | 176.20 | 7.15 |
| 5 | 5.01 | 181.60 | 2.77 |
| 6 | 6.01 | 184.30 | 1.47 |
| 7 | 7.01 | 185.80 | 0.81 |

( 185.8 - 5.322035 )( 1 )/( 200 ) = .9023898 g/L Carbon

( 185.8 - 5.322035 )( 1 )/( 200 )(12) = 7.519915E-02 Molar Carbon

Sample Run By: 80028_____

COULOMETER ANALYSIS REPORT
11CTDC Rev. 0

Sample: F-66 Date: 01-11-1990 Time: 14:41:11

Blank = .7595688 Sample Size = 200 Dilution Factor = 11
% Difference = 10 Min Readings = 7 Max Readings = 10

| == Reading | ==== Analysis Time | ==== Coulometer | ==== % Difference == |
|---|---|---|---|
| 1 | 1.01 | 0.00 | 0.00 |
| 2 | 2.01 | 39.10 | 100.00 |
| 3 | 3.01 | 47.70 | 18.03 |
| 4 | 4.01 | 51.90 | 8.09 |
| 5 | 5.01 | 54.00 | 3.87 |
| 6 | 6.01 | 55.40 | 2.53 |
| 7 | 7.01 | 56.50 | 1.95 |

( 56.5 - 5.321432 )( 11 )/( 200 ) = 2.814821 g/L Carbon

( 56.5 - 5.321432 )( 11 )/( 200 )(12) = .2345684 Molar Carbon

Sample Run By: 80028_____

9112170773

# ACID DIGESTION TEST ANALYSIS

9 1 1 2 0 5 0 0 7 7 4

ICP Results

# Data Summary

| | | | |
|---|---|---|---|
| | | Acid Digested Standard | F1083 |
| Date Analyzed: | April 19, 1990 | Reagent Blank | F1084 |
| Procedure: | LA-505-151/A-0 | Sample 89-043 | F0068 |
| Analyst: | J. A. White | Duplicate of 89-043 | F0069 |
| Digestion | Acid Digestion | Spike of 89-043 | F1087 |
| Procedure: | LA-505-159/A-0 | Acid Digested 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 | 94285 | 88959 | NOT CALC. | 100.63% | 100.81% |
| Antimony | 105.91% | | -0.01 LT | 579 | 203 LT | | | 102.57% |
| Barium | 104.16% | | -0.01 LT | 74 | 38 | 103.28% | 92.28% | 102.53% |
| Beryllium | 98.38% | | 0.00 LT | 3 | 0 LT | | | 97.50% |
| Bismuth | 108.36% | 102.12% | -0.01 LT | 5381 | 4709 | NOT CALC. | | 106.64% |
| Boron | 101.73% | 94.43% | 0.03 | 62 | 20 LT | 134.81% | | 99.43% |
| Cadmium | 100.12% | 93.46% | 0.00 LT | 8 LT | -11 LT | 89.32% | | 97.72% |
| Calcium | 106.89% | 102.58% | 0.09 | 1098 | 905 | 146.72% | | 105.03% |
| Chromium | 95.51% | | -0.03 LT | 448 | 511 | 235.92% | 84.79% | 93.30% |
| Cobalt | 97.27% | | 0.02 LT | 79 | 8 LT | 85.08% | 86.00% | 93.22% |
| Copper | 105.17% | 99.09% | -0.01 LT | 97 | 12 LT | 100.71% | | 103.36% |
| Europium | 98.92% | | -0.01 LT | 8 | -16 LT | | | 97.72% |
| Iron | 103.46% | | 0.03 | 18001 | 18129 | NOT CALC. | 94.41% | 101.50% |
| Lanthanum | 94.12% | 91.05% | -0.02 LT | 68 | -20 LT | 89.51% | | 92.92% |
| Lead | 106.64% | 99.04% | 0.01 LT | 1344 | 3045 | 93.18% | | 104.61% |
| Lithium | 106.08% | | -0.01 LT | 13 | -46 LT | 91.11% | 93.39% | 103.61% |
| Magnesium | 104.79% | 97.56% | 0.02 | 8338 | 1444 | 4138.61% | | 102.45% |
| Manganese | 102.81% | | 0.01 | 6755 | 6547 | NOT CALC. | 92.70% | 100.65% |
| Mercury | 102.27% | | -0.05 LT | 40 | 43 | | | 101.94% |
| Molybdenum | 97.14% | 93.73% | 0.00 LT | 40 | 8 LT | 85.72% | | 97.14% |
| Nickel | 101.54% | | -0.01 LT | 192 | 131 | 98.98% | 92.68% | 99.05% |
| Potassium | 99.66% | 82.65% | -0.53 LT | 275 LT | -1543 LT | 73.37% | | 97.22% |
| Samarium | 99.36% | | -0.35 LT | 496 | -1085 LT | | | 96.54% |
| Selenium | 105.01% | | -0.06 LT | 761 | 316 | | | 104.86% |
| Silver | 107.97% | | -0.02 LT | 54 LT | -42 LT | 53.52% | | 106.46% |
| Sodium | 102.01% | 94.66% | 0.06 LT | 79677 | 75641 | NOT CALC. | | 100.05% |
| Strontium | 105.80% | 100.02% | 0.00 LT | 777 | 756 | 86.77% | | 104.01% |
| Sulfur | 106.08% | | 0.03 | 511 | 377 | | | 107.95% |
| Tantalum | 96.38% | | -0.04 LT | 96 | -124 LT | 27.57% | 73.62% | 96.12% |
| Thallium | 105.99% | | -0.33 LT | 1733 | -94 LT | | | 106.22% |
| Thorium | 106.38% | | -0.18 LT | 476 | -589 LT | | | 104.74% |
| Tin | 100.85% | | 0.02 LT | 112 | 53 | 102.74% | 93.54% | 98.35% |
| Titanium | 100.86% | | 0.13 | 157 | 113 | 90.61% | 92.17% | 101.40% |
| Uranium | 106.74% | | -2.40 LT | 18706 | 8238 | | | 103.29% |
| Vanadium | 99.32% | | -0.02 LT | 92 | 13 LT | | | 100.05% |
| Zinc | 100.91% | 93.05% | 0.23 | 735 | 274 | 66.80% | | 98.82% |
| Zirconium | 101.51% | | -0.04 LT | 96 | 24 LT | 46.04% | 93.47% | 100.46% |

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

Prepared by: H. S. Rich — H. S. Rich Date: May 21, 1990

Verified by: Cary M Seidel — C. M. Seidel Date: May 21, 1990

Approved by: L. H. Taylor — L. H. Taylor Date: 9/28/90

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

ICP acid digestion of sample 89-043.

| | |
|---|---|
| Instrument | na |
| Procedure / Rev | LA-505-159/A-0 |
| Technologist | D. M. Southwick |
| Date | Jan. 31, 1990 |
| Temperature | na |
| Starting Time | 08:00 |
| Ending Time | 14:45 |
| Chemist | S. A. Jones |

| | Description | Lab. Id. |
|---|---|---|
| 1 | Reagent Blank | F0075 |
| 2 | Sample 89-043 | F0068 |
| 3 | Duplicate of 89-043 | F0069 |
| 4 | Sample 89-045 | F0116 |
| 5 | Duplicate of 89-045 | F0117 |
| 6 | Spike of F0116 | F0118 |
| 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 |
|---|---|---|---|---|
| Spike F0118 | 103C15C/5.mL | 104C15D/5.0mL | F0116/0.5033g | 50.0 mL |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

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

Approved by: [signature] Signature — L.H. Taylor Printed Name — Date: 9/28/90

Interim

Rev. E 4/04/90

SST-102

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

| | |
|---|---|
| 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 sample 89-043.
Only data directly related to the analysis of 89-043 wil 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: Cary M Seidel Signature — C. M. Seidel Printed Name — Date: May 22, 1990

Approved by: [signature] Signature — L.H. Taylor Printed Name — Date: 9/28/90

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

9 1 1 2 1 5 0 7 7 7

# Analytical Batch

Lab Segment Serial No.: F0053

Customer ID.: 89-043

| | |
|---|---|
| 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 sample 89-043.
Only data directly related to the analysis of 89-043 wil be included in this package.
No inter-element corrections were made on this data.

| | Description | Lab. Id. |
|---|---|---|
| 1 | LMCS Check Std. | na |
| 2 | Sample Comp. Core 15 | F1037 |
| 3 | Duplicate of Core 15 | F1038 |
| 4 | Closing LMCS Check Std. | na |
| 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: [signature] Signature — H. S. Rich Printed Name — Date: May 22, 1990

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

Approved by: [signature] Signature — L. H. Taylor Printed Name — Date: 9/28/90

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

9112300778

ICP Results

Raw Data Summary

| | | | |
|---|---|---|---|
| | | Acid Digested Standard | F1083 |
| Date Analyzed: | April 19, 1990 | Reagent Blank | F1084 |
| Procedure: | LA-505-151/A-0 | Sample 89-043 | F0068 |
| Analyst: | J. A. White | Duplicate of 89-043 | F0069 |
| Digestion | Acid Digestion | Spike of 89-043 | F1087 |
| Procedure: | LA-505-159/A-0 | Acid Digested 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 | 94285 | 88959 | NOT CALC. | 100.63% | 100.81% |
| Antimony | 105.91% | | -0.01 LT | 579 | 203 LT | | | 102.57% |
| Arsenic | 115.53% | | -0.02 LT | 113 | 36 LT | | | 115.75% |
| Barium | 104.16% | | -0.01 LT | 74 | 38 | 103.28% | 92.28% | 102.53% |
| Beryllium | 98.38% | | 0.00 LT | 3 | 0 LT | | | 97.50% |
| Bismuth | 108.36% | 102.12% | -0.01 LT | 5381 | 4709 | NOT CALC. | | 106.64% |
| Boron | 101.73% | 94.43% | 0.03 | 62 | 20 LT | 134.81% | | 99.43% |
| Cadmium | 100.12% | 93.46% | 0.00 LT | 8 LT | -11 LT | 89.32% | | 97.72% |
| Calcium | 106.89% | 102.58% | 0.09 | 1098 | 905 | 146.72% | | 105.03% |
| Cerium | 91.75% | | -0.31 LT | 439 | -906 LT | 15.40% | 88.66% | 88.57% |
| Chromium | 95.51% | | -0.03 LT | 448 | 511 | 235.92% | 84.79% | 93.30% |
| Cobalt | 97.27% | | 0.02 LT | 79 | 8 LT | 85.08% | 86.00% | 93.22% |
| Copper | 105.17% | 99.09% | -0.01 LT | 97 | 12 LT | 100.71% | | 103.36% |
| Europium | 98.92% | | -0.01 LT | 8 | -16 LT | | | 97.72% |
| Iron | 103.46% | | 0.03 | 18001 | 18129 | NOT CALC. | 94.41% | 101.50% |
| Lanthanum | 94.12% | 91.05% | -0.02 LT | 68 | -20 LT | 89.51% | | 92.92% |
| Lead | 106.64% | 99.04% | 0.01 LT | 1344 | 3045 | 93.18% | | 104.61% |
| Lithium | 106.08% | | -0.01 LT | 13 | -46 LT | 91.11% | 93.39% | 103.61% |
| Magnesium | 104.79% | 97.56% | 0.02 | 8338 | 1444 | 4138.61% | | 102.45% |
| Manganese | 102.81% | | 0.01 | 6755 | 6547 | NOT CALC. | 92.70% | 100.65% |
| Mercury | 102.27% | | -0.05 LT | 40 | 43 | | | 101.94% |
| Molybdenum | 97.14% | 93.73% | 0.00 LT | 40 | 8 LT | 85.72% | | 97.14% |
| Neodymium | 90.76% | | -0.64 LT | -509 LT | -1722 LT | NOT CALC. | 77.36% | 87.52% |
| Nickel | 101.54% | | -0.01 LT | 192 | 131 | 98.98% | 92.68% | 99.05% |
| Phosphorou | 115.73% | 93.37% | 0.11 | 2788 | 3519 | NOT CALC. | | 118.51% |
| Potassium | 99.66% | 82.65% | -0.53 LT | 275 LT | -1543 LT | 73.37% | | 97.22% |
| Samarium | 99.36% | | -0.35 LT | 496 | -1085 LT | | | 96.54% |
| Selenium | 105.01% | | -0.06 LT | 761 | 316 | | | 104.86% |
| Silicon | 90.40% | 75.18% | 0.63 | 3187 | 2718 | -114.70% | | 90.53% |
| Silver | 107.97% | | -0.02 LT | 54 LT | -42 LT | 53.52% | | 106.46% |
| Sodium | 102.01% | 94.66% | 0.06 LT | 79677 | 75641 | NOT CALC. | | 100.05% |
| Strontium | 105.80% | 100.02% | 0.00 LT | 777 | 756 | 86.77% | | 104.01% |
| Sulfur | 106.08% | | 0.03 | 511 | 377 | | | 107.95% |
| Tantalum | 96.38% | | -0.04 LT | 96 | -124 LT | 27.57% | 73.62% | 96.12% |
| Thallium | 105.99% | | -0.33 LT | 1733 | -94 LT | | | 106.22% |
| Thorium | 106.38% | | -0.18 LT | 476 | -589 LT | | | 104.74% |
| Tin | 100.85% | | 0.02 LT | 112 | 53 | 102.74% | 93.54% | 98.35% |
| Titanium | 100.86% | | 0.13 | 157 | 113 | 90.61% | 92.17% | 101.40% |
| Tungsten | 83.72% | | -0.02 LT | 163 | 19 LT | | | 83.88% |
| Uranium | 106.74% | | -2.40 LT | 18706 | 8238 | | | 103.29% |
| Vanadium | 99.32% | | -0.02 LT | 92 | 13 LT | | | 100.05% |
| Zinc | 100.91% | 93.05% | 0.23 | 735 | 274 | 66.80% | | 98.82% |
| Zirconium | 101.51% | | -0.04 LT | 96 | 24 LT | 46.04% | 93.47% | 100.46% |

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

| | | | |
|---|---|---|---|
| Date Analyzed: | April 19, 1990 | Acid Digested Standard | F1083 |
| Procedure: | LA-505-151/A-0 | Reagent Blank | F1084 |
| Analyst: | J. A. White | Sample 89-043 | F0068 |
| Digestion | Acid Digestion | Duplicate of 89-043 | F0069 |
| Procedure: | LA-505-159/A-0 | Spike of 89-043 | F1087 |
| | | Acid Digested Standard | F1088 |

| | SST-1 | SST-2 | SST-3 | Starting LMCS Standard Instrument Standard ppm | Starting LMCS Standard Recovery % | | LMCS Acid Digestion Standard ppm | Acid Digestion Standard Recovery % | Reagent Blank ppm | 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 | |
| Phosphorou | | | | 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 |

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

| | Digestion 0.4991 g 50.00 mL Sample Dilution Two ppm | Grams/mL ## Sample Dilution One ppm | Weight Volume Sample Duplicate Dilution Three ppm | Digestion 0.4827 g 50.00 mL Sample Duplicate Dilution Two ppm | Grams/mL ## Sample Duplicate Dilution One ppm | Weight Volume Spike of Sample Dilution Three ppm | Digestion 0.5143 g 50.00 mL Spike of Sample Dilution Two ppm | Grams/mL ## Spike of Sample Dilution One ppm | Spike Recovery % |
|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 941.15 | 936.66 | | 858.81 | 881.73 | | 507.09 | 473.99 | NOT CALC. |
| Antimony | 4.47 | 5.78 | | 19.36 | 1.96 LT | | 13.40 | 14.24 | |
| Arsenic | -1.03 | 1.12 | | 1.19 | 0.35 LT | | -0.58 | 1.02 | |
| Barium | -0.04 | 0.74 | | 0.76 | 0.37 | | 10.83 | 10.57 | 103.28% |
| Beryllium | 0.01 | 0.03 | | 0.10 | 0.00 LT | | 0.02 | 0.03 | |
| Bismuth | 50.34 | 53.71 | | 55.28 | 45.46 | | 160.79 | 176.36 | NOT CALC. |
| Boron | 1.55 | 0.62 | | 1.01 | 0.19 LT | | 14.10 | 10.25 | 134.81% |
| Cadmium | -0.45 | 0.08 LT | | -0.02 | -0.11 LT | | 9.00 | 10.03 | 89.32% |
| Calcium | 10.96 | 8.64 | | 8.74 | 8.49 | | 20.40 | 14.91 | 146.72% |
| Cerium | -22.21 | 4.39 | | 9.45 | -8.74 LT | | -30.01 | 1.54 LT | 15.40% |
| Chromium | 4.48 | 6.08 | | 2.24 | 4.93 | | 30.54 | 19.37 | 235.92% |
| Cobalt | 2.01 | 0.78 | | 3.14 | 0.08 LT | | 8.30 | 9.83 | 85.08% |
| Copper | -0.45 | 0.97 | | 1.13 | 0.12 LT | | 9.26 | 10.82 | 100.71% |
| Europium | -0.45 | 0.08 | | 0.14 | -0.16 LT | | -0.57 | 0.04 LT | |
| Iron | 179.69 | 174.84 | | 175.02 | 174.19 | | 218.35 | 212.56 | NOT CALC. |
| Lanthanum | -0.91 | 0.68 | | 2.60 | -0.19 LT | | 7.16 | 9.85 | 89.51% |
| Lead | 8.61 | 13.42 | | 29.40 | 9.69 | | 17.21 | 20.87 | 93.18% |
| Lithium | -1.06 | 0.13 | | 0.21 | -0.44 LT | | 9.24 | 10.65 | 91.11% |
| Magnesium | 83.23 | 18.14 | | 13.94 | 14.37 | | 416.09 | 37.95 | 4138.61% |
| Manganese | 67.43 | 65.54 | | 63.21 | 62.55 | | 56.88 | 57.54 | NOT CALC. |
| Mercury | 0.77 | 0.40 | | 0.95 | 0.41 | | -2.46 | -0.27 LT | |
| Molybdenum | -0.15 | 0.40 | | 0.70 | 0.08 LT | | 8.93 | 9.87 | 85.72% |
| Neodymium | -66.63 | -5.08 LT | | -36.44 | -16.62 LT | | -66.75 | 0.47 LT | NOT CALC. |
| Nickel | 0.85 | 1.92 | | 2.11 | 1.26 | | 9.91 | 11.36 | 98.98% |
| Phosphorou | 29.03 | 27.83 | | 33.98 | 22.89 | | 116.71 | 118.22 | NOT CALC. |
| Potassium | -42.76 | 2.75 LT | | -4.95 | -14.90 LT | | -34.01 | 9.41 | 73.37% |
| Samarium | -26.21 | 4.95 | | 11.38 | -10.47 LT | | -36.47 | 0.62 LT | |
| Selenium | 0.88 | 7.59 | | 11.16 | 3.05 | | 7.17 | 9.37 | |
| Silicon | 29.29 | 31.81 | | 26.09 | 26.24 | | 42.19 | 25.60 | -114.70% |
| Silver | -1.23 | 0.54 LT | | 0.89 | -0.41 LT | | 4.89 | 5.71 | 53.52% |
| Sodium | 795.34 | 781.86 | | 730.24 | 721.33 | | 838.67 | 827.74 | NOT CALC. |
| Strontium | 7.76 | 7.81 | | 7.30 | 7.11 | | 14.46 | 14.97 | 86.77% |
| Sulfur | 11.37 | 5.11 | | 4.83 | 3.64 | | 67.98 | 12.69 | |
| Tantalum | -2.32 | 0.96 | | 1.96 | -1.20 LT | | -0.70 | 3.53 | 27.57% |
| Thallium | -8.31 | 17.30 | | 19.44 | -0.91 LT | | -18.49 | 7.30 | |
| Thorium | -14.34 | 4.75 | | 10.36 | -5.69 LT | | -19.12 | 2.21 | |
| Tin | 1.06 | 1.11 | | 1.29 | 0.51 | | 14.05 | 10.97 | 102.74% |
| Titanium | 0.66 | 1.57 | | 1.68 | 1.09 | | 9.35 | 9.90 | 90.61% |
| Tungsten | -1.33 | 1.63 | | 1.71 | 0.18 LT | | -2.06 | 1.00 | |
| Uranium | -16.63 | 186.72 | | 184.36 | 79.53 | | -175.80 | 60.96 | |
| Vanadium | 0.03 | 0.92 | | 0.89 | 0.13 LT | | -0.93 | 0.32 LT | |
| Zinc | 7.34 | 1.38 | | 2.64 | 1.24 | | 25.48 | 13.50 | 66.80% |
| Zirconium | -1.71 | 0.96 | | 2.48 | 0.24 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 | |

| | Standard LMCS Acid Digestion ppm | Acid Digestion Standard Recovery % | | | Ending LMCS Standard | Standard Recovery % | | Spike Standard LMCS ppm added | Spike Standard ID Book # 34C11CO 34C11CK | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | SST-1 | SST-2 | SST-3 | | | | | 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 |
| Phosphorou | | | | | 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 # 78C11J 82838J 77C11I | ACID DIGESTION LMCS STANDARD VALUES ppm in Sample | ACID DIGEST. LMCS IDs Book # 81C11A 82C11A |
|---|---|---|---|---|---|
| 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 | |
| Phosphorou | | 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 | | |

9 1 1 2 1 5 0 7 4

## 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 |
| SE | 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 | 3.31 | 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 | 0.43 |

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 |
|---|---|---|---|---|---|---|---|---|
| SST0 | 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 |
|---|---|---|---|---|---|---|---|---|
| SST0 | 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 |
|---|---|---|---|---|---|---|---|---|
| SST0 | 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 |
|---|---|---|---|---|---|---|---|---|
| SST0 | 0 | 1.4867 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | CRV1 |
| SST2 | 0 | 67.995 | 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 |
|---|---|---|---|---|---|---|---|---|
| SSTO | 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 |
|---|---|---|---|---|---|---|---|---|
| SSTO | 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 |
|---|---|---|---|---|---|---|---|---|
| SSTO | 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 |
|---|---|---|---|---|---|---|---|---|
| SSI0 | 0 | 0.4553 | 0.0000 | 0.0000 | -0.000 | -0.000 | | CRV1 |
| SSI2 | 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 |
|---|---|---|---|---|---|---|---|---|
| SSI0 | 0 | 0.7777 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | CRV1 |
| SSI2 | 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 |
|---|---|---|---|---|---|---|---|---|
| SSI0 | 0 | 4.6297 | 0.0000 | 0.0000 | -0.000 | -0.000 | | CRV1 |
| SSI3 | 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 |
|---|---|---|---|---|---|---|---|---|
| SSI0 | 0 | 1.7053 | 0.0000 | 0.0000 | -0.000 | -0.000 | | CRV1 |
| SSI3 | 0 | 294.93 | 50.000 | 50.000 | 50.000 | 0.0000 | 0.0000 | CRV1 |

Programme name : SST  Channel name : NB  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

ICP Calibration April 19, 1990

| 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 | | |

| 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 | 30.000 | -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 |

| 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 | 457.20 | -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 | 10.283 | 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 08:53:57

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 | 1.65 | 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 : SST3
Sample code 2 : DIRECT
Programme : SST 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 | -80.13 |
| 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 | 0.129 | 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 |

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 | 42.10 |
| 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 | 3.07 | 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 | MV 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 | 4.34 |
| 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 | 125.29 | 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 | -5.72 |
| 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 | -12.21 |
| Se | 1.71 | -0.129 | -19.31 |
| Si | 3.26 | -0.078 | -8.60 |
| Ag | 14.89 | -0.029 | -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 | 3.27 | -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 | (-0.033 | -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 | MV 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 | 0.320 | 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 |

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 | 809.72 |
| K | 3.28 | -0.744 | -12.25 |
| 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 | -32.52 |
| 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 - Customer Id. 89-043, Sample F0068 - (File 24)

Sample name : F68
Sample code 1 : SAMPLE
Sample code 2 : 100-10
Sample code 3 : 89043
Programme : SST 19-Apr-90 10:39:12

| NAME | MV INT | CONCEN | DILCOR | RSD |
|---|---|---|---|---|
| Al | 5.60 | 9.318 | 941.15 | 0.48 |
| Sb | 0.38 | 0.044 | 4.467 | 152.75 |
| As | 1.09 | -0.010 | -1.026 | -103.52 |
| Ba | 4.06 | -0.000 | -0.037 | -682.39 |
| Be | 0.71 | 0.000 | 0.011 | 255.26 |
| Bi | 4.42 | 0.498 | 50.344 | 10.84 |
| B | 4.85 | 0.015 | 1.549 | 22.82 |
| Cd | 2.31 | -0.004 | -0.451 | -47.44 |
| Ca | 2.61 | 0.109 | 10.964 | 0.30 |
| Ce | 5.36 | -0.220 | -22.21 | -43.38 |
| Cr | 1.63 | 0.044 | 4.475 | 8.34 |
| Co | 0.27 | 0.020 | 2.012 | 65.85 |
| Cu | 2.99 | -0.004 | -0.447 | -124.13 |
| Eu | 4.14 | -0.004 | -0.450 | -34.45 |
| Fe | 12.52 | 1.779 | 179.69 | 0.38 |
| La | 0.36 | -0.009 | -0.911 | -130.93 |
| Pb | 0.27 | 0.085 | 8.605 | 38.19 |
| Li | 3.99 | -0.011 | -1.063 | -34.16 |
| Mg | 17.67 | 0.824 | 83.227 | 0.42 |
| Mn | 9.75 | 0.668 | 67.433 | 0.62 |
| Hg | 4.75 | 0.008 | 0.773 | 7.12 |
| Mo | 1.70 | -0.001 | -0.149 | -243.76 |
| Nd | 5.52 | (-0.660 | (-66.63 | -16.98 |
| Ni | 3.54 | 0.008 | 0.854 | 62.29 |
| P | 1.62 | 0.287 | 29.031 | 13.46 |
| K | 3.35 | -0.423 | -42.76 | -18.11 |
| Sm | 5.14 | -0.259 | -26.21 | -44.07 |
| Se | 1.78 | 0.009 | 0.879 | 384.31 |
| Si | 3.80 | 0.290 | 29.290 | 6.01 |
| Ag | 15.25 | -0.012 | -1.226 | -50.33 |
| Na | 14.21 | 7.875 | 795.34 | 0.96 |
| Sr | 5.64 | 0.077 | 7.756 | 1.81 |
| S | 0.84 | 0.113 | 11.365 | 1.71 |
| Ta | 3.75 | -0.023 | -2.323 | -85.74 |
| Tl | 4.40 | -0.082 | -8.305 | -127.42 |
| Th | 1.08 | -0.142 | -14.34 | -50.10 |
| Sn | 1.28 | 0.010 | 1.056 | 93.54 |
| Ti | 3.68 | 0.007 | 0.663 | 51.22 |
| W | 1.36 | -0.013 | -1.334 | -148.23 |
| U | 5.30 | -0.165 | -16.63 | -434.47 |
| V | 4.42 | 0.000 | 0.033 | 1552.95 |
| Zn | 4.64 | 0.073 | 7.335 | 0.99 |
| Zr | 4.71 | -0.017 | -1.713 | -63.45 |

Dilution factor : 101.000

ICP Data Report - Customer Id. 89-043, Sample F0068 - (File 25)

Sample name : F68
Sample code 1 : SAMPLE
Sample code 2 : 500-10
Sample code 3 : 89043
Programme : SST 19-Apr-90 10:44:07

| NAME | MV INT | CONCEN | DILCOR | RSD |
|---|---|---|---|---|
| Al | 19.13 | 44.603 | 936.66 | 0.90 |
| Sb | 0.39 | 0.275 | 5.779 | 17.22 |
| As | 1.17 | 0.054 | 1.124 | 18.03 |
| Ba | 4.54 | 0.035 | 0.736 | 4.16 |
| Be | 0.74 | 0.001 | 0.030 | 10.19 |
| Bi | 6.46 | 2.558 | 53.710 | 0.89 |
| B | 5.03 | 0.029 | 0.616 | 13.08 |
| Cd | 2.44 | 0.004 | 0.080 | 15.67 |
| Ca | 8.54 | 0.412 | 8.642 | 0.50 |
| Ce | 5.58 | 0.209 | 4.385 | 26.81 |
| Cr | 2.45 | 0.290 | 6.081 | 1.93 |
| Co | 0.27 | 0.037 | 0.784 | 11.55 |
| Cu | 3.22 | 0.046 | 0.970 | 7.09 |
| Eu | 4.32 | 0.004 | 0.078 | 25.86 |
| Fe | 52.41 | 8.326 | 174.84 | 0.75 |
| La | 0.37 | 0.032 | 0.677 | 6.93 |
| Pb | 0.30 | 0.639 | 13.419 | 6.94 |
| Li | 4.12 | 0.006 | 0.126 | 45.75 |
| Mg | 18.50 | 0.864 | 18.143 | 0.41 |
| Mn | 42.70 | 3.121 | 65.544 | 0.44 |
| Hg | 4.92 | 0.019 | 0.402 | 19.98 |
| Mo | 1.82 | 0.019 | 0.395 | 13.87 |
| Nd | 5.74 | -0.242 | -5.081 | -19.11 |
| Ni | 4.18 | 0.091 | 1.919 | 3.51 |
| P | 2.87 | 1.325 | 27.826 | 3.00 |
| K | 3.46 | 0.131 | 2.746 | 60.97 |
| Sm | 5.35 | 0.236 | 4.949 | 32.37 |
| Se | 1.95 | 0.362 | 7.593 | 10.29 |
| Si | 5.62 | 1.515 | 31.812 | 1.37 |
| Ag | 16.06 | 0.026 | 0.536 | 15.92 |
| Na | 46.21 | 37.231 | 781.86 | 0.36 |
| Sr | 12.84 | 0.372 | 7.808 | 0.29 |
| S | 0.95 | 0.243 | 5.105 | 8.44 |
| Ta | 3.91 | 0.046 | 0.960 | 21.44 |
| Tl | 4.76 | 0.824 | 17.303 | 8.65 |
| Th | 1.13 | 0.226 | 4.748 | 13.21 |
| Sn | 1.38 | 0.053 | 1.113 | 8.99 |
| Ti | 4.27 | 0.075 | 1.572 | 6.52 |
| W | 1.47 | 0.077 | 1.626 | 24.38 |
| U | 5.94 | 8.892 | 186.72 | 4.37 |
| V | 4.77 | 0.044 | 0.921 | 6.06 |
| Zn | 4.42 | 0.066 | 1.376 | 0.13 |
| Zr | 4.90 | 0.046 | 0.962 | 12.22 |

Dilution factor : 21.0000

ICP Data Report - Duplicate of Sample F0068 - (File 26)

Sample name : F69
Sample code 1 : DUPSAM
Sample code 2 : 100-10
Sample code 3 : 89043
Programme : SST 19-Apr-90 10:48:09

| NAME | MV INT | CONCEN | DILCOR | RSD |
|---|---|---|---|---|
| Al | 5.29 | 8.503 | 858.81 | 0.91 |
| Sb | 0.39 | 0.192 | 19.358 | 30.77 |
| As | 1.12 | 0.012 | 1.192 | 129.09 |
| Ba | 4.17 | 0.008 | 0.761 | 45.50 |
| Be | 0.73 | 0.001 | 0.100 | 15.02 |
| Bi | 4.47 | 0.547 | 55.276 | 3.07 |
| B | 4.78 | 0.010 | 1.012 | 29.72 |
| Cd | 2.37 | -0.000 | -0.023 | -919.73 |
| Ca | 2.18 | 0.087 | 8.738 | 1.74 |
| Ce | 5.52 | 0.094 | 9.454 | 148.05 |
| Cr | 1.56 | 0.022 | 2.237 | 28.61 |
| Co | 0.27 | 0.031 | 3.144 | 6.93 |
| Cu | 3.06 | 0.011 | 1.128 | 70.14 |
| Eu | 4.27 | 0.001 | 0.144 | 169.64 |
| Fe | 12.23 | 1.733 | 175.02 | 1.08 |
| La | 0.37 | 0.026 | 2.604 | 52.68 |
| Pb | 0.28 | 0.291 | 29.400 | 12.67 |
| Li | 4.09 | 0.002 | 0.208 | 288.43 |
| Mg | 3.34 | 0.138 | 13.943 | 1.57 |
| Mn | 9.18 | 0.626 | 63.209 | 1.30 |
| Hg | 4.77 | 0.009 | 0.949 | 26.47 |
| Mo | 1.75 | 0.007 | 0.700 | 39.34 |
| Nd | 5.68 | -0.361 | -36.44 | -44.46 |
| Ni | 3.64 | 0.021 | 2.110 | 38.79 |
| P | 1.68 | 0.336 | 33.977 | 2.08 |
| K | 3.42 | -0.049 | -4.953 | -336.01 |
| Sm | 5.30 | 0.113 | 11.381 | 138.61 |
| Se | 1.83 | 0.110 | 11.159 | 20.97 |
| Si | 3.76 | 0.258 | 26.093 | 11.55 |
| Ag | 15.70 | 0.009 | 0.891 | 112.99 |
| Na | 13.51 | 7.230 | 730.24 | 0.88 |
| Sr | 5.53 | 0.072 | 7.299 | 0.61 |
| S | 0.79 | 0.048 | 4.834 | 12.15 |
| Ta | 3.85 | 0.019 | 1.959 | 64.96 |
| Tl | 4.51 | 0.192 | 19.435 | 84.07 |
| Th | 1.11 | 0.103 | 10.355 | 94.00 |
| Sn | 1.28 | 0.013 | 1.285 | 59.29 |
| Ti | 3.77 | 0.017 | 1.684 | 27.52 |
| W | 1.40 | 0.017 | 1.708 | 66.35 |
| U | 5.44 | 1.825 | 184.36 | 50.28 |
| V | 4.49 | 0.009 | 0.893 | 70.66 |
| Zn | 3.22 | 0.026 | 2.644 | 3.51 |
| Zr | 4.84 | 0.025 | 2.478 | 60.14 |

Dilution factor : 101.000

ICP Data Report - Duplicate of Sample F0068 - (File 27)

Sample name : F69
Sample code 1 : DUPSAM
Sample code 2 : 500-10
Sample code 3 : 89043
Programme : SST 19-Apr-90 10:52:26

| NAME | MV INT | CONCEN | DILCOR | RSD |
|---|---|---|---|---|
| Al | 18.13 | 41.987 | 881.73 | 2.55 |
| Sb | 0.38 | 0.093 | 1.961 | 105.13 |
| As | 1.12 | 0.016 | 0.346 | 90.05 |
| Ba | 4.31 | 0.018 | 0.370 | 13.90 |
| Be | 0.70 | -0.000 | -0.001 | -454.33 |
| Bi | 6.07 | 2.165 | 45.456 | 1.15 |
| B | 4.77 | 0.009 | 0.192 | 27.25 |
| Cd | 2.30 | -0.005 | -0.106 | -18.35 |
| Ca | 8.40 | 0.404 | 8.490 | 0.45 |
| Ce | 5.26 | -0.416 | -8.742 | -21.10 |
| Cr | 2.27 | 0.235 | 4.932 | 2.66 |
| Co | 0.26 | 0.004 | 0.078 | 351.17 |
| Cu | 3.03 | 0.006 | 0.116 | 87.59 |
| Eu | 4.07 | -0.008 | -0.159 | -20.03 |
| Fe | 52.23 | 8.295 | 174.19 | 0.58 |
| La | 0.36 | -0.009 | -0.189 | -137.77 |
| Pb | 0.29 | 0.461 | 9.691 | 12.21 |
| Li | 3.90 | -0.021 | -0.441 | -18.84 |
| Mg | 14.75 | 0.684 | 14.366 | 0.58 |
| Mn | 40.78 | 2.978 | 62.548 | 0.74 |
| Hg | 4.93 | 0.020 | 0.411 | 32.82 |
| Mo | 1.73 | 0.004 | 0.076 | 96.11 |
| Nd | 5.45 | (-0.791 | (-16.62 | -17.50 |
| Ni | 3.94 | 0.060 | 1.262 | 7.39 |
| P | 2.58 | 1.090 | 22.888 | 1.10 |
| K | 3.29 | -0.709 | -14.90 | -9.38 |
| Sm | 5.04 | -0.498 | -10.47 | -19.82 |
| Se | 1.84 | 0.145 | 3.051 | 15.54 |
| Si | 5.23 | 1.249 | 26.236 | 11.09 |
| Ag | 15.10 | -0.020 | -0.410 | -28.48 |
| Na | 43.07 | 34.349 | 721.33 | 0.46 |
| Sr | 12.03 | 0.338 | 7.106 | 0.54 |
| S | 0.89 | 0.173 | 3.641 | 5.24 |
| Ta | 3.66 | -0.057 | -1.199 | -23.04 |
| Tl | 4.42 | -0.043 | -0.908 | -262.68 |
| Th | 1.06 | -0.271 | -5.686 | -26.27 |
| Sn | 1.31 | 0.024 | 0.513 | 18.70 |
| Ti | 4.08 | 0.052 | 1.090 | 7.15 |
| W | 1.39 | 0.009 | 0.183 | 118.65 |
| U | 5.58 | 3.787 | 79.531 | 15.98 |
| V | 4.47 | 0.006 | 0.130 | 56.30 |
| Zn | 4.22 | 0.059 | 1.236 | 1.32 |
| Zr | 4.80 | 0.011 | 0.235 | 101.52 |

Dilution factor : 21.0000

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 |

# Appendix A.

# Analytical Cards

9 1 1 2 1 0 0 3 2 9

Physical Properties

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 53.-5001 | SEGMENT-2 | 11-15-89 | 10:18 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| VOA SAMP | LI-000-200 | NONE | WB75L | 0 |

Sample Size: ? ~~3.21g~~ 2.18g WHC N313 3 — Customer ID: 89-043

Remarks, Calculations, Results:
DUPLICATE SAMPLE Bottle ~~26~~ 26 Total wt ~~27.84~~ 24.32 Tare wt ~~22.63~~ 22.14 ~~3.21g~~ 2.18g

Sent to PNL

| Analyst-1 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 |
|---|---|---|---|---|
| RLW KJP-JRS | 6A297 61300 65286 | | | |
| Hrs 1-15-89 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| | | | DMS |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 53.-5002 | SEGMENT-2 | 11-15-89 | 10:18 | 24 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| PRT-SIZE | LI-000-200 | NONE | WB75L | 0 |

Sample Size: ? 1.25g — Customer ID: 89-043

Remarks, Calculations, Results: Bottle # ~~26~~ 35
PARTICLE SIZE DISTRIBUTION
Total wt ~~23.30~~ 23.78
TARE ~~22.51~~ 22.53
1.25
Results:
see attached sheets (6)

| Analyst-1 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 |
|---|---|---|---|---|
| 12-15-89 [signature] | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| | | [signature] | |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 53.-5000 | SEGMENT-2 | 11-15-89 | 10:18 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| APPR/OTR | LI-000-200 | NONE | WB75L | 0 |

Sample Size: ? 98.89 WHC N313 3 — Customer ID: 89-043

Remarks, Calculations, Results: Penetrometer (BHW) 220
A. JAR ID# 056
B. JAR TARE WT. 224.06
C. JAR TOTAL WT. 322.95
D. C-B= 98.89
E. EST. VOL./LENGTH ~5 inches
F. VISUAL REMARKS Valve in correct position but, cable very slack, proper position
Sample firm, Dark brown, Crumbly at top

| Analyst-1 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 |
|---|---|---|---|---|
| RLW KJP JRS | 6A297 61300 65286 | | | |
| Hrs 11-15-89 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| | | [signature] | DMS |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 53.-5003 | SEGMENT-2 | 11-15-89 | 10:18 | 16 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| HOMOGZT | LI-000-200 | NONE | WB75L | 0 |

Sample Size: ? — Customer ID: 89-043

Remarks, Calculations, Results
Homogenization complete
1-3-90 Jar # 257
WHC N313 4 pg 17

| Analyst-1 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 |
|---|---|---|---|---|
| RLW KJP JRS | 6A297 61300 68090 | | | |
| Hrs 1-3-90 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| | | | DMS |

54-6800-061 (R-10-83)

1

Physical Properties

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 55.-5201 | SEGMENT-4 | 11-15-89 | 10:19 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| VOA-SAMP | LI-000-200 | NONE | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? | 89-043 |

Remarks, Calculations, Results:
THIRD SAMPLE

~~Sent to PNL~~
No duplicat taken

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| Hrs | Hrs | Hrs | Hrs | Hrs |
| Date | Time Completed | Lab Unit Mgr | DMS | |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 54.-5101 | ~~SEGMENT-5~~ | 11-15-89 | 10:18 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| VOA-SAMP | LI-000--200 | NONE | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? | 89-043 |

Remarks, Calculations, Results:
DUPLICATE SAMPLE

~~Sent to PNL~~
No duplicate taken

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| Hrs | Hrs | Hrs | Hrs | Hrs |
| Date | Time Completed | Lab Unit Mgr | DMS | |

54-6600-061 (R-10-83)

9 1 1 2 5 0 0 3 7 1

pH Analysis of Solid Sample

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 54.-5115 | SEGMENT-3 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| pH | LA-212-103 | NONE | WB75L | 0 |

Sample Size: ? 3.140g / 3.140 ml

Customer ID: 089043

Remarks, Calculations, Results:
pH 11.76
SAMPLE TEMP 25.4

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6C269 | | | | REBennett |
| Mary Fraley | Hrs | Hrs | Hrs | Hrs |
| Date 1-4-90 | Time Completed | Lab Unit Mgr | | |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 53.-5015 | SEGMENT-2 | 11-15-89 | 10:18 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| pH | LA-212-103 | NONE | WB75L | 0 |

Sample Size: ? 3.470g / 3.470 ml

Customer ID: 089043

Remarks, Calculations, Results:
pH 11.58 #237
SAMPLE TEMP 25.4
9.24g
WHC N 3134

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6C269 | | | | REBennett |
| Mary Fraley | Hrs | Hrs | Hrs | Hrs |
| Date 1-4-90 | Time Completed | Lab Unit Mgr | | |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 73.-5315 | SEGMENT-22 | 11-15-89 | 10:21 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| pH | LA-212-103 | NONE | WB75L | 0 |

Sample Size: ?

Customer ID:

Remarks, Calculations, Results:
~~LMCS CHECK SAMPLE~~
~~pH FOUND~~
~~STD ID~~
~~SAMPLE TEMP~~
Reagent blank = 8.16

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6C269 | | | | REBennett |
| Mary Fraley | Hrs | Hrs | Hrs | Hrs |
| Date 1-4-90 | Time Completed | Lab Unit Mgr | | |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 56.-5515 | SEGMENT-5 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| pH | LA-212-103 | % RECOVERY | WB75L | 0 |

Sample Size: ?

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
pH FOUND 10.02
STD ID 72C11-A
SAMPLE TEMP 23.4
K4
10.02/10.00 100.290

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6C269 | | | | REBennett |
| Mary Fraley | Hrs | Hrs | Hrs | Hrs |
| Date 1-4-90 | Time Completed | Lab Unit Mgr | | |

54-6600-061 (R-10-83)

pH Analysis of Solid Sample

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 704.-5515 | SEGMENT-A | 12-11-89 | 8:13 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Rerune |
|---|---|---|---|---|
| pH | LA-212-103 | % RECOVERY | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? | |

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
pH FOUND 9.99
STD ID 7201-11
SAMPLE TEMP ~~25.5~~

9.99/10.00 99.9%

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| GC269 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| Date 1-4-90 | Time Completed | Lab Unit Mgr | | |

84-6800-061 (R-10-83)

9 1 1 2 ? 5 ? 0 3 ? 3

Percent Water Analysis

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 54.-5110 | SEGMENT-3 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| % H2O | LA-564-101 | % | WB75L | 0 |

Sample Size: ?

Customer ID: 089043

Remarks, Calculations, Results:
DUPLICATE SAMPLE
G. 22.3601
T. 21.6722
W1 22.1018
W2 22.1033
37.6%

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B598/RH | | | | R E Bennett |
| Hrs | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [signature] | DMS |

54-5600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 52.-5510 | SEGMENT-1 | 11-15-89 | 10:18 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| % H2O | LA-564-101 | % RECOVERY | WB75L | 0 |

Sample Size: ? 1mL

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 11C11AH
58.29
95.0%
① 23.0149 G. ② 22.6870
53.73 21.7581 T. 21.4071
22.2912 W1 21.9409
22.2874 W2 21.9409
56.01/58.98

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B598/RH | | | | R E Bennett |
| Hrs | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [signature] | DMS |

54-5600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 749.-5310 | SEGMENT-V | 12-11-89 | 9: 5 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| % H2O | LA-564-101 | % | WB75L | 0 |

Sample Size: ?

Customer ID:

Remarks, Calculations, Results:
REAGENT BLANK
7.2-3 5.1-3
① 22.0476 G. ② 22.0058
22.0476 T. 22.0058
22.0404 W1 22.0007
22.0426 W2 22.0048
66.15-3 grams

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B598/RH | | | | R E Bennett |
| Hrs | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [signature] | DMS |

54-5600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 732.-5510 | SEGMENT-E | 12-11-89 | 9: 3 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| % H2O | LA-564-101 | % RECOVERY | WB75L | 0 |

Sample Size: ? 1mL

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 11C11AH
58.06
98.2%
③ 22.5036 G. ④ 22.5546
57.79 21.3129 T. 21.2996
21.8155 W1 21.8260
21.8111 W2 21.8214
57.9%/58.98

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B598/RH | | | | R E Bennett |
| Hrs | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [signature] | DMS |

54-5600-061 (R-10-83)

9 1 1 2 7 5 7 0 3 7 4

Percent Water Analysis

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 53.-5010 | SEGMENT-2 | 11-15-89 | 10:18 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| % H2O | LA-564-101 | % | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? | 089043 |

Remarks, Calculations, Results.

#239

3.64

G 22.6838
T. 21.8768
W1 22.3648
W2 22.3662

39.5%

WHC N 3134

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6570/RH | | | | R E [illegible] |
| Hrs | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [illegible] | OMS |

84-5600-061 (R-10-83)

9 1 1 2 [illegible] 0 3 7 5

Fusion Dissolution

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 59.-6100 | SEGMENT-8 | 11-15-89 | 10:19 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| FUSION | LA-549-141 | G/L | WB75L | 0 |

Sample Size: ?

Customer ID: 089043

Remarks, Calculations, Results:
DUPLICATE ANALYSIS
GRAMS SAMPLE .4190
VOLUME ON COMPLETION 250ml

1.676 -3 g/ml
1.68 g/L
~~1.676 -6~~ g/l WHR 5/10/90

SEQUENCE # : 91
WT 1: 37.3773
WT 2: 37.7963

NET WEIGHT:
---> 0.4190 GRAMS

01/05/90 @ 11:29:12

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6 BS 8/RH | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| | | [signature] 5/10/90 | | |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 1-5-90 | | [signature] |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 58.-6000 | SEGMENT-7 | 11-15-89 | 10:19 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| FUSION | LA-549-141 | G/L | WB75L | 0 |

Sample Size: ?

Customer ID: 089043

Remarks, Calculations, Results:
GRAMS SAMPLE .5663 #
VOLUME ON COMPLETION 250ML

2.265 -3 g/ml
2.27
~~2.265 -6~~ g/l WHR 6/10/90

SEQUENCE # : 90
WT 1: 38.2621
WT 2: 38.8284

NET WEIGHT:
---> 0.5663 GRAMS

01/05/90 @ 11:27:24

WHC N 3134

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6 BS 9/RH | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| | | [signature] 5/10/90 | | |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 1-5-90 | | [signature] |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 748.-6300 | SEGMENT-U | 12-11-89 | 9: 5 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| FUSION | LA-549-141 | G/L | WB75L | 0 |

Sample Size: ?

Customer ID:

Remarks, Calculations, Results:
REAGENT BLANK

Complete

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6 BS 8/RH | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 1-5-90 | | [signature] |

54-6800-061 (R-10-83)

Total Alpha Analysis on the Fusion Dissolution

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 58.-6020 | SEGMENT-7 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| AT | LA-~~548~~-101 508 | uCI/L | WB75L | 0 |

Sample Size: ? 100-10-250

Customer ID: 089043

Remarks, Calculations, Results:

6.38 uci/l

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. Hopkins | | | | |
| Date | Time Completed | Lab Unit Mgr | | |
| 1-8-90 | | | | |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 57.-6520 | SEGMENT-6 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| AT | LA-~~548~~-101 508 | % RECOVERY | WB75L | 0 |

Sample Size: ? 10ml

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 83944

105.2%

1.0525-2 / 1.000-2

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. Hopkins | | | | |
| Date | Time Completed | Lab Unit Mgr | | |
| 1-8-90 | | | | |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 60.-6220 | SEGMENT-9 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| AT | LA-~~548~~-101 508 | % RECOVERY | WB75L | 0 |

Sample Size: ? 100-10-250

Customer ID: 089043

Remarks, Calculations, Results:

SPIKE SAMPLE
SPIKE ID 83944
SPIKE VOLUME 10ml

spike too low

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. Hopkins | | | | |
| Date | Time Completed | Lab Unit Mgr | | |
| 1-8-90 | | | | |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 59.-6120 | SEGMENT-8 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| AT | LA-~~548~~-101 508 | uCI/L | WB75L | 0 |

Sample Size: ? 100-10-250

Customer ID: 089043

Remarks, Calculations, Results

DUPLICATE SAMPLE

4.13 uci/l

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. Hopkins | | | | |
| Date | Time Completed | Lab Unit Mgr | | |
| 1-8-90 | | | | |

54-6600-061 (R-10-83)

# Total Alpha Analysis on the Fusion Dissolution

18/2

82/10 − .4

73/10

Alpha Calculation by AJ on 01-08-1990 at 17:54:22
Det #18 2 -inch mount Alpha eff. : .2095
Sample size : .25 mL Dilution : 101

Mount # 1

82 / 10 − 0.4 = 6.7755E+00 uCi/L alpha

Mount # 2

73 / 10 − 0.4 = 5.9937E+00 uCi/L alpha

F 58.-6020

18/2

503/10

482/10

Alpha Calculation by EMB on 01-08-1990 at 15:12:28
Det #18 2 -inch mount Alpha eff. : .2095
Sample size : 10 mL Dilution : 1

Mount # 1

503 / 10 − 0.3 = 1.0751E-02 uCi/L alpha

Mount # 2

482 / 10 − 0.3 = 1.0299E-02 uCi/L alpha

F 57.-6520

18/2

598/10 − .4

604/10

Alpha Calculation by AJ on 01-08-1990 at 17:52:33
Det #18 2 -inch mount Alpha eff. : .2095
Sample size : .25 mL Dilution : 101

Mount # 1

598 / 10 − 0.4 = 5.1598E+01 uCi/L alpha

Mount # 2

604 / 10 − 0.4 = 5.2119E+01 uCi/L alpha

F 60.-6220

18/2

46/10 − .4

57/10

Alpha Calculation by AJ on 01-08-1990 at 17:53:22
Det #18 2 -inch mount Alpha eff. : .2095
Sample size : .25 mL Dilution : 101

Mount # 1

46 / 10 − 0.4 = 3.6483E+00 uCi/L alpha

Mount # 2

57 / 10 − 0.4 = 4.6038E+00 uCi/L alpha

F 59.-6120

9 1 1 2 1 1 0 3 7 8

Total Alpha Analysis on the Fusion Dissolution

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 737.-6520 | SEGMENT-J | 12-11-89 | 9: 4 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| AT | LA-~~548~~ 508-101 | % RECOVERY | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? 10ml | |

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 83B44

111.8% KL

1.118 -2 / 1.0001 -2

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. Hopkins | | | | |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 1-8-90 | | [signature] |

54-5800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 72.-6320 | SEGMENT-21 | 11-15-89 | 10:21 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| AT | LA-~~548~~ 508-101 | uCI/L | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? | 089043 |

Remarks, Calculations, Results:

REAGENT BLANK

<1.29 -16 uci/l

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. Hopkins | | | | |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 1-8-90 | | [signature] |

54-5800-061 (R-10-83)

# Total Alpha Analysis on the Fusion Dissolution

18/2

500/10 - .4

Alpha Calculation by AJ on 01-08-1990 at 19:31:27
Det #18 2 -inch mount Alpha eff. : .2095
Sample size : 10 mL Dilution : 1

Mount # 1

548/10 - .4

500 / 10 - 0.4 = 1.0665E-02 uCi/L alpha

Mount # 2

548 / 10 - 0.4 = 1.1697E-02 uCi/L alpha

F 737.-6520

18/2

1/10

~~Alpha Calculation~~ by EMB on 01-08-1990 at 15:18:42
Det #18 2 -inch mount Alpha eff. : .2095
Sample size : 1 ea Dilution : 1

Mount # 1

6/10

1 / 10 - 0.3 < 8.6772E-07 uCi/ea alpha

100

Mount # 2

6 / 10 - 0.3 < 1.7093E-06 uCi/ea alpha

100

F 72.-6320

9 1 1 2 ? ? 0 3 1 0

Total Beta Analysis on the Fusion Dissolution

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 58.-6025 | SEGMENT-7 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TB | LA-~~548~~ 508-101 | uCI/L | WB75L | 0 |

Sample Size: ? 100-10-250

Customer ID: 089043

Remarks, Calculations, Results:

3.75 3 uci/l

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs: J. Hopkins | Hrs | Hrs | Hrs | Hrs |

Date: 1-8-90 | Time Completed: | Lab Unit Mgr: [signature] | [initials] KF

54-5800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 57.-6525 | SEGMENT-6 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TB | LA-~~548~~ 508-101 | % RECOVERY | WB75L | 0 |

Sample Size: ? ~~100-10~~ 10 ml

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 83B44

KF

99.2% 1.3796 -1 uci/l / 1.3913 -1

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs: J. Hopkins | Hrs | Hrs | Hrs | Hrs |

Date: 1-8-90 | Time Completed: | Lab Unit Mgr: [signature] | [initials] KF

54-5800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 60.-6225 | SEGMENT-9 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TB | LA-~~548~~ 508-101 | % RECOVERY | WB75L | 0 |

Sample Size: ? 100-10-250

Customer ID: 089043

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID 83B44
SPIKE VOLUME 10 ml

spike too low

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs: J. Hopkins | Hrs | Hrs | Hrs | Hrs |

Date: 1-8-90 | Time Completed: | Lab Unit Mgr: [signature] | KF

54-5800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 59.-6125 | SEGMENT-8 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TB | LA-~~548~~ 508-101 | uCI/L | WB75L | 0 |

Sample Size: ? 100-10-250

Customer ID: 089043

Remarks, Calculations, Results:
DUPLICATE SAMPLE

2.68 3 uci/l

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs: J. Hopkins | Hrs | Hrs | Hrs | Hrs |

Date: 1-8-90 | Time Completed: | Lab Unit Mgr: [signature] | KF

54-5800-061 (R-10-83)

18/2

65709/10 - 6

64313/10

DF 101
SS .250

Beta Calculation by AJ on 01-08-1990 at 17:54:20
Set #18 2 -inch mount Beta eff. : .3151
Sample size : .25 mL Dilution : 101

Mount # 1

65709 / 10 - 6.0 = 3.7915E+03 uCi/L beta

Mount # 2

64313 / 10 - 6.0 = 3.7108E+03 uCi/L beta

F 58.-6025

18/2

9836/10

9585/10

Beta Calculation by EMB on 01-08-1990 at 15:12:26
Set #18 2 -inch mount Beta eff. : .3151
Sample size : 10 mL Dilution : 1

Mount # 1

9836 / 10 - 6.0 = 1.3975E-01 uCi/L beta

Mount # 2

9585 / 10 - 6.0 = 1.3616E-01 uCi/L beta

F 57.-6525

18/2

78046/10 - 6

78164/10

DF 101
SS .250

Beta Calculation by AJ on 01-08-1990 at 17:52:30
Set #18 2 -inch mount Beta eff. : .3151
Sample size : .25 mL Dilution : 101

Mount # 1

78046 / 10 - 6.0 = 4.5040E+03 uCi/L beta

Mount # 2

78164 / 10 - 6.0 = 4.5108E+03 uCi/L beta

F 60.-6225

18/2

46360/10 - 6

46445/10

DF 101
SS .250

Beta Calculation by AJ on 01-08-1990 at 17:53:20
Set #18 2 -inch mount Beta eff. : .3151
Sample size : .25 mL Dilution : 101

Mount # 1

46360 / 10 - 6.0 = 2.6740E+03 uCi/L beta

Mount # 2

46445 / 10 - 6.0 = 2.6789E+03 uCi/L beta

F 59.-6125

9 1 1 2 3 5 0 0 3 4 2

Total Beta Analysis on the Fusion Dissolution

182

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 737.-6525 | SEGMENT-J | 12-11-89 | 9: 4 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TB | LA-~~548~~ 508-101 | % RECOVERY | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? 10 ml | |

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 83B44

KT

101.1%

1.406⁻¹/1.3913⁻¹

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. Hopkins | | | | |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-8-90 | | | KT |

54-5800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 72.-6325 | SEGMENT-21 | 11-15-89 | 10:21 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TB | LA-~~548~~ 508-101 | uCI/L | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? 10ml | 089043 |

Remarks, Calculations, Results:

REAGENT BLANK

<3.50 -4 uci/l

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6A543 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. Hopkins | | | | |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-8-90 | | | KT |

54-5800-061 (R-10-83)

# Total Beta Analysis on the Fusion Dissolution

18/2

10ml 18/2

9853/10 -6

Beta Calculation by AJ on 01-08-1990 at 19:31:25
Det #18 2 -inch mount Beta eff. : .3151
Sample size : 10 mL Dilution : 1

Mount # 1

9853/10 - 6.0 = 1.4000E-01 uCi/L beta

9930/10 -6

Mount # 2

9930/10 - 6.0 = 1.4110E-01 uCi/L beta

F 737-6525

72/10 -6

Beta Calculation by EMB on 01-08-1990 at 15:18:40
Det #18 2 -inch mount Beta eff. : .3151
Sample size : 1 ea Dilution : 1

Mount # 1

72/10 - 6.0 < 4.4255E-06 uCi/ea beta

100

51/10

Mount # 2

51/10 - 6.0 < 2.5801E-06 uCi/ea beta

100

F 72-6325

9 1 1 2 7 5 9 9 8 1 4

Gamma Engery Analysis of the Fusion Dissolution

2750

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 58.-6030 | SEGMENT-7 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| GEA | LA-548-121 | uCI/L | WB75L | 0 |

Sample Size: ? 50λ

Customer ID: 089043

Remarks, Calculations, Results:

$Cs^{137}$ 6.98' uci/l or 3.09' uci/g

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6 B598/RH | | | | SMC |
| Hrs | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [signature] | DMS |

54-6800-061 (R-10-83)

1010

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 57.-6530 | SEGMENT-6 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Rerune |
|---|---|---|---|---|
| GEA | LA-548-121 | % RECOVERY | WB75L | 0 |

Sample Size: ? 500λ

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 89B44

$Co^{60}$ 2.28' uci/l / 2.2247' 102.5%

$Cs^{137}$ 3.73' uci/l / 3.8128' 97.8%

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6 B598/RH | | | | SMC |
| Hrs | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [signature] | DMS |

54-6800-061 (R-10-83)

2754

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 736.-6230 | SEGMENT-I | 12-11-89 | 9: 3 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| GEA | LA-548-121 | % RECOVERY | WB75L | 0 |

Sample Size: ? 500λ

Customer ID: 089083

Remarks, Calculations, Results:

SPIKE SAMPLE F178
SPIKE ID 89B44
SPIKE VOLUME 500λ

$Cs^{137}$ $1.12^2 - 7.10' = 4.10'$ / 3813' ~~108%~~ 107.5%

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6 B598/RH | | | | SMC |
| Hrs | Hrs | Hrs | Hrs | Hrs |

[signature] 5/10/90

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [signature] | DMS |

54-6800-061 (R-10-83)

3889

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 59.-6130 | SEGMENT-8 | 11-15-89 | 10:19 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Rerune |
|---|---|---|---|---|
| GEA | LA-548-121 | uCI/L | WB75L | 0 |

Sample Size: ? 50λ

Customer ID: 089043

Remarks, Calculations, Results:

DUPLICATE SAMPLE

$Cs^{137}$ 6.21' uci/l or 3.70' uci/g

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6 B598/RH | | | | SMC |
| Hrs | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [signature] | DMS |

54-6800-061 (R-10-83)

3893

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 748.-6330 | SEGMENT-U | 12-11-89 | 9: 5 | 26 |

| 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

$Cs^{137}$ ~~<1.71 uci/L~~

< 3.5 uci/L

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6 3598/RH | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| | | | | |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [signature] | DMS |

54-5800-061 (R-10-83)

1015

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 737.-6530 | SEGMENT-J | 12-11-89 | 9: 4 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| GEA | LA-548-121 | % RECOVERY | WB75L | 0 |

Sample Size: ? 500ml

Customer ID:

Remarks, Calculations, Results:

LMCS CHECK SAMPLE
LMCS ID 89844

$Co^{60}$ 2.30 uci/L / 2.225 103.4%

$Cs^{137}$ 3.73 uci/L / 3.8188 97.8%

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6 3598/RH | | | | [illegible] |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| | | | | |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-10-90 | | [signature] | DMS |

54-5800-061 (R-10-83)

9 1 1 2 ? 5 7 0 3 1 6

Uranium Analysis of the Fusion Dissolution

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 58.-6040 | SEGMENT-7 | 11-15-89 | 10:19 | 23 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| U | LA-925-106 | G/L | WB75L | 0 |

Sample Size: ? 100-10-100 — Customer ID: 089043

Remarks, Calculations, Results:

Sample: .18
Smpl + Spk: .50
Spk. Vol: 100λ
Spk. ID: 5.62-4

$$\frac{(.18)(5.62^{-4})(.1)(1010)}{.50-.18} = 3.19^{-2}\ g/l$$

| Analyst-1 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 |
|---|---|---|---|---|
| 6C269 | | | | [illegible] |
| Mary Franz | Hrs | Hrs | Hrs | Hrs |
| Date: 1-8-90 | Time Completed | Lab Unit Mgr: [illegible] | | |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 57.-6540 | SEGMENT-6 | 11-15-89 | 10:19 | 23 |

| 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:

LMCS CHECK SAMPLE
LMCS ID 58B38

94.9%

Std: .24
Std + Spk: .72
Spk Vol: 100λ
Spk ID: 5.62-4

$$\frac{(.24)(5.62^{-4})(.1)(1010)}{.72-.24} = 2.838^{-2} / 2.99^{-2}$$

| Analyst-1 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 |
|---|---|---|---|---|
| 6C269 | | | | [illegible] |
| Mary Franz | Hrs | Hrs | Hrs | Hrs |
| Date: 1-8-90 | Time Completed | Lab Unit Mgr: [illegible] | | |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 60.-6240 | SEGMENT-9 | 11-15-89 | 10:19 | 23 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| U | LA-925-106 | % RECOVERY | WB75L | 0 |

Sample Size: ? 100-10-100 — Customer ID: 089043

Remarks, Calculations, Results:

SPIKE SAMPLE
SPIKE ID 58B38
SPIKE VOLUME 100-10-100

no recovery

Bottle 58
Sample: .18
Smpl + Spk: .50
Spk Vol: 100λ
Spk ID: 5.62-4

$$\frac{(.18)(5.62^{-4})(.1)(1010)}{.50-.18} = 3.193^{-2}\ g_1$$

$$\frac{3.19E-02 - 3.19E-02}{2.99E-02} = 0\%$$

| Analyst-1 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 |
|---|---|---|---|---|
| 6C269 | | | | [illegible] |
| Mary Franz | Hrs | Hrs | Hrs | Hrs |
| Date: 1-8-90 | Time Completed | Lab Unit Mgr: [illegible] | | |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 59.-6140 | SEGMENT-8 | 11-15-89 | 10:19 | 23 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| U | LA-925-106 | G/L | WB75L | 0 |

Sample Size: ? 100-10-100 — Customer ID: 089043

Remarks, Calculations, Results:

DUPLICATE SAMPLE

Sample: .14
Smpl + Spk: .46
Spk Vol: 100λ
Spk ID: 5.62-4

$$\frac{(.14)(5.62^{-4})(.1)(1010)}{.46-.14} = 2.48^{-2}\ g/l$$

| Analyst-1 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 |
|---|---|---|---|---|
| 6C269 | | | | [illegible] |
| Mary Franz | Hrs | Hrs | Hrs | Hrs |
| Date: 1-8-90 | Time Completed | Lab Unit Mgr: [illegible] | | |

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 748.-6340 | SEGMENT-U | 12-11-89 | 9: 5 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| U | LA-925-106 | G/L | WB75L | 0 |

Sample Size: ? 100-10-100

Customer ID:

Remarks, Calculations, Results

REAGENT BLANK

Blk : .04

Blk + Spk : .24

Spk Vol : 100λ

Spk ID : $5.113^{-5}$ $\frac{(.04)(5.113^{-5})(.1)(1010)}{.24-.04} < 1.03^{-3}$ g/l

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6C269 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| Date 1-8-90 | Time Completed | Lab Unit Mgr | | |

64-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 737.-6540 | SEGMENT-J | 12-11-89 | 9: 4 | 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.

LMCS CHECK SAMPLE

LMCS ID 58638

Std : .18

Std + Spk : .48

Spk. Vol : 100λ

Spk. ID : $5.62^{-4}$ $\frac{(.18)(5.62^{-4})(.1)(1010)}{.48-.18} = 3.406^{-2}$ / 2.99

113.9%

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6C269 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| Date 1-8-90 | Time Completed | Lab Unit Mgr | | |

64-6800-061 (R-10-83)

Water Digestion

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 64.-7100 | SEGMENT-13 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| H2O-DGST | LA-504-101 | G/L | WB75L | 0 |

Sample Size: ?

Customer ID: 089043

Remarks, Calculations, Results:
DUPLICATE ANALYSIS
GRAMS SAMPLE .5179 g
VOLUME ON COMPLETION 50 ml
$1.036^{-2}$ g/ml
~~$1.036^{-5}$ g/ml~~ 10.4 g/L 5/10/90

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 81098 | | | | 94171 |
| Hrs: 20 min | Hrs | Hrs 5/10/90 | Hrs | Hrs |

Date: 1/5/90 | Time Completed | Lab Unit Mgr

S4-5800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 63.-7000 | SEGMENT-12 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| H2O-DGST | LA-504-101 | G/L | WB75L | 0 |

Sample Size: ?

Customer ID: 089043

Remarks, Calculations, Results:
GRAMS SAMPLE .5035 g #243
VOLUME ON COMPLETION 50ml
3.76 g
$1.007^{-2}$ g/ml
~~$1.007^{-5}$ g/l~~ 10.1 g/L 5/10/90
Lot# N 3134

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 81098 | | | | 94171 |
| Hrs: 20 min | Hrs | Hrs 5/10/90 | Hrs | Hrs |

Date: 1/5/90 | Time Completed | Lab Unit Mgr

S4-5800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 74.-7300 | SEGMENT-23 | 11-15-89 | 10:21 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| H2O-DGST | LA-504-101 | G/L | WB75L | 0 |

Sample Size: ?

Customer ID: 089043

Remarks, Calculations, Results
REAGENT BLANK

Complete

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 81098 | | | | 94171 |
| Hrs: 10 min | Hrs | Hrs | Hrs | Hrs |

Date: 1/5/90 | Time Completed | Lab Unit Mgr

S4-5800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 65.-7200 | SEGMENT-14 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| H2O-DGST | LA-504-101 | % RECOVERY | WB75L | 0 |

Sample Size: ?

Customer ID: 089043

Remarks, Calculations, Results
SPIKED ANALYSIS
GRAMS SAMPLE .5276 g
VOLUME ON COMPLETION 50 ml
VOLUME SPIKE
SPIKE ID
$1.055^{-2}$ g/ml
~~1.055~~ 10.1 g/L 5/10/90

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 81098 | | | | 94171 |
| Hrs: 20 min | Hrs | Hrs | Hrs | Hrs |

Date: 1/5/90 | Time Completed | Lab Unit Mgr

S4-5800-061 (R-10-83)

Water Digestion

```
**********************
** JET_WT  **  REV 0 **
**********************

SEQUENCE #  : 87
WT 1:   98.0563
WT 2:   98.5598

NET WEIGHT:

---->   0.5035 GRAMS

01/05/90  @  10:53:38
**********************
```

F 63.-7000

```
**********************
** JET_WT  **  REV 0 **
**********************

SEQUENCE #  : 88
WT 1:   97.6430
WT 2:   98.1609

NET WEIGHT:

---->   0.5179 GRAMS

01/05/90  @  10:59:49
**********************
```

F 64.-7100

```
**********************
** JET_WT  **  REV 0 **
**********************

SEQUENCE #  : 89
WT 1:   97.9591
WT 2:   98.4867

NET WEIGHT:

---->   0.5276 GRAMS

01/05/90  @  11:05:10
**********************
```

F 65.-7200

F 74.-7300

Ion Chromatrographic Analysis of the Water Digestion - Fluoride Analysis

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 64.-7171 | SEGMENT-13 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| F | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? 100-10

Customer ID: 089043

Remarks, Calculations, Results:
DUPLICATE SAMPLE

<10.1 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: ~~2/16/90~~ 2/15/90 AC

Time Completed:

Lab Unit Mgr: [signature] SEH

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 113.-7271 | SEGMENT-14 | 11-15-89 | 10:57 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| F | LA-533-105 | % RECOVERY | WB75L | 0 |

Sample Size: ? 100 µL - 10 mL

Customer ID: 89-045

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID 35C9-67
SPIKE VOLUME .300/5mL

$$\frac{\left(\frac{5.3\,mL}{5.0\,mL}\right)(406.9\,ppm) - (181.9\,ppm)\left(\frac{10.054\,mL}{10.64\,mL}\right)}{\frac{(.30\,mL)(47\,ppm)}{5.3\,mL}\,(101)} \times 100 = 96.3\%$$

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107 | | | | [signature] |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: 2/15/90

Time Completed:

Lab Unit Mgr: [signature] [signature]

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 66.-7571 | SEGMENT-15 | 11-15-89 | 10:21 | 19 |

| 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 6C11H2

$100\left(\frac{67.06}{72}\right) = 93.1\%$

pms

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: 2/15/90

Time Completed:

Lab Unit Mgr: [signature] SEH

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 63.-7071 | SEGMENT-12 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| F | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? 100-10

Customer ID: 089043

Remarks, Calculations, Results:

<10.1 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: ~~2/16/90~~ 2/15/90 A.C.

Time Completed:

Lab Unit Mgr: [signature] SEH

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 122.-7371 | SEGMENT-23 | 11-15-89 | 10:58 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| F | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? ~~100-10~~ Direct

Customer ID: 089045

Remarks, Calculations, Results:
REAGENT BLANK

<.1 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst Signature |
|---|---|---|---|---|
| 6B107/NEW | | | | |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 2/15/90 | | | |

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 110.-7571 | SEGMENT-11 | 11-15-89 | 10:56 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| F | LA-533-105 | % RECOVERY | WB75L | 0 |

Sample Size: 100-10 ~~6CHHI~~

Customer ID: 089045

Remarks, Calculations, Results
LMCS CHECK SAMPLE
LMCS ID 6CHHI

67.04

$\left(\frac{67}{72}\right) 100 = 93.1\%$

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst Signature |
|---|---|---|---|---|
| 6B107/NEW | | | | |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 2/15/90 | | | |

54-6800-061 (R-10-83)

Ion Chromatographic Analysis of the Water Digestion - Chloride Analysis

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 64.-7172 | SEGMENT-13 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| CL | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? 100-10

Customer ID: 089043

Remarks, Calculations, Results:
DUPLICATE SAMPLE

<10.1 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | ~~Analyst~~ Chemist |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: ~~2/16/90~~ 2/15/90 S.C.

Time Completed:

Lab Unit Mgr: [signature] SEH

54-6600-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 113.-7272 | SEGMENT-14 | 11-15-89 | 10:57 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| CL | LA-533-105 | % RECOVERY | WB75L | 0 |

Sample Size: ? 100 µL - 10 mL

Customer ID: 89-045

Remarks, Calculations, Results
SPIKE SAMPLE
SPIKE ID 35C9-67
SPIKE VOLUME .300/5mL

$$\frac{(1.06)(347)-(0)(.948)}{\frac{(.300)(60)}{5.3}(101)} \times 100 = 107.2\%$$

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B1C7 | | | | [signature] |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: 2/15/90

Time Completed:

Lab Unit Mgr: [signature] Kathy Thomdike

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 66.-7572 | SEGMENT-15 | 11-15-89 | 10:21 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| CL | LA-533-105 | % RECOVERY | WB75L | 0 |

Sample Size: 100-10

Customer ID:

Remarks, Calculations, Results.
LMCS CHECK SAMPLE
LMCS ID 6C11H1

$$\left(\frac{83.8}{87}\right)100 = 96.3\%$$

DMS

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | ~~Analyst~~ Chemist |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: 2/15/90

Time Completed:

Lab Unit Mgr: [signature] SEH

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 63.-7072 | SEGMENT-12 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| CL | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? 100-10

Customer ID: 089043

Remarks, Calculations, Results:

1.64' ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | ~~Analyst~~ Chemist |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: ~~2/16/90~~ 2/15/90 S.C.

Time Completed:

Lab Unit Mgr: [signature] SEH

54-6600-061 (R-10-83)

9 1 1 2 [illegible] 0 9 [illegible] 3

Ion Chromatographic Analysis of the Water Digestion - Chloride Analysis

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 122.-7372 | SEGMENT-23 | 11-15-89 | 10:58 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| CL | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? Direct

Customer ID: 089045

Remarks, Calculations, Results:
REAGENT BLANK

~~<.1 ppm~~

.15 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 | |
|---|---|---|---|
| 2/15/90 | | [signature] | SEH |

54-5600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 110.-7572 | SEGMENT-11 | 11-15-89 | 10:56 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| CL | LA-533-105 | % RECOVERY | WB75L | 0 |

Sample Size: 100-10

Customer ID: 089045

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C11KI

~~98.0% HSR~~

$\left(\frac{85.2}{87}\right) 100 = 97.9$

[signature] 5/14/90

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 94171 |
| Hrs .5 | Hrs | Hrs [signature] | Hrs 5/15/90 | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 2/15/90 | | [signature] | SEH |

54-5600-061 (R-10-83)

9 1 1 2 ? ? 0 8 ? 4

Ion Chromatographic Analysis of the Water Digestion - Nitrate Analysis

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 64.-7173 | SEGMENT-13 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| NO3 | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? 100-10 — Customer ID: 089043

Remarks, Calculations, Results:
DUPLICATE SAMPLE

4.67 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: ~~2/16/90~~ 2/15/90 A.C. — Time Completed: — Lab Unit Mgr: SEH

54-5800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 113.-7273 | SEGMENT-14 | 11-15-89 | 10:57 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| NO3 | LA-533-105 | % RECOVERY | WB75L | 0 |

Sample Size: ? 100 µL - 10 mL — Customer ID: 89-C45

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID 35C9-67
SPIKE VOLUME .300/5mL

$$\frac{(1.06)(2951)-(270.3)(.948)}{\frac{(.300)(481)}{5.3}(101)} \times 100 = 104.4\%$$

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107 | | | | |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: 2-15-90 — Time Completed: — Lab Unit Mgr: Kathy Romdebe

54-5800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 66.-7573 | SEGMENT-15 | 11-15-89 | 10:21 | 19 |

| 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 6C17H1

$$\left(\frac{759.3}{722}\right)100 = 105.2\%$$

pm 8

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: 2/15/90 — Time Completed: — Lab Unit Mgr: SEH

54-5800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 63.-7073 | SEGMENT-12 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| NO3 | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? 100-10 — Customer ID: 089043

Remarks, Calculations, Results:

5.51 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: ~~2/16/90~~ 2/15/90 A.C. — Time Completed: — Lab Unit Mgr: SEH

54-5800-061 (R-10-83)

9 1 1 2 [illegible] 0 3 7 5

Ion Chromatographic Analysis of the Water Digestion - Nitrate Analysis

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 122.-7373 | SEGMENT-23 | 11-15-89 | 10:58 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| NO3 | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? Direct

Customer ID: 089045

Remarks, Calculations, Results:
REAGENT BLANK

<1 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 4171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 2/15/90 | | [signature] | SEH |

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 110.-7573 | SEGMENT-11 | 11-15-89 | 10:56 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| NO3 | LA-533-105 | % RECOVERY | WB75L | 0 |

Sample Size: 100-10

Customer ID: 089045

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C11A1

NM 8

$\left(\frac{710}{722}\right)100 = 98.3\%$

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 4171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 2/15/90 | | [signature] | SEH |

54-6800-061 (R-10-83)

9 1 1 2 0 6 0 0 3 7 6

Ion Chromatographic Analysis of the Water Digestion - Sulphate Analysis

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 64.-7175 | SEGMENT-13 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| SO4 | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? 100-10

Customer ID: 089043

Remarks, Calculations, Results:
DUPLICATE SAMPLE

< 101 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | Chemist 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: ~~2/16/90~~ 2/15/90 A.C.

Time Completed:

Lab Unit Mgr: [signature] SEH

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 113.-7275 | SEGMENT-14 | 11-15-89 | 10:57 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| SO4 | LA-533-105 | % RECOVERY | WB75L | 0 |

Sample Size: ? 100 µL - 10 mL

Customer ID: 089045

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID 35C9-67
SPIKE VOLUME .300/5 mL

$$\frac{(1.06)(2672)-(431)(.948)}{\frac{(.300)(482)}{5.3}(101)} \times 100 = 101.3\%$$

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107 | | | | [signature] |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: 2/15/90

Time Completed:

Lab Unit Mgr: [signature] Kathy Chomdeko

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 66.-7575 | SEGMENT-15 | 11-15-89 | 10:21 | 19 |

| 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 6C11A1

$$\left(\frac{741}{749}\right)100 = 98.9\%$$

DMS

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | Chemist 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: 2/15/90

Time Completed:

Lab Unit Mgr: [signature] SEH

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 63.-7075 | SEGMENT-12 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| SO4 | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? 100-10

Customer ID: 089043

Remarks, Calculations, Results:

< 101 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | Chemist 94171 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date: ~~2/16/90~~ 2/15/90 A.C.

Time Completed:

Lab Unit Mgr: [signature] SEH

54-6800-061 (R-10-83)

9 1 1 2 0 6 9 0 0 7 7

Ion Chromatographic Analysis of the Water Digestion - Sulphate Analysis

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 110.-7575 | SEGMENT-11 | 11-15-89 | 10:56 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| SO4 | LA-533-105 | % RECOVERY | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| 100-10 | 089045 |

Remarks, Calculations, Results

LMCS CHECK SAMPLE
LMCS ID 6C11HI

$\frac{696}{(\frac{696}{749})100} = 92.9\%$ DMS

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | Clarence 9/17 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 2/15/90 | | [signature] | SEH |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 122.-7375 | SEGMENT-23 | 11-15-89 | 10:58 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| SO4 | LA-533-105 | PPM | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? Direct | 089045 |

Remarks, Calculations, Results:

REAGENT BLANK

<.1 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | Clarence 9/17 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 2/15/90 | | [signature] | SEH |

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 114.-7574 | SEGMENT-0 | 11-15-89 | 10:57 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| P04 | LA-533-105 | % RECOVERY | E2LD1 | 0 |

Sample Size: ?

Customer ID:

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C11A.L

101.0%

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/KEW | | | | Chemical |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date 2/22/90 | Time Completed | Lab Unit Mgr

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 113.-7274 | SEGMENT-14 | 11-15-89 | 10:57 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| P04 | LA-533-105 | % RECOVERY | WB75L | 1 |

Sample Size: ? 100-10

Customer ID:

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID 35C9-69
SPIKE VOLUME 300/5ml

RERUN

$4.738^3 - 1.55^3 = 3188/2882$ 103.2%

(over)

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/KEW | | | | Chemical |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date 2/22/90 | Time Completed | Lab Unit Mgr | DMC

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 63.-7074 | SEGMENT-12 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| P04 | LA-533-105 | PPM | WB75L | 1 |

Sample Size: ? 100-10

Customer ID:

Remarks, Calculations, Results:

RERUN

<101 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/KEW | | | | Chemical |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date 2/22/90 | Time Completed | Lab Unit Mgr | DMC

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 64.-7174 | SEGMENT-13 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| P04 | LA-533-105 | PPM | WB75L | 1 |

Sample Size: ? 100-10

Customer ID:

Remarks, Calculations, Results:
DUPLICATE SAMPLE

RERUN

rerun

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/KEW | | | | |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

Date 2/22/90 | Time Completed | Lab Unit Mgr

54-6600-061 (R-10-83)

Ion Chromatrographic Analysis of the Water Digestion - Phosphate Analysis

F 113.-7274

$$\frac{\left(\frac{5.3}{5}\right)(4.738)-(1555)\left(\frac{10.005}{10.6}\right)}{\frac{(.300)(601)(101)}{5.3}} \times 100 = 103.2\%$$

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 110.-7574 | SEGMENT-11 | 11-15-89 | 10:56 | 19 |

| 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 75C115

$\frac{692.2}{722.0}(100) = 95.9\%$

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107 | | | | |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 2/22/90 | | |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 122.-7374 | SEGMENT-23 | 11-15-89 | 10:58 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| PO4 | LA-533-105 | PPM | WB75L | 1 |

Sample Size: ? Direct

Customer ID:

Remarks, Calculations, Results:
REAGENT BLANK

RERUN

<1 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/KW | | | | |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 2/22/90 | | |

54-6600-061 (R-10-83)

9 1 1 2 ? 5 9 0 8 ? 1

Ion Chromatographic Analysis of the Water Digestion - Phosphate Analysis

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 429.-7274 | SEGMENT-N | 11-30-89 | 8: 8 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| P04 | LA-533-105 | % RECOVERY | WB75L | 0 |

Sample Size: ? 100-10 — Customer ID: 089070

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID 3509-77
SPIKE VOLUME 300/5 ml

See Reverse Side

$\frac{1.07(3.452^3 -)}{3464.5} \times 100 = 106.6\%$ (JP)

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 4/1/71 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 4/5/90 | | JP [signature] |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 64.-7174 | SEGMENT-13 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| P04 | LA-533-105 | PPM | WB75L | 2 |

Sample Size: ? 100-10 — Customer ID: 089043

Remarks, Calculations, Results:
DUPLICATE SAMPLE

<1.01 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 4/5/90 | | JP [signature] |

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 574.-7574 | SEGMENT-O | 12- 1-89 | 11:37 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| P04 | LA-533-105 | % RECOVERY | WB75L | 0 |

Sample Size: 100-10 — Customer ID: 089076

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C11A0

KP

607.9/599 101.5%

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 4/5/90 | | JP [signature] |

54-6800-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 438.-7374 | SEGMENT-W | 11-30-89 | 8: 9 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| P04 | LA-533-105 | PPM | WB75L | 0 |

Sample Size: ? Direct — Customer ID: 089070

Remarks, Calculations, Results:
REAGENT BLANK

<1 ppm

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 6B107/NEW | | | | [signature] 4/1/71 |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 4/5/90 | | JP [signature] |

54-6800-061 (R-10-83)

Ion Chromatographic Analysis of the Water Digestion - Phosphate Analysis

$$\frac{(1.06)(3450) - 0}{\frac{.300(606)}{5.3}(101)} \times 100 = 105.6\%$$

F 429-7274

8-23-90

9 1 1 2 2 5 0 9 3

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 426.-7574 | SEGMENT-K | 11-30-89 | 8: 7 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| PO4 | LA-533-105 | % RECOVERY | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| 100-10 | 689070 |

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 6C1170

100.8% *

603.8/599

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 68102 | | | | |
| Hrs .5 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 4/5/90 | | | |

84-5600-051 (R-10-83)

Total Organic Carbon Analysis on the Water Digestion

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 63.-7026 | SEGMENT-12 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TOC | LA-344-105 | G/L | WB75L | 0 |

Sample Size: ? 200uL

Customer ID: 089043

Remarks, Calculations, Results:

2.79 -2 g/L

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 80028 | | | | R Bennett |
| Ed Cohen | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-11-90 | | | DMS |

54-6600-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 62.-7526 | SEGMENT-11 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TOC | LA-344-105 | % RECOVERY | WB75L | 0 |

Sample Size: ? 200uL-2mL-200uL

Customer ID:

Remarks, Calculations Results:
LMCS CHECK SAMPLE
LMCS ID 70C11B

2.958/3.000 98.6%

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 80028 | | | | R Bennett |
| Ed Cohen 1-11-90 | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-11-90 | | | DMS |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 65.-7226 | SEGMENT-14 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TOC | LA-344-105 | % RECOVERY | WB75L | 0 |

Sample Size: ? 200uL

Customer ID: 089043

Remarks, Calculations, Results:
SPIKE SAMPLE F63
SPIKE ID 70C11B
SPIKE VOLUME 200uL

$$185.8 - 10.9 = 174.9 \quad \frac{174.9}{200} \times 100 = 87.4\%$$

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 80028 | | | | R Bennett |
| Ed Cohen | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-11-90 | | | DMS |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 64.-7126 | SEGMENT-13 | 11-15-89 | 10:20 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TOC | LA-344-105 | G/L | WB75L | 0 |

Sample Size: ? 200uL

Customer ID: 089043

Remarks, Calculations Results:
DUPLICATE SAMPLE

2.59 -2 g/L

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 80028 | | | | R Bennett |
| Ed Cohen | Hrs | Hrs | Hrs | Hrs |

| Date | Time Completed | Lab Unit Mgr | |
|---|---|---|---|
| 1-11-90 | | | DMS |

54-6600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 74.-7326 | SEGMENT-23 | 11-15-89 | 10:21 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TOC | LA-344-105 | G/L | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| 200uL | 089043 |

Remarks, Calculations, Results:
REAGENT BLANK

.760 mg/min.
7 min
5.320 mg

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 80028 | | | | R Elizondo |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| Ed Cohn | | | | |
| Date | Time Completed | Lab Unit Mgr | | |
| 1-11-90 | | [illegible] | DMS | |

54-6600-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 66.-7526 | SEGMENT-15 | 11-15-89 | 10:21 | 19 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| TOC | LA-344-105 | % RECOVERY | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| 200uL-2mL-200uL | |

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID 70C11B

2.815 / 3.00 93.8%

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 80028 | | | | R Elizondo |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| Ed Cohn | | | | |
| Date | Time Completed | Lab Unit Mgr | | |
| 1-11-90 | | [illegible] | DMS | |

54-6600-061 (R-10-83)

9 1 1 2 ? 5 ? 0 9 ? 6

Acid Digestion

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 69.-8100 | SEGMENT-18 | 11-15-89 | 10:21 | 23 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| ACD-DGST | LA-505-159 | ~~G/L~~ g/mL sj | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? | 089043 |

Remarks, Calculations, Results:
DUPLICATE ANALYSIS
GRAMS SAMPLE_____
VOLUME ON
COMPLETION 52mL
9.7 -3 g/ml

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 69769 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| K. Sarchuck | | | [signature] | |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 1/31/90 | | [signature] |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 68.-8000 | SEGMENT-17 | 11-15-89 | 10:21 | 23 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| ACD-DGST | LA-505-159 | ~~G/L~~ g/mL sj | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? | 089043 |

Remarks, Calculations, Results:
GRAMS SAMPLE_____
VOLUME ON
COMPLETION 52mL
1.00 -2 g/ml

WHC N [illegible]

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 69769 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| K. Sarchuck | | | | [signature] |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 1/31/90 | | [signature] |

54-6800-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 75.-8300 | SEGMENT-24 | 11-15-89 | 10:22 | 18 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| ACD-DGST | LA-505-159 | ~~G/L~~ g/mL sj | WB75L | 0 |

| Sample Size | Customer ID |
|---|---|
| ? | 089043 |

Remarks, Calculations, Results:
REAGENT BLANK
VOLUME ON
COMPLETION 52mL

Stds-34C11Co
35C11CK

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 69769 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| K. Sarchuck | | | [signature] | |

| Date | Time Completed | Lab Unit Mgr |
|---|---|---|
| 1/31/90 | | [signature] |

54-6800-061 (R-10-83)

Acid Digestion

| 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 | Reruns |
|---|---|---|---|---|
| ICP | LA-505-151 | PPM | E21D1 | 0 |

Sample Size: ? Direct

Customer ID: 600013

Remarks, Calculations, Results: REAGENT BLANK

Complete

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 65283 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. White | | | | |
| Date | Time Completed | Lab Unit Mgr | | |
| 4-19-90 | | AP | | |

54-8600-061 (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 | Reruns |
|---|---|---|---|---|
| ICP | LA-505-151 | % RECOVERY | E21D1 | 0 |

Sample Size: ? Direct

Customer ID: 600013

Remarks, Calculations, Results: LMCS CHECK SAMPLE
LMCS ID 8/CUA

Complete

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 65283 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| 4-19-90 | | | | |
| Date | Time Completed | Lab Unit Mgr | | |
| J. White | | AP | | |

54-8600-061 (R-10-83)

| Serial No | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 68.-8050 | SEGMENT-17 | 11-15-89 | 10:21 | 23 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| ICP | LA-505-151 | PPM | WB75L | 0 |

Sample Size: ? 100-10 & 500-10

Customer ID: 89043

RERUN

Remarks, Calculations, Results:

Complete

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 65283 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. White | | | | |
| Date | Time Completed | Lab Unit Mgr | | |
| 4-19-90 | | AP | | |

54-8600-061 (R-10-83)

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 69.-8150 | SEGMENT-18 | 11-15-89 | 10:21 | 23 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| ICP | LA-505-151 | PPM | WB75L | 0 |

Sample Size: ? 100-10 & 500-10

Customer ID: 89043

Remarks, Calculations, Results: DUPLICATE SAMPLE

RERUN

Complete

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 65283 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J. White | | | | |
| Date | Time Completed | Lab Unit Mgr | | |
| 4-19-90 | | AP | | |

54-8600-061 (R-10-83)

ICP Analysis

| Serial No. | Sample Point | Date | Time Issued | Priority |
|---|---|---|---|---|
| F 1087.-8250 | SEG.COMP#23 | 2-16-90 | 8:16 | 26 |

| Determination | Method/Standard | Result Units | Charge Code | Reruns |
|---|---|---|---|---|
| ICP | LA-505-151 | PPM | E21D1 | 0 |

Sample Size: ? 100-10 & 500-10

Customer ID: 000013

Remarks, Calculations, Results:
SPIKE SAMPLE
SPIKE ID
SPIKE VOLUME

Complete

| Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5 |
|---|---|---|---|---|
| 65283 | | | | |
| Hrs | Hrs | Hrs | Hrs | Hrs |
| J White | | [illegible] | | |
| Date 4-19-90 | Time Completed | Lab Unit Mgr | | |

54-6300-061 (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 | Reruns |
|---|---|---|---|---|
| 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 | | [illegible] | | |
| Date 4-19-90 | Time Completed | Lab Unit Mgr | | |

54-6300-061 (R-10-83)