Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-DP-025
Addendum 10 Rev 0

222-S Analytical Laboratory

Project: 242-A EVAPORATOR FEED CHARACTERIZATION

Tank: 103AP

Customer Id. Number: 3AP891-6

Report Revision: 0

Date Printed: June 2, 1992

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TABLE OF CONTENTS

Cover Page 1
Table of Contents 2
Signature Page 3
Narrative 4
Detection Limits 5.3
Sampling and Custody Data 7
Sample Data Summary 14
Summary Data Report 15
Undigested Sample Analysis Results 17
Specific Gravity Analysis 19
Differential Thermal Analysis 22
Total Organic Carbon Analysis 29
Total Inorganic Carbon Analysis 38
Ammonia Analysis 47
Determination of Hydroxide Ions in Solution Analysis 49
Cyanide Analysis 56
Atomic Absorption Analysis
Arsenic 60
Mercury 65
Selenium 71
Ion Chromatographic Analysis
Chloride 76
Fluoride 78
Nitrate 80
Nitrite 82
Phosphate 100
Sulfate 102
Gamma Energy Analysis 110
Acid Digestion Analysis Results 142
Acid Digestion 144
Inductively Coupled Plasma Spectrographic Analysis 146

This report consists of pages 1 through 216, plus pages 5.1-5.23, 6.1-6.3 and 148.1 to 148.4.

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S I G N A T U R E P A G E

I have reviewed the Inorganic and Radiochemistry results reported in this data package (when applicable). The results meet the requirements of "242-A Evaporator Feed Characterization Project - Statement of Work" - WHC-SOW-91-0002. This data is an accurate representation of the data generated for the requested laboratory analyses performed.

J. H. Tillman
242-A Evaporator Project Manager

9/5/92
Date

I have reviewed the compiled report and certify that this data package meets the document standards of the RCRA Data Packaging Procedure LO-150-151. This data package is complete and contains the data generated from the requested laboratory analysis performed on this sample.

L. R. Webb
Records Management Specialist
Data Coordinator

09/05/92
Date

I have reviewed this report and certify that this data package meets the requirements of "Quality Assurance Project Plan for the Chemical Analysis of Highly Radioactive Samples in Support of Environmental Activities on the Hanford Site" - WHC-SD-CP-QAPP-002, unless superseded by the Statement of Work or Waste Characterization Plan. This data package is a complete and accurate representation of the data generated from the requested laboratory analyses performed on this sample based on the QA Review Process. This Data Package has been reviewed by the Laboratory QA Officer or designee.

L. P. Markel
Laboratory Q.A. Officer

9/14/92
Date

The data contained in this hardcopy data package has been approved and authorized for release by the Laboratory Manager or Manager's designee as verified by the following signature.

M. A. Bell
Manager
Processing and Analytical Laboratories

9/15/92
Date

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NARRATIVE

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242-EVAPORATOR FEED CHARACTERIZATION

INORGANIC CASE NARRATIVE

Introduction

The analysis of samples in support of the 242-A Evaporator Feed Characterization Project for Fiscal Year 1991, was performed by the 222-S Laboratory during the last quarter of 1991 and completed during the first quarter of 1992. Samples received and analyzed for the inorganic and conventional parameters were performed using methods specified in the Statement of Work (SOW), WHC-SOW-91-0002 Westinghouse Hanford Company, 242-A Evaporator Feed Characterization Project Fiscal Year 1991, September 1991.

Samples submitted to the laboratory were identified as:

1. TK-102-AW (referred to as 102AW in the remainder of this report) the feed tank prior to the evaporator.

2. TK-106-AW (referred to as 106AW in the remainder of this report) one of the candidate feed tanks into 102AW.

3. TK-103-AP (referred to as 103AP in the remainder of this report) the other candidate feed tank into 102AW.

The inorganic constituents requested for analysis on the three tanks were divided into the following categories; metals by Inductively Coupled Plasma (ICP), metals by Atomic Absorption Spectroscopy (AAS), and conventional parameters by specified methods. The results were obtained using approved methods as specified in Table I of the SOW. Quality analyses, including number and frequency, were performed in accordance to guidance found in Table 2 of the SOW. The parameters analyzed for from the three tanks are:

Metals by ICP

Silver	Ag
Aluminum	Al
Barium	Ba
Cadmium	Cd
Chromium	Cr
Iron	Fe
Magnesium	Mg
Manganese	Mn
Sodium	Na
Lead	Pb
Zinc	Zn

5

Metals (AAS)

Arsenic	As
Selenium	Se
Mercury	Hg

Conventionals (IC)

Fluoride	F
Chloride	Cl
Nitrite	NO2
Nitrate	NO3
Phosphate	PO4
Sulfate	SO4

Conventional (Specified Methods)

Total Organic Carbon	TOC
Total Inorganic Carbon	TIC
Cyanide	CN
Hydroxide	OH
Ph	
Specific Gravity	SpG
Differential Scanning Calorimetry	DSC

The analysis of the samples for Cyanide, Total Ammonia, Total Inorganic Carbon (TIC), Specific Gravity, and Differential Scanning Calorimetry (DSC) were performed using methods traceable to ASTM or EPA. All other analytes were determined based on EPA SW-846 methods or current approved WHC golden rod procedures.

The Quality Objectives and requirements for this work effort were set to achieve the highest quality data. Factors relevant to sample matrix and the applicability of the methods to these complex matrices of samples from the evaporator candidate and feed tanks may have lead to biased results for some analytes of concern. The Quality Objectives were:

1. Matrix Spike and Matrix Spike Duplicate per batch or for no more than 20 samples which ever is less. The calculated Percent Recovery for these analyses to be within 75 to 125% and the Relative Percent Difference (RPD) must not exceed ± 20%.

2. One sample in twenty was to be analyzed in duplicate where specified. The duplicate results must agree with an RPD of ± 20%.

3. A blank must be run for each batch or for every 20 samples.

John H. Tillman 9/5/92

J. H. Tillman, Manager
Inorganic Chemistry PAL

5.1

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242-EVAPORATOR FEED CHARACTERIZATION

INORGANICS CASE NARRATIVE

Problems encountered:

Samples from the two candidate and one feed tank into the evaporator were received into the 222-S laboratory during the laboratory's transition period from process to environmental analysis. This transition period signaled a change in the analytical protocols required to meet different, and in some cases, more stringent conditions. Most of the problems encountered during this work effort can be attributed to the response of the laboratory to these changing requirements. Nevertheless, the data generated for these samples was obtained using the best available laboratory practice at the time of sample analysis. The following problems were observed to have occurred throughout the samples submitted from tanks 102AW, 103AP, and 106AW:

(1) In a few cases, the analytical data cards are not corrected with one line, an initial and a date. Also, due to insufficient training, the chemists signed the analytical data card in the incorrect location. Though the analytical data cards were signed by the cognizant chemists, they were often signed in the inappropriate location on the card. This indicated the need for appropriate training to address this problem. This training effort has begun.

The Extension "1621" on the data cards represent an old extension which specifically denotes "TOC" analysis.

(2) Instrument Detection Limits (IDL). Detection limits for the parameters determined were obtained using the method prescribed by the US EPA. The instrument detection limits for the metals determined by Inductively Coupled Plasma (ICP), Atomic Absorption (AA), Ion Chromatograph (IC) and classical methods are obtained from an aqueous matrix. The instrument detection limits for the analytes on actual evaporator feed or candidate tanks would probably be higher due to matrix efforts. The standards used to prepare the solutions for the detection limit determinations were obtained from bonifide and reliable sources. The procedure basically requires the analysis of seven replicates of the analyte at a concentration two times the noise level for the instrument. Following this protocol, the instrument detection limits were met or exceeded when compared to the IDC's in the Request for Special Analyses (RSA). Typical instrument detection limits obtained during this work effort are listed below:

Hanford Operations and Engineering Contractor for the US Department of Energy

Analyte	Detection Limit (ppm) Required	Actual
Arsenic (As)	5	.005
Cyanide (CN)	.10	.010
Mercury (Hg)	.20	.002
Ammonia (NH4)	500	.100
Hydroxide (OH-)	1700	17.000
Selenium (Se)	1	.005
Total Inorganic Carbon (TIC)	5000	5.000
Total Organic Carbon (TOC)	500	5.500
Fluoride (F)	6000	.090
Nitrate (NO3)	5000	.240
Chloride (Cl)	4000	.040
Nitrite (NO2)	5000	.180
Phosphate (PO4)	10000	.130
Sulfate (SO4)	10000	.130
Aluminum (Al)	50	.075
Barium (Ba)	2	.003
Cadmium (Cd)	1	.004
Chromium (Cr)	5	.004
Iron (Fe)	10	.007
Lead (Pb)	5	.030
Magnesium (Mg)	1	.0001
Manganese (Mn)	2	.001
Silver (Ag)	5	.018
Sodium (Na)	60	.048
Zinc (Zn)	2	.002

Detection limits for the analytes required in the Statement of Work are listed for each set of samples. These instrument detection limits vary according to the analyte and instrument and were generated in accordance with the Request for Special Analysis (RSA), the internal memo, "Recommendations for Tank Farm Waste Analysis" by T. D. Blankenship, dated November 26, 1990, and references the document, "Detection Limit Package, Appendix B" for the 241-U-110 Single Shell Tank Waste Characterization data package, dated August 9, 1991. The detection limit study performed for Core 5 followed recommended EPA protocol.

J. H. Tillman 9/5/92

J. H. Tillman, Manager
Inorganic Chemistry PAL

Detection Limits of Radionuclides

Listed below are the detection limits for indicated radionuclides for sample R941.

Radionuclide	DL uCi/L
Co-60	$1.3 \times 10^{+1}$
Cs-134	$9.0 \times 10^{+0}$
Cs-137	$1.4 \times 10^{+1}$
Ce-144	$7.8 \times 10^{+1}$
Eu-154	$2.6 \times 10^{+1}$
Eu-155	$2.5 \times 10^{+1}$
Nb-94	$9.0 \times 10^{+0}$
Ra-226*	$1.5 \times 10^{+1}$
Ru-106	$1.4 \times 10^{+2}$
Sn-113	$1.0 \times 10^{+1}$

*Based on the gamma peak of daughter Bi-204

These limits are based on the background spectrum of the Ge detector which was used for counting of the above mentioned sample. The data reduction of the background gamma spectrum was done under the same parameters (sample size, sample geometry, and counting time) as used for the sample. Note that the limits will change in the sample depending on the presence of other radionuclides, their gamma-ray energies, intensities, and their levels of activity.

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242-EVAPORATOR FEED CHARACTERIZATION

INORGANICS CASE NARRATIVE

TANK: 103AP

Problems encountered:

A Non-Conformance Report (NCR) was generated for three samples from Tank 103AP. The samples involved were 3AP891-1, 3AP891-2 and 3AP891-3. Sample 3AP891-1 and 3AP891-2 were received into the laboratory with the custody seal improperly attached. The client reviewed these sample containers and granted permission to proceed with the analysis for 3AP891-1 and 3AP891-2 because the custody seals were over the locking pin, indicating sample integrity was preserved. Sample 3AP891-3 was resampled and replaced by Sample 3AP1191-1. This sample was analyzed for the parameters stated. Please reference NCR #B06110, dated September 19, 1991. In addition, the custody seal for Sample 3AP891-1 (R933) was not on properly. This sample was approved for analysis after consideration and review by the client.

3AP891-6 (R941)

The spike was inadvertently not analyzed for Hydroxide (OH) concentration.

The percent deviation for Aluminum, Sodium and Silver were outside the limits or ±25%.

Analyte	Percent Deviation	
	Initial	Final
Aluminum	--	133
Sodium	148.8	180
Silver	37.2	--

No spike was added for Magnesium and Sodium for this sample.

John H. Tillman 9/14/92

John Tillman, Manager
Inorganic Chemistry PAL

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Hanford Company

Internal
Memo

From: Office of Sample Management 16500-90-090
Phone: 3-3869 MO-346/200W T6-08
Date: November 26, 1990
Subject: RECOMMENDATIONS FOR TANK FARM WASTE ANALYSES

To: T. D. Blankenship R1-62

cc: J. D. Briggs T6-14
J. A. Eacker R1-51
D. L. Halgren R1-51
J. H. Kessner T6-08
E. J. Kosiancic SO-61
C. R. Stroup T6-07
RLW File/LB

Reference: Internal Memo, T. D. Blankenship to E. J. Kosiancic, "Tank Farm Waste Analysis Requirements," dated September 10, 1990.

The referenced Internal Memo requests information regarding laboratory analytical capacity for a variety of analytes to support Tank Farm and Evaporator operations. Specific comments and suggestions for each have been prepared along with information on suggested minimum quantitation limits (MQLs) for the needed analyses and recommended reporting formats. With the exception of Nb^{94}, all requested analyses are currently performed on-site. Laboratory capacity exists to support these programs if sufficient prescheduling of activities is done to coordinate with times of high sample throughput in the laboratory (e.g., single shell tank sampling).

The discussions that follow are based on the assumption that the laboratory will be performing "standard" regulatory type analysis. Analysis MQLs are based on proven laboratory experience, turnaround times are based on requirements in the Tri-Party agreement, and reporting/validation formats based on WHC-CM-5-3, Section 2.0, "Data Validation for RCRA Analyses." This information is summarized in the following attached tables:

Table 1	MQLs for Inorganic Analysis
Table 2	MQLs for Radionuclide Analysis
Table 3	MQLs for Organic Analysis (these are CLP requirements but will form the basis for all organic analysis)
Table 4	Sample Turnaround Times
Table 5	Result Reporting/Validation
Table 6	Validation Criteria - Generic Data Quality Objectives (DQOs)

If specific needs different from this standard are required for a given program, these needs must be defined in the program's Waste Analysis Plan (WAP) or equivalent documentation and negotiated with the laboratory to assure

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compliance. While it is expected that in most cases specific needs will be more stringent, if less stringent requirements are appropriate, these should also be defined in the WAP. This could significantly reduce analytical costs and turnaround times.

Characterization of Waste Streams Discharged to Double Shell Tanks (DSTs):

These streams are from ongoing operations of the site and will need analysis for two requirements; verification of compliance to tank farm storage specifications (processing parameters), and determination of composition for regulatory based designation of the waste (hazardous waste designation). Processing parameter based analysis will be equivalent to current practice and should be predefined using laboratory "routine set" analysis. The analysis will be performed under the quality assurance requirements of NQA-1 with typical result turnarounds of 1 to 5 days. Results will be available via the laboratory reporting system (LCCS).

Analysis of the samples to meet the needs for hazardous waste designation will require more stringent quality assurance than for processing parameters. Those components that fall under both needs will likely be required to be analyzed by both protocols. Unfortunately, analysis turnaround times for designation will likely exceed needs for normal processing parameters. If processing parameter analysis results show a component to significantly exceed a hazardous waste designation limit (e.g., a sample is sufficiently caustic to qualify as a extremely hazardous waste based on corrosiveness) reanalysis of the sample under the more stringent protocols would not be necessary. In no case will analysis performed to processing parameter protocols be suitable for designation as an intermediate level or as nonhazardous waste.

DST Characterization Analysis:

All of these analyses will be required to be performed to hazardous waste designation protocols. Currently, no analytical capacity exists to perform Nb^{94} analysis. This long lived ($2x10^4$ y) beta emitter is not expected to be present in significant quantities and will require development efforts to analyze for. Addition of total beta (TB) analysis to the analysis request should allow for screening for significant levels of unaccounted for beta activity and assessment of the needs for additional specific beta emitting radionuclide component quantification.

Analysis for Pu^{238} at the 222-S Laboratory is complicated by the presence of this isotope in the spike (Pu^{236}) added to the analysis to allow correction for overall yield in the procedure. For most expected samples, Pu^{238} activity will be only a small fraction of the $Pu^{239/240}$ activity and may be approximated using isotopic ratios based on historical irradiated uranium processing.

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Samples having greater than normal Pu^{238} (e.g., associated with previous irradiated thorium processing) activity will be detectable using the current procedures. In these cases, Pu^{238} activity can be quantified either using a special analysis or through determination of isotopic ratios based on mass spectral analysis.

Analysis of Samples for the 242-A Evaporator:

All analyses identified in the Internal Memo appear to be for hazardous waste designation needs. It should be noted that analysis of the vent stack will require the installation of specialized gas sampling equipment.

General Comments:

Analysis of two major hazardous waste designation groups were not requested for any of the streams; semivolatile organics and Toxicity Characteristic Leaching Procedure (TCLP). If these analyses have not been assessed for inclusion in the requested analysis, it is recommended that they are reviewed for inclusion.

The current schedule for implementation of organic analysis capacity at 222-S Laboratory is for early in 1991, most probably after March 1, 1991. Until capacity becomes available at 222-S Laboratory, organic analyses (VOA and TOX) will be performed by the Pacific Northwest Laboratories (PNL). This will require transhipping of samples sent to 222-S Laboratory, but should not seriously affect result turnaround or quality.

Estimated cost information for the requested analyses is shown in Table 7. These costs are based on analysis of organic components at PNL. When organic capability is available at 222-S Laboratory, costs will be reduced slightly. Addition of semivolatile organic analysis to the lists would increase costs $2000 per analysis. Addition of TCLP to the list would increase analysis costs $1500 for those samples containing greater than 1% solids. For liquid only samples, no additional preparation is required for TCLP and the analytes of concern are already included in the analysis requests.

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If you need any additional information or have any questions, please call me on 3-3869.

Richard L. Weiss

R. L. Weiss, Principal Scientist
Office of Sample Management

jmd

Attachments - 7

CONCURRENCE:

Curtis R. Stroup Date 11/28/90
C. R. Stroup, Manager
Analytical Laboratories

J. D. Briggs for Date 11/29/90
J. D. Briggs, Manager
222-S Analytical Laboratory Complex

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TABLE 1
RECOMMENDED ANALYSIS MINIMUM QUANTITATION LEVELS
for TANK FARM WASTE ANALYSES

Analyte	High Salt Liquid or Solid/Slurry	Low Salt Liquid	Analyte	High Salt Liquid or Solid/Slurry	Low Salt Liquid
Analyzed by Inductively Coupled Plasma Spectroscopy (ICP)					
Al	50	0.5	As	20	0.2
Ba	2	0.02	Bi	100	0.5
B	20	0.05	Cd	2	0.02
Ca	0.2	0.002	Ce	100	1
Cr	5	0.05	Co	20	0.2
Cu	20	0.2	Eu	2	0.02
Fe	10	0.01	La	20	0.2
Pb	30	0.3	Li	3	0.03
Mg	0.1	0.001	Mn	2	0.02
Hg	5	0.05	Mo	5	0.05
Nd	250	2.5	Ni	20	0.2
P	50	0.5	K	250	2.5
Sm	200	2	Se	100	1
Si	100	0.5	Ag	30	0.3
Na	60	0.6	Sr	2	0.02
S	60	0.6	Ta	50	0.5
Th	20	0.2	Sn	2	0.02
Ti	30	0.06	W	200	0.5
U	1500	15	Zn	2	0.02
Zr	80	0.1			
Analyzed by Specific Atomic Absorption Techniques					
As	5	0.05	Hg	3	0.03
Se	5	0.05			
Anion Analysis by DIONEX					
F	6000	10	Cl	4000	5
NO_3	20000	10	NO_2	20000	10
PO_4	10000	10	SO_4	10000	10
Specific Analysis					
CO_3	5000	50	TOC(carbon)	5000	50
CN	0.1	0.01	NH_4	5000	50
U	100	1	TOX(chlorine)	100	10
OH	0.2	0.002	DSC	*	*

Values for solids are as ug/g
Values for liquids are as ug/ml
*DSC will be used to screen for the presence of exothermic reactions. Specific quantitation limits are not required for this screening

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TABLE 2
RECOMMENDED ANALYSIS MINIMUM QUANTITATION LEVELS
for TANK FARM WASTE ANALYSES

Analyte	Solid/Slurry	High Salt Liquid	Low Salt Liquid
Alpha Total	100	1	0.01
Beta Total	350	3.5	0.035
Radionuclides Analyzed by Gamma Energy Analysis			
Co^{60}	4	4	0.04
Cs^{137}	5	5	0.05
$RuRh^{106}$	50	50	0.5
Radionuclides Analyzed by Separation with Beta Counting			
H^{3}	75	1.5	1.5
C^{14}	50	0.5	0.25
Nb^{94}	*	*	*
Se^{79}	50	0.5	0.25
Sr^{90}	150	1.5	0.015
Tc^{99}	250	2.5	0.025
I^{129}	900	9	0.09
Radionuclides Analyzed by Separation with Alpha Counting/Alpha Energy Analysis			
Pu^{238}	200[1]	2[1]	0.02[1]
$Pu^{239/240}$	50	0.5	0.005
Am^{241}	100	1	0.01
Cm^{244}	100	1	0.01

Values for solids are as pCi/g
Values for liquids are as pCi/ml

* No current analysis capacity for Nb^{94}
[1]Potential interferrence on Pu^{238} analysis from contamination in Pu^{236} spike added to the analysis

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TABLE 3

TARGET COMPOUND LIST (TCL) AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)

Pesticides/Aroclors	CAS Number	Quantitation Limits* Water ug/L	Soil ug/Kg	On Column (ng)
98. alpha-BHC	319-84-6	0.05	1.7	5
99. beta-BHC	319-85-7	0.05	1.7	5
100. delta-BHC	319-86-8	0.05	1.7	5
101. gamma-BHC (Lindane)	58-89-9	0.05	1.7	5
102. Heptachlor	76-44-8	0.05	1.7	5
103. Aldrin	309-00-2	0.05	1.7	5
104. Heptachlor epoxide	1024-57-3	0.05	1.7	5
105. Endosulfan I	959-98-8	0.05	1.7	5
106. Dieldrin	60-57-1	0.10	3.3	10
107. 4,4'-DDE	72-55-9	0.10	3.3	10
108. Endrin	72-20-8	0.10	3.3	10
109. Endosulfan II	33213-65-9	0.10	3.3	10
110. 4,4'-DDD	72-54-8	0.10	3.3	10
111. Endosulfan sulfate	1031-07-8	0.10	3.3	10
112. 4,4'-DDT	50-29-3	0.10	3.3	10
113. Methoxychlor	72-43-5	0.50	17.0	50
114. Endrin ketone	53494-70-5	0.10	3.3	10
115. Endrin aldehyde	7421-36-3	0.10	3.3	10
116. alpha-Chlordane	5103-71-9	0.05	1.7	5
117. gamma-Chlordane	5103-74-2	0.05	1.7	5
118. Toxaphene	8001-35-2	5.0	170.0	500
119. Aroclor-1016	12674-11-2	1.0	33.0	100
120. Aroclor-1221	11104-28-2	1.0	33.0	100
121. Aroclor-1232	11141-16-5	2.0	67.0	200
122. Aroclor-1242	53469-21-9	1.0	33.0	100
123. Aroclor-1248	12672-29-6	1.0	33.0	100
124. Aroclor-1254	11097-69-1	1.0	33.0	100
125. Aroclor-1260	11096-82-5	1.0	33.0	100

* Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

There is no differentiation between the preparation of low and medium soil samples in this method for the analysis of Pesticides/Aroclors.

TABLE 3 (cont)

(continued)

Semivolatiles	CAS Number	Quantitation Limits* Water ug/L	Low Soil ug/Kg	Med. Soil ug/Kg	On Column (ng)
69. Dibenzofuran	132-64-9	10	330	10000	(20)
70. 2,4-Dinitrotoluene	121-14-2	10	330	10000	(20)
71. Diethylphthalate	84-66-2	10	330	10000	(20)
72. 4-Chlorophenyl-phenyl ether	7005-72-3	10	330	10000	(20)
73. Fluorene	86-73-7	10	330	10000	(20)
74. 4-Nitroaniline	100-01-6	50	1700	50000	(100)
75. 4,6-Dinitro-2-methylphenol	534-52-1	50	1700	50000	(100)
76. N-nitrosodiphenylamine	86-30-6	10	330	10000	(20)
77. 4-Bromophenyl-phenylether	101-55-3	10	330	10000	(20)
78. Hexachlorobenzene	118-74-1	10	330	10000	(20)
79. Pentachlorophenol	87-86-5	50	1700	50000	(100)
80. Phenanthrene	85-01-8	10	330	10000	(20)
81. Anthracene	120-12-7	10	330	10000	(20)
82. Carbazole	86-74-8	10	330	10000	(20)
83. Di-n-butylphthalate	84-74-2	10	330	10000	(20)
84. Fluoranthene	206-44-0	10	330	10000	(20)
85. Pyrene	129-00-0	10	330	10000	(20)
86. Butylbenzylphthalate	85-68-7	10	330	10000	(20)
87. 3,3'-Dichlorobenzidine	91-94-1	10	330	10000	(20)
88. Benzo(a)anthracene	56-55-3	10	330	10000	(20)
89. Chrysene	218-01-9	10	330	10000	(20)
90. bis(2-Ethylhexyl)phthalate	117-81-7	10	330	10000	(20)
91. Di-n-octylphthalate	117-84-0	10	330	10000	(20)
92. Benzo(b)fluoranthene	205-99-2	10	330	10000	(20)
93. Benzo(k)fluoranthene	207-08-9	10	330	10000	(20)
94. Benzo(a)pyrene	50-32-8	10	330	10000	(20)
95. Indeno(1,2,3-cd)pyrene	193-39-5	10	330	10000	(20)
96. Dibenz(a,h)anthracene	53-70-3	10	330	10000	(20)
97. Benzo(g,h,i)perylene	191-24-2	10	330	10000	(20)

* Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

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TABLE 3 (cont)

TARGET COMPOUND LIST (TCL) AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)

Semivolatiles	CAS Number	Quantitation Limits* Water ug/L	Low Soil ug/Kg	Med. Soil ug/Kg	On Column (ng)
34. Phenol	108-95-2	10	330	10000	(20)
35. bis(2-Chloroethyl) ether	111-44-4	10	330	10000	(20)
36. 2-Chlorophenol	95-57-8	10	330	10000	(20)
37. 1,3-Dichlorobenzene	541-73-1	10	330	10000	(20)
38. 1,4-Dichlorobenzene	106-46-7	10	330	10000	(20)
39. 1,2-Dichlorobenzene	95-50-1	10	330	10000	(20)
40. 2-Methylphenol	95-48-7	10	330	10000	(20)
41. 2,2'-oxybis (1-Chloropropane)#	108-60-1	10	330	10000	(20)
42. 4-Methylphenol	106-44-5	10	330	10000	(20)
43. N-Nitroso-di-n-dipropylamine	621-64-7	10	330	10000	(20)
44. Hexachloroethane	67-72-1	10	330	10000	(20)
45. Nitrobenzene	98-95-3	10	330	10000	(20)
46. Isophorone	78-59-1	10	330	10000	(20)
47. 2-Nitrophenol	88-75-5	10	330	10000	(20)
48. 2,4-Dimethylphenol	105-67-9	10	330	10000	(20)
49. bis(2-Chloroethoxy) methane	111-91-1	10	330	10000	(20)
50 2,4-Dichlorophenol	120-83-2	10	330	10000	(20)
51. 1,2,4-Trichlorobenzene	120-82-1	10	330	10000	(20)
52. Naphthalene	91-20-3	10	330	10000	(20)
53. 4-Chloroaniline	106-47-8	10	330	10000	(20)
54. Hexachlorobutadiene	87-68-3	10	330	10000	(20)
55. 4-Chloro-3-methylphenol	59-50-7	10	330	10000	(20)
56. 2-Methylnaphthalene	91-57-6	10	330	10000	(20)
57. Hexachlorocyclopentadiene	77-47-4	10	330	10000	(20)
58. 2,4,6-Trichlorophenol	88-06-2	10	330	10000	(20)
59. 2,4,5-Trichlorophenol	95-95-4	50	1700	50000	(100)
60. 2-Chloronaphthalene	91-58-7	10	330	10000	(20)
61. 2-Nitroaniline	88-74-4	50	1700	50000	(100)
62. Dimethylphthalate	131-11-3	10	330	10000	(20)
63. Acenaphthylene	208-96-8	10	330	10000	(20)
64. 2,6-Dinitrotoluene	606-20-2	10	330	10000	(20)
65. 3-Nitroaniline	99-09-2	50	1700	50000	(100)
66. Acenaphthene	83-32-9	10	330	10000	(20)
67. 2,4-Dinitrophenol	51-28-5	50	1700	50000	(100)
68. 4-Nitrophenol	100-02-7	50	1700	50000	(100)

Previously known by the name bis(2-Chloroisopropyl) ether

TABLE 3 (cont)

TARGET COMPOUND LIST (TCL) AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)

Volatiles	CAS Number	Quantitation Limits* Water ug/L	Low Soil ug/Kg	Med. Soil ug/Kg	On Column (ng)
1. Chloromethane	74-87-3	10	10	1200	(50)
2. Bromomethane	74-83-9	10	10	1200	(50)
3. Vinyl Chloride	75-01-4	10	10	1200	(50)
4. Chloroethane	75-00-3	10	10	1200	(50)
5. Methylene Chloride	75-09-2	10	10	1200	(50)
6. Acetone	67-64-1	10	10	1200	(50)
7. Carbon Disulfide	75-15-0	10	10	1200	(50)
8. 1,1-Dichloroethene	75-35-4	10	10	1200	(50)
9. 1,1-Dichloroethane	75-34-3	10	10	1200	(50)
10. 1,2-Dichloroethene (total)	540-59-0	10	10	1200	(50)
11. Chloroform	67-66-3	10	10	1200	(50)
12. 1,2-Dichloroethane	107-06-2	10	10	1200	(50)
13. 2-Butanone	78-93-3	10	10	1200	(50)
14. 1,1,1-Trichloroethane	71-55-6	10	10	1200	(50)
15. Carbon Tetrachloride	56-23-5	10	10	1200	(50)
16. Bromodichloromethane	75-27-4	10	10	1200	(50)
17. 1,2-Dichloropropane	78-87-5	10	10	1200	(50)
18. cis-1,3-Dichloropropene	10061-01-5	10	10	1200	(50)
19. Trichloroethene	79-01-6	10	10	1200	(50)
20. Dibromochloromethane	124-48-1	10	10	1200	(50)
21. 1,1,2-Trichloroethane	79-00-5	10	10	1200	(50)
22. Benzene	71-43-2	10	10	1200	(50)
23. trans-1,3-Dichloropropene	10061-02-6	10	10	1200	(50)
24. Bromoform	75-25-2	10	10	1200	(50)
25. 4-Methyl-2-pentanone	108-10-1	10	10	1200	(50)
26. 2-Hexanone	591-78-6	10	10	1200	(50)
27. Tetrachloroethene	127-18-4	10	10	1200	(50)
28. Toluene	108-88-3	10	10	1200	(50)
29. 1,1,2,2-Tetrachloroethane	79-34-5	10	10	1200	(50)
30. Chlorobenzene	108-90-7	10	10	1200	(50)
31. Ethyl Benzene	100-41-4	10	10	1200	(50)
32. Styrene	100-42-5	10	10	1200	(50)
33. Xylenes (Total)	1330-20-7	10	10	1200	(50)

* Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

TFZ 9-17-92

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5.14

TABLE 4
SAMPLE RESULT TURNAROUND TIMES

Laboratory analysis and quality assurance documentation, excluding validation, shall be limited to the following schedule:

Transuranic and hot cell analyses - 100 days annual average, but not to exceed 140 days

Low-level and mixed waste (up to 100 mr/hr) analyses - 75 days annual average, but not to exceed 90 days

Nonradioactive waste analyses - 50 days

Validated data packages will be issued within 21 days of receipt of the results by the Office of Sample Management.

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TABLE 5
RESULT REPORTING/VALIDATION

The RCRA validation documentation package consists of the Office of Sample Management Data Validation cover sheet (different sheets for Level A, B, or C validation), supplemental Quality Control (QC) attachment pages, a copy of the Chain of Custody, and all sample data. One documentation package is completed for each sample or delivery group.

Three levels of validation are offered:

Level A The minimum requirement for all RCRA data. The primary application is for data used in waste designation/disposal. The additional QC required by SW-846 will be assessed through laboratory audits and Performance Evaluation (PE) samples.

Review Requirements:

- o Requested Versus Reported Analyses
- o Analysis Holding Times

Level B Provides a more in-depth review for programs whose data are compiled for use in later reports.

Review Requirements in Addition to Those Listed for Level A:

- o Matrix Spike/Matrix Spike Duplicate Analysis
- o Surrogate Recoveries
- o Duplicate Analysis
- o Analytical Blank Analysis

Level C Requires that the data be reported in Sample Delivery Group (SDG) data packages and is applicable to RCRA governed programs requiring Contract Laboratory Program (CLP) quality data from analytical work done in non-CLP laboratories

Review Requirements in Addition to Those Above:

- o Initial and Continuing Instrument Calibrations
- o Gas Chromatography - Mass Spectrograph (GC/MS) Tune Criteria
- o Internal Standards for Gas Chromatograph Analysis
- o Laboratory Control Samples
- o Interference Check Samples (for ICP analysis)
- o Any Other QC Checks Performed or Required by the Methods of Analysis

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TABLE 6
VALIDATION CRITERIA - GENERIC DATA QUALITY OBJECTIVES

1. REQUESTED VERSUS REPORTED ANALYSES

   All requested analyses shall be reported of accounted for.

2. HOLDING TIMES

   Holding times shall be equivalent to RCRA defined times. If no RCRA holding time exists, holding times will be 6 months unless specifically defined in project specific documentation.

3. SURROGATE RECOVERY

   Sample and blank surrogate recoveries must be between 80 and 120%.

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

   A matrix spike or matrix spike duplicate must be analyzed with every analytical batch of every 20 samples, whichever is more frequent. Control limits will be between 75 and 125% with ±20% relative percent differences.

5. DUPLICATE ANALYSIS

   Duplicate analysis must be performed with every analytical batch or every 20 samples, whichever is more frequent. Control limits will be ±20%. If both sample and duplicate results are below the method detection limit of sample quantitation limit, then no control limit applies.

6. ANALYTICAL BLANKS

   A minimum of one analytical blank must be analyzed for every batch or every 20 samples, whichever is more frequent. No contaminants should be detected in the blanks.

7. INITIAL AND CONTINUING CALIBRATION

   Analytical instrumentation shall be calibrated in accordance with requirements specific to the instrumentation and methods of procedures employed.

8. GC/MS TUNE

   Ion abundance results and tuning frequency requirements must be as specified in the method employed for analysis.

9. INTERNAL STANDARDS

   Internal Standard area counts and retention time differences from the associated calibration standard must be within the control limits specified by the methods or procedure used.

TFL 9-12-92

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5.17

TABLE 6 (cont)

10. LABORATORY CONTROL SAMPLE

All Laboratory Control Sample recoveries must be within 80-120% for all sample matrices.

11. INTERFERENCE CHECK SAMPLE

Frequency of analysis and all Interference Check Sample solution results must meet the requirements specified in the procedure used.

12. OTHER QUALITY CONTROL CHECKS

As specified in project specific documentation.

TFL
9-12-92
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TABLE 7
ESTIMATED COSTS

CHARACTERIZATION OF WASTE STREAMS DICHSRGED TO DOUBLE SHELL TANKS	
Analysis for processing parameters	$500/sample
Analysis for hazwaste designation	$5000/sample
DOUBLE SHELL TANK CHARACTERIZATION	
Analysis for hazewaste designation	$10000/sample
ANALYSIS OF SAMPLES FROM 242-A EVAPORTOR	
Analysis of feed tank	$5000/sample
Analysis of Process Condensate	$2500/sample
Analysis of Slurry Product	$5000/sample
Analysis of Steam Condensate	$4000/sample
Analysis of Cooling Water	$4000/sample
Analysis of Vent Gases	$2000/sample

For info only

Westinghouse Hanford Company — Hanford Operations and Engineering Contractor for the US Department of Energy, P.O. Box 1970 Richland, Wa. 99352

NONCONFORMANCE REPORT

Page 1 of 42 — No. B 06110

MFR/ORG: TANK FARMS OPERATIONS
200E / AP Farm

ITEM/MATERIAL NAME: 3 samples from TK-103-AP — PART NO.: N/A
DRAWING/SPEC. NO.: N/A — REV.: N/A
PROGRAM/PROJECT: Evaporator Restart — P.O./W.O. NO.: 1WIT6CØE
UNUSUAL OCCURRENCE REPORT REQUIRED: ☐ YES ☒ NO — SYSTEM/END USE: Waste Characterization — DATE: 9/19/91

2. DESCRIPTION OF NONCONFORMANCE

Custody seals placed improperly, so that recipient was unable to detect if there was evidence of tampering with 3 samples. (222-S Laboratories will not breakdown or analyze samples until this NCR is resolved.)

HW-27
PN-003 PRIORITY/SEVERITY: D3

3. REQUIREMENT VIOLATED

Attach seal on cask such that seal must be broken to remove sample.

DOCUMENT	REV	ZONE/PAR.
TO-080-030	C-2	B.20.

Deborah Y. Bisenius — 28600 — 9/26/91
ORIGINATOR D.Y. Bisenius — ORGANIZATION — DATE

4. ASME CODE ITEM(s) ☒ NO ☐ YES. NOTIFY AUTHORIZED INSPECTOR. — WHC QAR

5. CAUSE OF NONCONFORMANCE

☐ PROCEDURES ☒ PERSONNEL ☐ MATERIALS
☐ EQUIPMENT ☐ OTHERS

REMARKS:
proper placement of custody seal for environmental samples.

6. CORRECTIVE ACTION TO ELIMINATE CAUSE

~~Operations personnel that retrieve samples shall be reminded of the importance of proper custody seal placement.~~ TW. 11/26/91
See page 2.

INITIATION DATE ____ SERIAL NO. ____
RESPONSIBLE ORG. REP. — Engineer — 03 DEC 91
TITLE — DATE

7. RECOMMENDED DISPOSITION ☐ ACCEPT ☐ REJECT ☐ REPAIR ☐ REWORK ☒ OTHER

8A. DISPOSITION JUSTIFICATION AND INSTRUCTIONS

See page 2.

9. ADDITIONAL REVIEWS REQUIRED (WHC ONLY) ☒ YES ☐ NO
IF YES, IDENTIFY:
Vida Johansen

8B. SUPPLIER ENG. N/A — **SUPPLIER QA** N/A

10. DISPOSITION APPROVAL (WHC ONLY)

☒ APPROVED ☐ DISAPPROVED
☐ OTHER (SEE CONTINUATION SHEET)

P. G. Haigh — 08 NOV 91
COGNIZANT ENGINEER 76420 — DATE
J. J. Verderber — 11/26/91
OGNIZANT QA ENGINEER 32200 — DATE
AUTHORIZED INSPECTOR REVIEW — DATE

11. ADDITIONAL APPROVALS

NAME	TITLE	DATE	NAME	TITLE	DATE
Vida Johansen	Sample Custodian	12-5-91			

~~5.20~~

12. DISPOSITION ACTION COMPLETE

NAME ____ DATE ____ QTY. ACCEPT ____ QTY. REJ. ____

FOLLOW ON NCR TPL 11-2-92 ~~5.19~~

FOLLOW-UP

NONCONFORMANCE REPORT (CONTINUATION SHEET)	Page 2 of 2	Part No.	NCR No. B06110

IDENTIFY EACH CONTINUATION BY THE BLOCK NUMBER FROM THE FIRST PAGE

8A. DISPOSITION JUSTIFICATION AND INSTRUCTIONS

Samples 3AP891-1 and 3A891-2 will be accepted because the custody seals were over the locking pins. The seals would have to be broken to open the sample pig. Sample 3AP891-3 is rejected because the seal was place flat on top of the pig. A new sample will be taken for analysis.

Sample 3AP891-3 shall be disposed of by laboratory personnel in accordance with their approved procedures. Upon disposal, laboratory personnel shall notify Quality Assurance via DSI that the action has been completed for NCR closure.

6. CORRECTIVE ACTION TO ELIMINATE CAUSE

Have supervision verify that each worker is capable of applying custody seals through demonstration. T.W. 11/26/91

TF2
9-12-92
~~5.20~~
5.21

COPY

R019 R933 LABORATORY ID	Date Sampled 9-19-91	Time Sampled 0520
Sample Site or Sampling ID 3AP891-1 103-AP	Date Received at 222-S 9-21-91	Time Received at 222-S 0610
Delivered by (Signature) [signature]	RPT Release (Signature) [signature]	Dose Rate <0.5
Custodian (Signature) Raymond Rikita	Date Analysis Complete	Disposal Date
Comments R-SER #1 SEAL # R003		C of C

Payroll No.	Tech/Receiver (Signature)	Date	Entry Code	Comments
9/22/91	Sample seal not on properly			
	Debbie Bjerrum put an NCR			
	on sample. Sample integrity			
	could have been violated. Paul			
	Haigh notified			
11.1.91	Paul Haigh examined seal			
11.5.91	QA. lifted NCR - will accept			
	sample as is -			
	Sample is archived in room 2B 4/21/92			
				5.22

BD-6000-347 (10/89)

~~5.21~~ TF2 1-12-92

SAMPLE CHECK IN LIST

Date/Time Received 9/21/91 0610 Sample ID 3AP591-1

Project TK 103AP Client 241 Tank farm

Shipping Container ID# TF-6 Shipping # R0119

1. Condition of Shipping container? Good
2. Custody Seals on container intact? Yes [ ] No [X]
3. Custody Seals dated and signed? Yes [X] No [ ]
4. Custody Seals ID # 3003
5. Condition of Samples: _____ in good condition
   _____ broken
   _____ leaking
6. Samples have: _____ custody seals
   _____ appropriate sample labels
7. The following paperwork should be accounted for (N/A if not applicable):
   Chain of Custody #(s) Yes
   Request for Special Analysis #(s) no
8. Have any anomalies been identified? Yes [X] No [ ]
9. Memos have been initiated for all anomalies identified? Yes [ ]

Printed Name VIDA JOHANSEN

Signature Vida Johansen

Date/Time 10/2/91 0800

Please send copy to Office of Sample Management Data Administrator, T6-08

9/23/91 Custody seal not attached properly: to 'p16' making the sample integrity questionable Paul Haigh was notified and an NCR generated by Debbie Business

10/2/91 c.c. mail sent to Debbie Business

11-5-91 - telephone mess: Paul Haigh: ~~Abby~~ VJ accept sample for analysis TFZ 9-12 ~~5.22~~ 5.23

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SINGLE SHELL TANK PROJECT
Analytical Detection Limits
October 12, 1990

The following detection limits are derived on ideal matrices. These values were derived by using either calibration standards or pure matrix standards. Detection limits on actual single shell tank samples are likely to be much higher. No information regarding procedure detection limits is available for procedures not listed in this report.

Procedure LA-355-131
Arsenic Analysis by Hydride Generation Atomic Absorption

Detection Limit = 0.005 ppm in solution
Typical sample dilution for the Fusion Dissolution was 0.0025g/mL.
Typical sample dilution for the Water Digestion was 0.010g/mL.
Typical sample dilution for the acid Digestion was 0.010g/mL.

Procedure LA-325-102
Mercury Analysis by Atomic Absorption Manual Cold Vapor Technique

Detection Limit = 0.002 ppm in solution
Typical sample dilution for the Fusion Dissolution was 0.0025g/mL.
Typical sample dilution for the Water Digestion was 0.010g/mL.
Typical sample dilution for the acid Digestion was 0.010g/mL.
Solids were analyzed directly.

Procedure LA-362-131
Selenium Analysis by Hydride Generation Atomic Absorption

Detection Limit = 0.005 ppm in solution
Typical sample dilution for the Fusion Dissolution was 0.0025g/mL.
Typical sample dilution for the Water Digestion was 0.010g/mL.
Typical sample dilution for the acid Digestion was 0.010g/mL.

Procedure LA-533-105
Anion Analysis on Dionex Model 4000i

Typical sample dilution was 0.000099g/mL

Fluoride
Detection Limit in solution = 0.09 ppm.

Chloride
Detection Limit in solution = 0.04 ppm.

Nitrate
Detection Limit in solution = 0.24 ppm.

Phosphate
Detection Limit in solution = 0.13 ppm.

Sulfate
Detection Limit in solution = 0.13 ppm.

Procedure LA-622-102
Determination of Carbonate in Solutions by Coulometry

Detection Limit = 5 ppm in solution
Typical sample dilution was 0.01g/mL

Procedure LA-344-105
Total Organic Carbon
Determination of Carbon Insolation by Combustion and Coulometry

Detection Limit = 5.5 ppm in solution
Typical sample dilution was 0.01 g/mL

Procedure LA-695-101
Cyanide = 0.1 ppm CN in solution
Spectrophotometric Determination of Cyanide

Procedure LA-634-102
Ammonia = 0.1 ppm NH_4^+ in solution
Ammonia by Kjeldahl

Procedure LA-645-001
Nitrite = 0.184 ppm NO_2 in solution
Spectrophotometric Determination of Nitrite

Procedure LA-265-101
Chromium VI = 0.1004 ppm Cr^{6+} in solution
Spectrophotometric Determination of Hexavalent Chromium

Procedure: LA-505-151 (Nominal Detection Limits)

Inductively Coupled Plasma (ICP) Emission Spectrometer Operations and Analysis.

Typical sample dilution for the Fusion Dissolution was 0.00019 g/mL.

Typical sample dilution for the Water Digestion was 0.000476 g/mL.

Typical sample dilution for the Acid Digestion was 0.000476 g/mL

Instrument Detection Limit ppm.

Aluminum	0.0745	Antimony	0.1424
Arsenic	0.0223	Barium	0.0026
Beryllium	0.0006	Bismuth	0.0839
Boron	0.0083	Cadmium	0.0039
Calcium	0.0002	Cerium	0.1359
Chromium	0.0039	Cobalt	0.0246
Copper	0.0158	Europium	0.0024
Iron	0.0073	Lanthanum	0.0141
Lead	0.0273	Lithium	0.0032
Magnesium	0.0001	Manganese	0.0011
Mercury	0.0036	Molybdenum	0.0049
Neodymium	0.2130	Nickel	0.0147
Phosphorous	0.0308	Potassium	0.2122
Samarium	0.1525	Selenium	0.0631
Silicon	0.0314	Silver	0.0183
Sodium	0.0483	Strontium	0.0010
Sulfur	0.0163	Tantalum	0.0273
Thallium	0.0646	Thorium	0.0122
Tin	0.0144	Titanium	0.0035
Tungsten	0.0273	Uranium	1.1405
Vanadium	0.0186	Zinc	0.0017
Zirconium	0.0141		

SAMPLING AND CUSTODY DATA

9 3 1 2 1 5 3 1 4 9

TANK FARM PLANT OPERATING PROCEDURE

CHAIN OF CUSTODY

Company Contact	Paul Haigh	Telephone	373-4655
Bill of Lading No.	N/A	Offsite Property No.	N/A
Method of Shipment	B-Plant Sample Truck		
Shipped to	222-S Lab		

SAMPLING INFORMATION

Sample Collected by	K. GEORGE	Date	9/24/91	Time	0555
Sample Locations	TK 103-AP, Riser #27		Custody Seal #	3008	
Remarks	NA				
Ice Chest or Sample Pig No.	TF-4	Field Logbook and Page No.	N/A		

SUPERVISION REVIEW: _____ DATE: _____

SAMPLE IDENTIFICATION

Sample Number	Sample Schedule Number
3AP891-6	242-A Statement of Work WHC-SOW-91-0002
R-0124 (R941)	

CHAIN OF POSSESSION

Relinquished by: R. Haigh	Received by: C. Ingram	Date/Time: 10-1-91 0900
Relinquished by: C. Ingram	Received by: C A Clark	Date/Time: 10-1-91 0935
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

RS 8/20/92

8

SAMPLE CHECK IN LIST

Date/Time Received 10/1/91 0940 Sample ID 3AP891-6

Project TK-103 AP Client 242-A

Shipping Container ID# TF4 Shipping # R0124

1. Condition of Shipping container? OK
2. Custody Seals on container intact? Yes [ ] No [ ]
3. Custody Seals dated and signed? Yes [✓] No [ ]
4. Custody Seals ID # 3008
5. Condition of Samples: ✓ in good condition
   ____ broken
   ____ leaking
6. Samples have: ____ custody seals
   ✓ appropriate sample labels
7. The following paperwork should be accounted for (N/A if not applicable):
   Chain of Custody #(s) Yes - Chain of Custody not completely signed out
   Request for Special Analysis #(s) No
8. Have any anomalies been identified? Yes [X] ~~No [ ]~~ VJ
9. Memos have been initiated for all anomalies identified? Yes [X]

Printed Name C A Clark

Signature CA Clark

Date/Time 10-1-91 1100

Please send copy to Office of Sample Management Data Administrator, T6-08

10/1/91 Paul Haigh notified and copies sent to him of incorrect chain of custody.

10/2/91 cc: mail sent to Debbie Bessinis

VS 8/31/92

R-0124 R941 LABORATORY ID

Date Sampled	Time Sampled	
Sample Site or Sampling ID: 3AP891-6	Date Received at 222-S: 10/1/91	Time Received at 222-S: 0945
Delivered by (Signature): [signature]	RPT Release (Signature): S.N. [signature]	Dose Rate: 1
Custodian (Signature): CA Clark	Date Analysis Complete	Disposal Date
Comments: C of C		

Payroll No.	Tech/Receiver (Signature)	Date	Entry Code	Comments
	Sample Archived room	2B		2/21/92

BD-6000-347R (10/89)

REQUEST FOR SPECIAL ANALYSIS (RSA)

(1) Sample Point FD-A54 Set No. 2	(2) Date/Time Issued	(3) Date/Time Required 11-26-91	(4) Charge Code (5) Work Package IN/A16ØLØ1
(6) Number of Samples 10 Dose Rate mRad/Hr	(7) Customer I.D. 3AP891H 3AP891-7 3AP891-2 3AP891-8 ~~3AP891-3~~ 3AP891-9 3AP891-4 3AP891-10 3AP891-5 3AP891-6	(8) Laboratory I.D.	(9) Requester Name/Phone P.G. Haigh 3-4655
(10) Release RPT			(11) Volume of Sample 100 mL

(12) Determination	(13) Expected Range	(14) Minimum Detection Level	(15) Method
Total Ammonia		500 mg/L	3AP891-1-R933
Fluoride by IC		6,000 mg/L	3AP891-2-R934
Chloride by IC		4,000 mg/L	3AP891-3-R935
Nitrite by IC		5000 mg/L	3AP891-4-R936
Nitrate by IC		5000 mg/L	3AP891-5-R937
Phosphate by IC		10,000 mg/L	3AP891-6-R938
Sulfate by IC		10,000 mg/L	3AP891-7-R939
Hydroxide		0.1 M	3AP891-8-R940
Total Organic Carbon		500 mg/L	3AP891-9-R941
Volatile Organic Analysis		Exhibit C, CLP-SOW Organics 3/90	3AP891-10-R942
Semi-Volatile (A/B/N)		Exhibit C, CLP-SOW Organics 3/90	
Cyanide (CN-)		0.01 mg/L	

(16) Matrix (Other Metals or Anions Present)
Liquid mixed waste. Radioactive contamination: natural, activation products and reactor fission products. Possible detectable halogenated and non-halogenated organic compounds. Hydroxide - pH = 12.5 or greater. Anions - sodium salts of nitrate, nitrite, phosphate, carbonate and sulfate. Metals - calcium and potassium salts, lead, chromium, cadmium.

(17) Radioactivity Level (Actual ☐ Estimated ☐)
Total Alpha _____ µ Ci/L
Total Beta _____ µ Ci/L
Total Gamma _____ µ Ci/L

(18) Additional Information (Measurement Uncertainty or Other Pertinent Information) ± 25% Precision & Accuracy

(20) Samples Received

Estimated Cost		From	Date	Time
Laboratory Manager				

(21) Distribution of Final Results/Sample Disposal Instructions
Minimum storage time - until April 1992. Customer will direct OSM re: sample

REQUEST FOR SPECIAL ANALYSIS (RSA)

(1) Sample Point	(2) Date/Time Issued	(3) Date/Time Required	(4) Charge Code
FD-A 54 Set No. 2		11/26/91	(5) Work Package IN1A16ØLØ1

(6) Number of Samples	Dose Rate mRad/Hr	(7) Customer I.D.	(8) Laboratory I.D.	(9) Requester Name/Phone
10	3AP1191-1	3AP891-1, 3AP891-2, ~~3AP891-3~~ 3AP891-4, 3AP891-5, 3AP891-6, 3AP891-7, 3AP891-8, 3AP891-9, 3AP891-10		P.G. Haigh 3-4655

(10) Release	(11) Volume of Sample
RPT	100 mL

(12) Determination	(13) Expected Range	(14) Minimum Detection Level	(15) Method
Selenium (Se)		1 mg/L	
Arsenic (As)		5 mg/L	
Mercury (Hg)		0.2 mg/L	
Differential Scanning Calorimetry (DSC)		Exotherm	
Specific Gravity		1.0 mg/L	
Tritium (H-3)		1.5E-3 µCi/L	
Total Uranium		100 mg/L	105 APR
Sr-90		1.5E-3 µCi/L	3APRCOMP
Am-241		1E-3 µCi/L	RCQ49
Pu-239/240		0.5E-3 µCi/L	
I-129		9E-3 µCi/L	
Cs-134/137		5E-3 µCi/L	

(16) Matrix (Other Metals or Anions Present)
Liquid mixed waste. Radioactive contamination: natural, activation products and reactor fission products. Possible detectable halogenated and non-halogenated organic compounds. Hydroxide - pH = 12.5 or greater. Anions - sodium salts of nitrate, nitrite, phosphate, carbonate and sulfate. Metals - calcium and potassium salts, lead, chromium, cadmium.

(17) Radioactivity Level (Actual ☐ Estimated ☐)

Total Alpha _____ µ Ci/L

Total Beta _____ µ Ci/L

Total Gamma _____ µ Ci/L

(18) Additional Information (Measurement Uncertainty or Other Pertinent Information) ± 25% Precision + Accuracy

Estimated Cost	(20) Samples Received By	From	Date	Time

Laboratory Manager

(21) Distribution of Final Results/Sample Disposal Instructions
Minimum storage time - until April, 1992. Customer will direct OSM re: sample disposal

REQUEST FOR SPECIAL ANALYSIS (RSA)

(1) Sample Point CD-A54 Set No. 2	(2) Date/Time Issued	(3) Date/Time Required 11-26-91	(4) Charge Code (5) Work Package INIA16ØLØ1
(6) Number of Samples 10 Dose Rate mRad/Hr	(7) Customer I.D. 3AP891-1 3AP891-8 3AP891-2 3AP891-9 ~~3AP891-3~~ 3AP891-10 3AP891-4 3AP891-5 3AP891-6 3AP891-7 3AP891-1	(8) Laboratory I.D.	(9) Requester Name/Phone P.G. Haigh 3-4655
(10) Release RPT			(11) Volume of Sample 100 mL

(12) Determination	(13) Expected Range	(14) Minimum Detection Level	(15) Method
Silver (Ag)		5 mg/L	
Aluminum (Al)		50 mg/L	
Barium (Ba)		2 mg/L	
Cadmium (Cd)		1 mg/L	
Chromium (Cr)		5 mg/L	
Iron (Fe)		10 mg/L	
Magnesium (Mg)		1 mg/L	
Manganese (Mn)		2 mg/L	
Sodium (Na)		60 mg/L	
Lead (Pb)		5 mg/L	
Zinc (Zn)		2 mg/L	
Total Inorganic Carbon		5000 mg/L	

(16) Matrix (Other Metals or Anions Present)
Liquid mixed waste, Radioactive contamination; natural, activation products and reactor fission products. Possible detectable halogenated and non-halogenated organic compounds. Hydroxide - pH = 12.5 or greater. Anions - sodium salts of nitrate, nitrite, phosphate, carbonate and sulfate. Metals - calcium and potassium salts, lead, chromium, cadmium.

(17) Radioactivity Level (Actual ☐ Estimated ☐)
Total Alpha _____ µ Ci/L
Total Beta _____ µ Ci/L
Total Gamma _____ µ Ci/L

(18) Additional Information (Measurement Uncertainty or Other Pertinent Information)
±25% Precision + Accuracy

(20) Samples Received

[redacted]	[redacted]	From	[redacted]

(21) Distribution of Final Results/Sample Disposal Instructions
Minimum storage time - until April, 1992. Customer will direct OSM re: sample

SAMPLE DATA SUMMARY

9 3 1 2 2 3 3 2 4 5 6

SUMMARY DATA REPORT

Project: 242-A EVAPORATOR FEED CHARACTERIZATION
Tank: 103AP
Customer ID: 3AP891-6

Undigested Sample Results

		Sample R941		Sample Duplicate R941	
SpG	(01-04-92)	0.995		0.995	
DSC	(01-08-92)	NO EXOTHERM		NO EXOTHERM	
TOC	(01-28-92)	9.07E+1	ppm	9.15E+1	ppm
TIC	(01-28-92)	4.43E+2	ppm	4.55E+2	ppm
NH4	(01-13-92)	<9.00E+1	ppm	<9.00E+1	ppm
OH	(01-07-92)	1.61E+3	ppm	1.40E+3	ppm
CN	(02-03-92)	6.00E-1	ppm	6.10E-1	ppm
Atomic Absorption					
As	(01-07-92)	4.20E-2	ppm	3.60E-2	ppm
Hg	(01-21-92)	<1.70E-3	ppm	<1.70E-3	ppm
Se	(01-29-92)	<2.00E-2	ppm	<2.00E-2	ppm
Ion Chromatographic					
Cl	(01-08-92)	5.12E+1	ppm	5.10E+1	ppm
F	(01-10-92)	1.30E+2	ppm	1.29E+2	ppm
NO3	(01-10-92)	4.46E+3	ppm	4.50E+3	ppm
N02	(01-10-92)	1.26E+3	ppm	1.25E+3	ppm
PO4	(01-08-92)	1.34E+2	ppm	1.40E+2	ppm
SO4	(01-08-92)	3.95E+2	ppm	3.96E+2	ppm
GEA	(01-04-92)				
Cs 137		6.41E+3	uCi/L	6.42E+3	uCi/L
Cs 134		<9.94E+0	uCi/L	<1.07E+1	uCi/L
Eu 155		<2.60E+1	uCi/L	<2.60E+1	uCi/L

SUMMARY DATA REPORT

Project: 242-A EVAPORATOR FEED CHARACTERIZATION
Tank: 103AP
Customer ID: 3AP891-6

Acid Digestion Sample Results

		Sample R941		Sample Duplicate R941	
Acid Digestion	(01-07-92)	Complete		Complete	
ICP	(01-23-92)				
Al		2.60E+5	ug/L	2.58E+5	ug/L
Ba		<6.50E+1	ug/L	<6.50E+1	ug/L
Cd		1.26E+2	ug/L	1.25E+2	ug/L
Cr		5.05E+3	ug/L	4.67E+3	ug/L
Fe		1.52E+3	ug/L	1.19E+3	ug/L
Pb		<4.00E+2	ug/L	<4.00E+2	ug/L
Mg		<2.55E+2	ug/L	<2.55E+2	ug/L
Mn		2.16E+1	ug/L	1.02E+2	ug/L
Ag		<4.00E+1	ug/L	<4.00E+1	ug/L
Na		6.51E+6	ug/L	6.57E+6	ug/L
Zn		4.10E+1	ug/L	5.50E+1	ug/L

UNDIGESTED SAMPLE ANALYSIS RESULTS

UNDIGESTED SAMPLE RESULTS

Tank: 103AP
Core: NA
Sample No.: R941
Customer ID: 3AP891-6

	Check Standard		Blank		Sample		Duplicate Sample		Spike of Sample		Check Standard	
Lab ID:	R939		R940		R941		R941		R941		R946	
Lab ID:					R941-5706		R941-5806					
Specific Gravity (01-04-92)	98.37	%	9.829E-1		0.995		0.995		NA		98.16	%
Lab ID:					R941-5711		R941-5811					
DSC (01-08-92)	Exotherm		NA		No Exotherm		No Exotherm		NA		Exotherm	
Lab ID:	S599				R941-5726		R941-5826		R941-5926			
Total Organic Carbon (01-28-92)	99.7	%	3.60E+0	ug	9.07E+1	ppm	9.15E+1	ppm	101.9	%	97.7	%
Lab ID:	R939				R941-5727		R941-5827		R941-5927			
Total Inorganic Carbon (01-28-92)	99.4	%	2.20E+0	ug	4.43E+2	ppm	4.55E+2	ppm	105.2	%	102.8	%
Lab ID:					R941-5728		R941-5828		R941-5928			
Ammonia (01-13-92)	98.62	%	<9.00E+1	ppm	<9.00E+1	ppm	<9.00E+1	ppm	99.41	%	97.02	%
Lab ID:					R941-5729		R941-5829					
OH (01-07-92)	99.8	%	Complete		1.61E+3	ppm	1.40E+3	ppm	NA		102.1	%
Lab ID:					R941-5778		R941-5878		R941-5978			
Cyanide (02-03-92)	99.1	%	<2.00E-2	ppm	6.00E-1	ppm	6.10E-1	ppm	98.2	%	98.7	%
ATOMIC ABSORPTION												
Lab ID:					R941-5795		R941-5878		R941-5995			
Arsenic (01-07-92)	105.6	%	6.00E-4	ppm	4.20E-2	ppm	3.60E-2	ppm	101.62	%	111.6	%
Lab ID:					R941-5797		R941-5897		R941-5997			
Mercury (01-21-92)	107.4	%	<5.00E-4	ppm	<1.70E-3	ppm	<1.70E-3	ppm	103.87	%	90.7	%
Lab ID:					R941-5796		R941-5896		R941-5996			
Selenium (01-29-92)	114.38	%	<5.00E-4	ppm	<2.00E-2	ppm	<2.00E-2	ppm	122.76	%	112.06	%
ION CHROMATOGRAPHIC												
Lab ID:					R941-5772		R941-5872		R941-5972			
Chloride (01-08-92)	92.9	%	<1.00E-1	ppm	5.12E+1	ppm	5.10E+1	ppm	107.06	%	100.65	%
Lab ID:					R941-5771		R941-5871		R941-5971			
Fluoride (01-10-92)	98.8	%	<1.00E-1	ppm	1.30E+2	ppm	1.29E+2	ppm	89.7	%	102.9	%
Lab ID:					R941-5773		R941-5873		R941-5973			
Nitrate (01-10-92)	106.1	%	<1.00E+0	ppm	4.46E+3	ppm	4.50E+3	ppm	104	%	102.8	%
Lab ID:					R941-5776		R941-5876		R941-5976			
Nitrite (01-10-92)	107.3	%	<1.00E+0	ppm	1.26E+3	ppm	1.25E+3	ppm	85.9	%	108.4	%
Lab ID:					R941-5774		R941-5874		R941-5974			
Phosphate (01-08-92)	97.3	%	<1.00E+0	ppm	1.34E+2	ppm	1.40E+2	ppm	98.35	%	100.52	%
Lab ID:					R941-5775		R941-5875		R941-5975			
Sulfate (01-08-92)	92.8	%	<1.00E+0	ppm	3.95E+2	ppm	3.96E+2	ppm	109.73	%	100.12	%
Lab ID:					R941-5730		R941-5830		R941-5930			
GEA (01-04-92)												
Cs137	107.9	%	5.83E-3	uCi/L	6.41E+3	uCi/L	6.42E+3	uCi/L	113	%	106.4	%
Cs134	NA		NA		<9.94E+0	uCi/L	<1.07E+1	uCi/L	NA		NA	
Eu155	NA		NA		<2.60E+1	uCi/L	<2.60E+1	uCi/L	NA		NA	

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: SPECIFIC GRAVITY	Sample Prep: UNDIGESTED

Instrument: WA96787	Procedure/Rev: LA-510-112/C-2
Technologist: R. D. MEYERS	Date: 1-04-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5506	11		
2	REAGENT BLANK	R940-5606	12		
3	SAMPLE 3AP891-6	R941-5706	13		
4	SAM DUP OF 3AP891-6	R941-5806	14		
5	FINAL LMCS CHECK STD	R946-5506	15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	15C11BJ/.20012 mL			NA

A-6000-881 (03/92)

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

R939-5506

Serial No	Sample Point	Date	Time Issued	Priority
R 939.-5506	103NP	12-16-91	161 1	25

Determination	Method/Standard	Result Units	Charge Code	Retest
SPG	LA-510-112	% RECOVERY	N124W	0

Sample Size: 7200.1241
Customer ID: STD

Remarks, Calculations, Results:
SS32 ZRCL2
STD# 15211 BJ RESULT 1.4152
STD VAL. 1.4586 %REC 99.37%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
82371				RK Fuller 1-6-92
Robert D Myers	res	res		res
Date 1/4/92	Time Completed	Lab Unit Mgr		

STD2
2.1843
1.9068
.2775
.20012 = 1.4117

STD1
2.1771
1.8932
.2839
.20012 = 1.4186

AVE = 1.4152

R940-5606

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5606	103NP	12-16-91	161 2	25

Determination	Method/Standard	Result Units	Charge Code	Retest
SPG	LA-510-112		N124W	0

Sample Size: 7200.1241
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
0.9829

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
82371				RK Fuller 1-6-92
Robert D Myers	res	res		res
Date 1/4/92	Time Completed	Lab Unit Mgr		

2
2.0844
1.8874
.1970
.20012 = .9844

1
2.0866
1.8902
.1964
.20012 = .9814

AVE = .9829

R941-5706

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5706	103NP	12-16-91	161 4	25

Determination	Method/Standard	Result Units	Charge Code	Retest
SPG	LA-510-112 JB 6-5-92		N124W	0

Sample Size: 7200.1241
Customer ID: SAPB91-6

Remarks, Calculations, Results:
0.4949

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
82371				RK Fuller 1-6-92
Robert D Myers	res	res	res	res
Date 1/4/92	Time Completed	Lab Unit Mgr		

2
2.1107
1.4117
.1995
.20012 = .9969

1
2.0586
1.8599
.1987
.20012 = .9929

AVE = ~~.5872~~ RKF 1-6-92
0.9949

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

R941-5806

Serial No.	Sample Point	Date	Time Issued	Priority
R 941-5806	105AP	12-16-91	16:15	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
SPG	LA-510-112		N12-1W	0

Sample Size	Customer ID
?200.12	SAMPBY1-6

Remarks, Calculations, Results
DUPLICATE SAMPLE
0.9946

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
82371				R.R. Fuller 1-6-92
Date 1/4/92	Time Completed	Lab Unit Mgr		

1: 2.0482 / 1.8494 / .1988 / .20012 = .9934

2: 2.0924 / 1.8933 / .1943 / .20012 = .9757

AVG = .9946 ✓

R 946-5506

Serial No.	Sample Point	Date	Time Issued	Priority
R 946-5506	105AP	12-16-91	16:15	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
SPG	LA-510-112	% RECOVERY	N12-1W	0

Sample Size	Customer ID
?200.12	STD

Remarks, Calculations, Results
SS32 ZHOLE
STD# 15211 (B) RESULT 1.41215
STD VAL 1.4386 %REC 98.16 %

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
82371				R.R. Fuller 1-6-92
Date 1/4/92	Time Completed	Lab Unit Mgr		

1: 2.1533 / 1.8681 / .2851 / .20012 = 1.42445

2: 2.1724 / 1.8923 / .2801 / .20012 = 1.39946

AVG = 1.41215 ✓
1.4122

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: DIFFERENTIAL THERMAL	Sample Prep: UNDIGESTED

Instrument: WC16134, WC16129	Procedure/Rev: LA-514-113/A-0
Technologist: J. SOLBRACK	Date: 1-08-92
Starting Time: 00:30	Temperature: 22degC
Ending Time: 05:00	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5511	11		
2	SAMPLE 3AP891-6	R941-5711	12		
3	SAM DUP OF 3AP891-6	R941-5811	13		
4	FINAL LMCS CHECK STD	R946-5511	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	27C11-BH/.10 mL			NA

A-6000-881 (03/92)

DIFFERENTIAL THERMAL ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 939.-5511	103AP	12-16-91	16: 1	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	% RECOVERY	N124W	0

Sample Size	Customer ID
? .010ml	STD

Remarks, Calculations, Results

27C118H

Exotherm OK

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
6CBx3				
Date 1-8-92	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5511	103AP	12-16-91	16: 1	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	N124W	0

Sample Size	Customer ID
? 10 ?	JAP941-6

Remarks, Calculations, Results

10.146 mg

No exotherm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
82020				
Date 01-08-92	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5511	103AP	12-16-91	16: 5	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	N124W	0

Sample Size	Customer ID
? 10 ?	JAP941-6

Remarks, Calculations, Results

DUPLICATE SAMPLE

9.428 mg

No exotherm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
82020				
Date 01-08-92	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 946.-5511	103AP	12-16-91	[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	% RECOVERY	N124W	

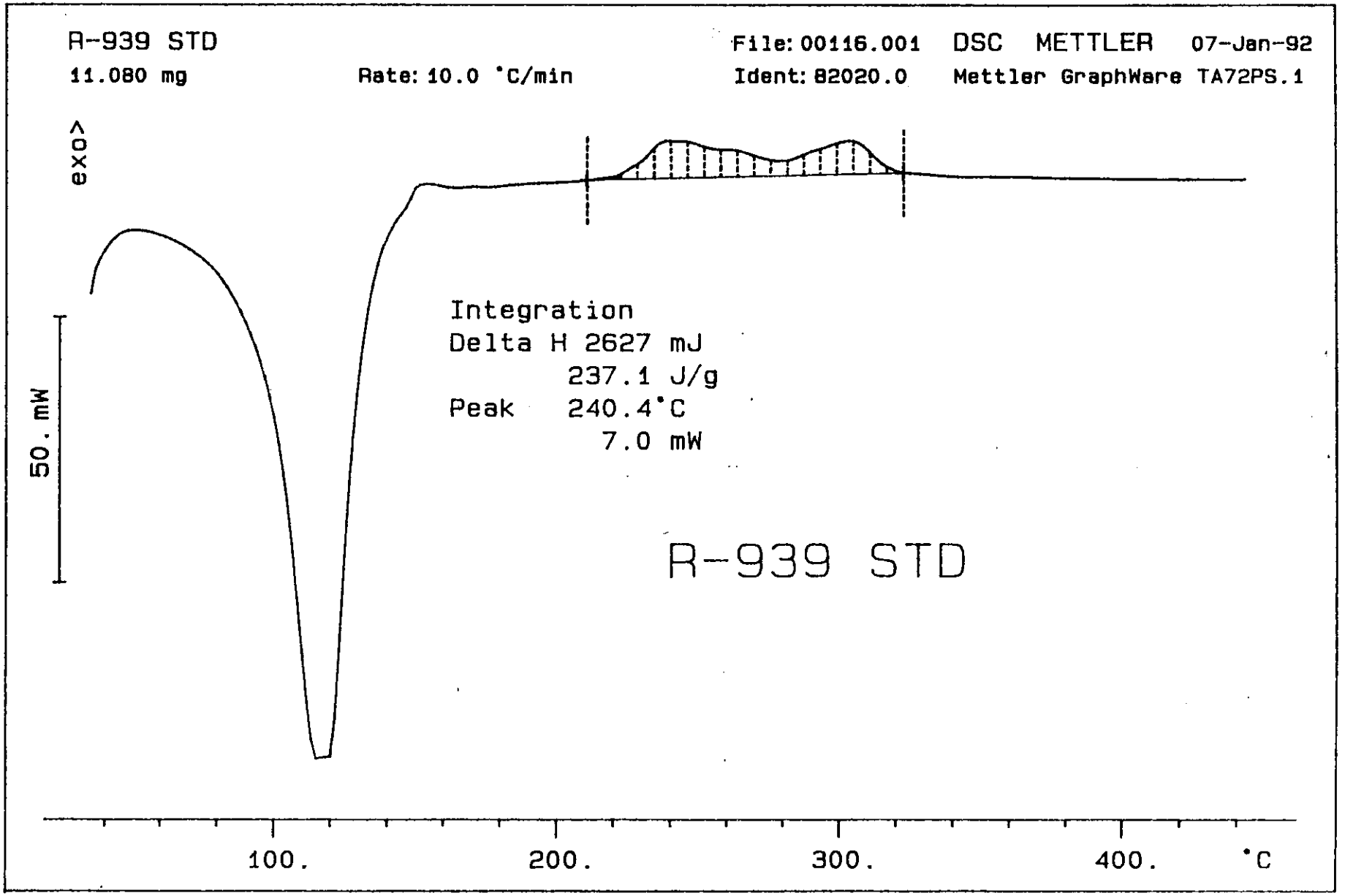
Sample Size	Customer ID
? 10 ?	STD

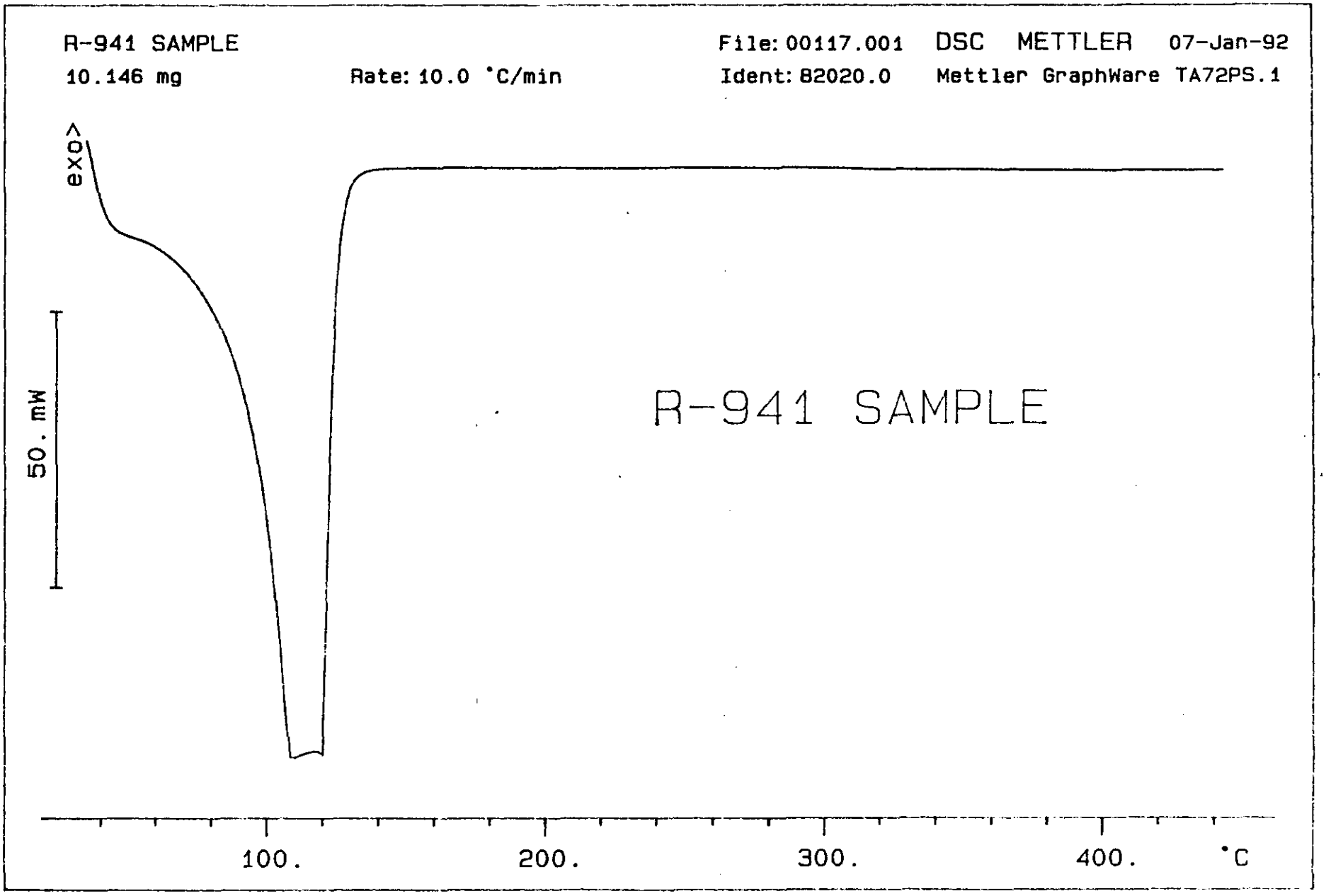
Remarks, Calculations, Results

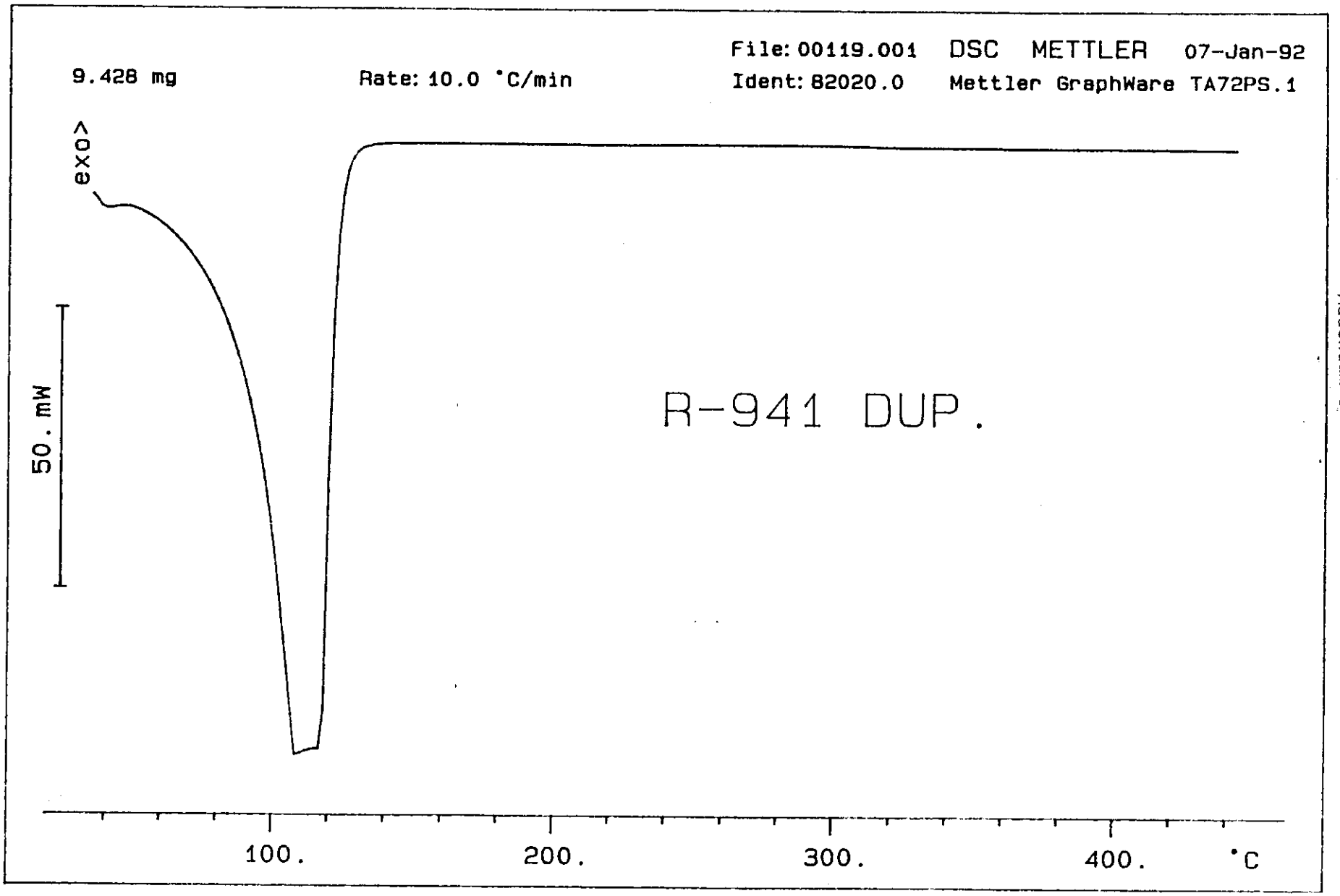
11.127 mg

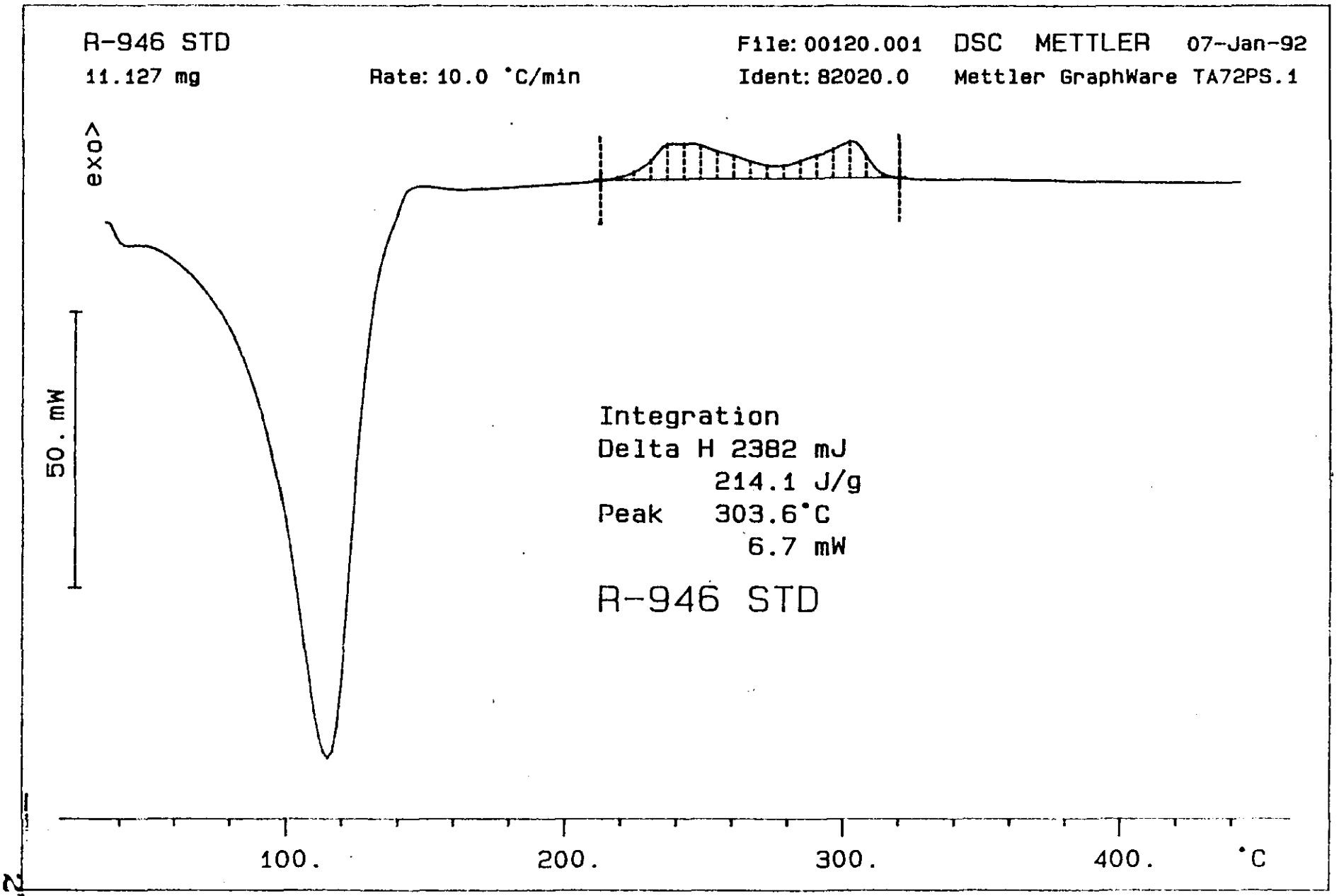
Exotherm OK

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
82020				
Date 01-08-92	Time Completed	Lab Unit Mgr		


R-939 STD
11.080 mg
Rate: 10.0 °C/min
File: 00116.001
Ident: 82020.0
DSC METTLER 07-Jan-92
Mettler GraphWare TA72PS.1
exo>
50. mW
Integration
Delta H 2627 mJ
237.1 J/g
Peak 240.4°C
7.0 mW
R-939 STD
100.
200.
300.
400.
°C


R-941 SAMPLE
10.146 mg
Rate: 10.0 °C/min
File: 00117.001
Ident: 82020.0
DSC METTLER 07-Jan-92
Mettler GraphWare TA72PS.1
exo>
50. mW
R-941 SAMPLE
100.
200.
300.
400.
°C


File: 00119.001 DSC METTLER 07-Jan-92
9.428 mg
Rate: 10.0 °C/min
Ident: 82020.0 Mettler GraphWare TA72PS.1
exo>
50. mW
R-941 DUP.
100.
200.
300.
400.
°C


R-946 STD
11.127 mg
Rate: 10.0 °C/min
File: 00120.001
Ident: 82020.0
DSC METTLER 07-Jan-92
Mettler GraphWare TA72PS.1
exo>
50. mW
Integration
Delta H 2382 mJ
214.1 J/g
Peak 303.6°C
6.7 mW
R-946 STD
100.
200.
300.
400.
°C

26. Nov. 91
Denise J Tibbert

DSC

Calibrated Nov 26, 91

ONFIGURATION

26-NOV-91 11:24

E INDIUM	255
DSC SIGN ICTA	1
TAU LAG	12
TAU SIGNAL	0
E DIMIN. FACT.	.93
S	2400
TAU LAG 2	16
TAU SIGNAL 2	0
E DIMIN. F. 2	.93
S 2	1850
. TEMP.	600.
MIN. TEMP.	-50.
A PT100	.21437
B PT100	.74509
C PT100	-.10370
HEAT P	3000
HEAT I	250
HEAT D	30
COOL 1	0
COOL 2	0
COOL 3	0
A1	10773
B1	58.121
C1	.14689
T1	-100
A2	8940
B2	17.884
C2	-.072
T2	363
A3	9360.3
B3	-15.043
C3	.01538

******** METTLER TA4000 SYSTEM *********

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: TOTAL ORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: MODEL 5011 WC16130	Procedure/Rev: LA-344-105/B-1
Technologist: L. CONLIN	Date: 1-28-92
Starting Time: 16:30	Temperature: N/A
Ending Time: 23:00	Chemist: D. BISENIUS

	Description	Lab ID
1	INITIAL LMCS CHECK STD	S599-1621
2	REAGENT BLANK	*R940-5626
3	SAMPLE 3AP891-6	*R941-5726
4	SAM DUP OF 3AP891-6	*R941-5826
5	SPIKE OF SAMPLE 3AP891-6	*R941-5926
6	FINAL LMCS CHECK STD	*R946-5526
7		
8		
9		
10		

	Description	Lab ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	70C11J/.200 mL			N/A
SPIKE	80C11J/.200 mL			
THESE SAMPLES WERE RERUN.				

A-6000-881 (03/92)

TOTAL ORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 10 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
S 599.-1621	STD	11-29-91	23:35	21

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	GM/L-C	STD	0

Sample Size: 200-2ML-200 IN .5M H2SO4
Customer ID:

Remarks, Calculations, Results:
S356 CO3TOC
STDH TOC11J RESULT 2.99 g/L C
STD VAL 3.000 g/LC %REC 99.7%
$\% Rec = \frac{2.99\ g/L}{3.000\ g/L} \times 100 = 99.7\%$

Analyst 1: 6C949 D | Analyst 2: | Analyst 3: | Analyst 4: | Analyst 5:
Hrs | Hrs | Hrs | Hrs | Hrs
Date: 1-28-92 | Time Completed: | Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5626	103AP	12-16-91	16: 2	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	ug Carbon	N124W	1

Sample Size: ?
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
.5M H2SO4
RERUN
3.60 ug C

Analyst 1: 6C949 D | Analyst 2: | Analyst 3: | Analyst 4: | Analyst 5:
Hrs | Hrs | Hrs | Hrs | Hrs
Date: 1-28-92 | Time Completed: | Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5726	103AP	12-16-91	16: 4	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	G/L	N124W	1

Sample Size: ? 1 ML + 500 ul H_2SO_4
Customer ID: 3APB91-6

Remarks, Calculations, Results:
DILUTED IN .5M H_2SO_4
RERUN
9.07E-2 g/L C
15.70 ug C

Analyst 1: 6C949 D | Analyst 2: | Analyst 3: | Analyst 4: | Analyst 5:
Hrs | Hrs | Hrs | Hrs | Hrs
Date: 1-28-92 | Time Completed: | Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5826	103AP	12-16-91	16: 5	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	G/L	N124W	1

Sample Size: ? 1 ML + 500 ul H_2SO_4
Customer ID: 3AP891-6

Remarks, Calculations, Results:
DUPLICATE SAMPLE
DILUTED IN .5M H_2SO_4
RERUN
9.15 E-2 g/L C

Analyst 1: 6C949 D | Analyst 2: | Analyst 3: | Analyst 4: | Analyst 5:
Hrs | Hrs | Hrs | Hrs | Hrs
Date: 1-28-92 | Time Completed: | Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5926	103AP	12-16-91	16: 6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	% RECOVERY	N124W	1

Sample Size: ? 200) +500 H_2SO_4
Customer ID: 3APB91-6

Remarks, Calculations, Results:
SAMPLE SPIKED ID ~~SOC11J~~ R941 (C 1-28-92)
SPIKE ID SOC11J
SPIKE VOLUME 200 ul
% Rec = 101.9%
RERUN
ug C spike + sample = 41.60 ug C
ug C sample = 15.70 ug C
ug C blank = 3.60 ug C
ug C spike = .75 g/L = 750 ug/mL × 0.2 mL = 150 ug C
over

Analyst 1: 6C949 D | Analyst 2: | Analyst 3: | Analyst 4: | Analyst 5:
Hrs | Hrs | Hrs | Hrs | Hrs
Date: 1-28-92 | Time Completed: | Lab Unit Mgr: D Y Bisenius

$\% rec\ spike = 100 \times \frac{\left[(41.60 - 3.60)\left(\frac{.9\,mL}{.2\,mL}\right) - (15.70 - 3.60)\left(\frac{1.5}{.2}\right)\left(\frac{.2\,mL}{1\,mL}\right)\right]}{150}$

$= 101.9\%$

R941-5926

TOTAL ORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 996.-3526	103AP	12-16-91	16:13	25

Determination	Method Standard	Result Units	Charge Code	Reruns
TOC	LA-344-105	% RECOVERY	N124W	1

Sample Size	Customer ID
? 200ul + 2ML H_2SO_4	STD

Remarks, Calculations, Results

RERUN

S356 CO3TOC

STD# 70C11J RESULT 2.93 g/LC

STD VAL 3.000 g/LC %REC 97.7%

$\%Rec = \frac{2.93 g/L}{3.000 g/L} \times 100 = 97.7\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
LC949 D				
Hrs	Hrs	Hrs		

Date	Time Completed	Lab Unit Mgr	
1-28-92		DY Bisenius	

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

S 599

Sample: 70C11J Date: 01/28/92 Time: 19:03:14

Sample Size = 200 uL
Dil Factor = 11
Blank ID # = BLANK
Blank Value = .5140706 ug/minute C

Analyst : L CONLIN
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	2.40	95.83
3	1.51	31.70	92.43
4	2.01	44.60	28.92
5	2.51	50.60	11.86
6	3.00	54.00	6.30
7	3.51	55.30	2.35
8	4.00	56.00	1.25
9	4.50	56.50	0.88
10	5.00	57.00	0.88
11	5.50	57.30	0.52
12	6.00	57.50	0.35
13	6.50	57.80	0.52
14	7.00	58.00	0.34

BLANK VALUE = 3.6 micrograms carbon
BLANK FACTOR = 3.6 / 7.00293 = +5.15-01 ug/min Carbon

SAMPLE RESULTS:
(58 - 3.6)(11)/(200) = +2.99E+00 g/L Carbon
(58 - 3.6)(11)/(200)(12) = +2.49E-01 Molar Carbon

OK Calculated by D.Y. Bisenius 81787 1/30/92

Sample Run By: L CONLIN 6C949

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 32 TO 37.

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

R940

Sample: BLANK Date: 01/28/92 Time: 18:53:09

Sample Size = 200 uL
Dil Factor = 1
Blank ID # = BLANK
Blank Value = N/A

Analyst : L CONLIN
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.40	100.00
3	1.51	0.90	55.56
4	2.00	1.30	30.77
5	2.50	1.60	18.75
6	3.00	1.80	11.11
7	3.50	2.10	14.29
8	4.00	2.30	8.70
9	4.50	2.50	8.00
10	5.00	2.80	10.71
11	5.50	2.90	3.45
12	6.00	3.10	6.45
13	6.50	3.40	8.82
14	7.00	3.60	5.56

BLANK VALUE = 3.6 micrograms carbon
BLANK FACTOR = 3.6 / 7.00293 = +5.1E-01 ug/min Carbon

OK Calculated by D.Y. Bisenius 81787 1/30/92

Sample Run By: L CONLIN 6C949

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R941 Date: 01/28/92 Time: 21:29:47

Sample Size = 200 uL
Dil Factor = 1.5
Blank ID # = BLANK
Blank Value = .5140706 ug/minute C

Analyst : L CONLIN
Min Readings = 14
Max Readings = 14
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	1.60	93.75
3	1.51	8.70	81.61
4	2.00	11.40	23.68
5	2.50	12.90	11.63
6	3.00	13.40	3.73
7	3.50	13.90	3.60
8	4.00	14.20	2.11
9	4.50	14.50	2.07
10	5.00	14.70	1.36
11	5.50	15.00	2.00
12	6.00	15.20	1.32
13	6.50	15.50	1.94
14	7.00	15.70	1.27

BLANK VALUE = 3.6 micrograms carbon
BLANK FACTOR = 3.6 / 7.00293 = +5.1E-01 ug/min Carbon

SAMPLE RESULTS:
(15.7 - 3.600063)(1.5)/(200) = +9.07E-02 g/L Carbon
(15.7 - 3.600063)(1.5)/(200)(12) = +7.56E-03 Molar Carbon

Sample Run By: _____
L CONLIN 6C949

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R941 DUP. Date: 01/28/92 Time: 21:38:45

Sample Size = 200 uL
Dil Factor = 1.5
Blank ID # = BLANK
Blank Value = .5140706 ug/minute C

Analyst : L CONLIN
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	1.50	100.00
3	1.51	8.40	82.14
4	2.01	11.30	25.66
5	2.50	12.60	10.32
6	3.00	13.60	7.35
7	3.50	13.70	0.73
8	4.00	14.20	3.52
9	4.50	14.50	2.07
10	5.00	14.70	1.36
11	5.50	15.00	2.00
12	6.00	15.20	1.32
13	6.50	15.50	1.94
14	7.00	15.80	1.90

BLANK VALUE = 3.6 micrograms carbon
BLANK FACTOR = 3.6 / 7.00293 = +5.1E-01 ug/min Carbon

SAMPLE RESULTS:
(15.8 - 3.600063)(1.5)/(200) = +9.15E-02 g/L Carbon
(15.8 - 3.600063)(1.5)/(200)(12) = +7.62E-03 Molar Carbon

Sample Run By: _____
L CONLIN 6C949

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R941-SPIKED Date: 01/28/92 Time: 21:48:19

Sample Size = 200 uL Analyst : L CONLIN
Dil Factor = 4.5 Min Readings = 14
Blank ID # = BLANK Max Readings = 14
Blank Value = .5140706 ug/minute C % Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.00	0.00
2	1.01	10.10	100.00
3	1.51	27.20	62.87
4	2.00	33.90	19.76
5	2.50	36.80	7.88
6	3.00	38.60	4.66
7	3.50	39.30	1.78
8	4.00	40.00	1.75
9	4.50	40.30	0.74
10	5.00	40.60	0.74
11	5.50	40.90	0.73
12	6.00	41.20	0.73
13	6.50	41.40	0.48
14	7.00	41.60	0.48

BLANK VALUE = 3.6 micrograms carbon
BLANK FACTOR = 3.6 / 7.00293 = +5.1E-01 ug/min Carbon

SAMPLE RESULTS:
(41.6 - 3.600565)(4.5)/(200) = +8.55E-01 g/L Carbon
(41.6 - 3.600565)(4.5)/(200)(12) = +7.12E-02 Molar Carbon

Sample Run By: _____
L CONLIN 6C949

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R946 Date: 01/28/92 Time: 22:53:04

Sample Size = 200 uL
Dil Factor = 11
Blank ID # = BLANK
Blank Value = .5140706 ug/minute C

Analyst : L CONLIN
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	5.50	100.00
3	1.51	33.20	83.43
4	2.01	45.10	26.39
5	2.51	51.00	11.57
6	3.01	53.50	4.67
7	3.50	54.90	2.55
8	4.00	55.40	0.90
9	4.50	55.90	0.89
10	5.00	56.10	0.36
11	5.50	56.30	0.36
12	6.00	56.40	0.18
13	6.50	56.60	0.35
14	7.00	56.80	0.35

BLANK VALUE = 3.6 micrograms carbon
BLANK FACTOR = 3.6 / 7.00293 = +5.1E-01 ug/min Carbon

SAMPLE RESULTS:
(56.8 - 3.599561)(11)/(200) = +2.93E+00 g/L Carbon
(56.8 - 3.599561)(11)/(200)(12) = +2.44E-01 Molar Carbon

Sample Run By: _____
L CONLIN 6C949

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: TOTAL INORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-622-102/B-1
Technologist: J. SOLBRACK	Date: 1-28-92
Starting Time: 16:30	Temperature: N/A
Ending Time: 11:45	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5527	11		
2	REAGENT BLANK	R940-5627	12		
3	SAMPLE 3AP891-6	R941-5727	13		
4	SAM DUP OF 3AP891-6	R941-5827	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5927	15		
6	FINAL LMCS CHECK STD	R946-5527	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	69C11-L/.100 mL			NA
SPIKE	69C11-L/.100 mL			NA

A-6000-881 (03/92)

TOTAL INORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5927	103AP	12-16-91	16: 1	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TIC	LA-622-102	% RECOVERY	N12AW	0

Sample Size: 50 z
Customer ID: STD

Remarks, Calculations, Results
5225 CO3
STD# 69C11-L RESULT 1.988 E-1 M
STD VAL 2.000E-1 M REC 99.4%

$$\%Rec = \frac{1.988E-1\,M}{2.000E-1\,M} \times 100 = 99.4\%$$

Analyst 1: [signature] Analyst 2: Analyst 3: Analyst 4: [signature] Analyst 5:
Hrs: 82020
Date: 1-28-92 Time Completed: Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5622	103AP	12-16-91	17: 2	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TIC	LA-622-102	mg Carbon	N12AW	

Sample Size: 50 z
Customer ID: BLK

Remarks, Calculations, Results
REAGENT BLANK

2.2 ug C

Analyst 1: [signature] Analyst 2: Analyst 3: Analyst 4: [signature] Analyst 5:
Hrs: 82020
Date: 1-28-92 Time Completed: Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5927	103AP	12-16-91	16: 4	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TIC	LA-622-102	G/L	N12AW	0

Sample Size: 200 z
Customer ID: SAPB91-6

Remarks, Calculations, Results

4.43 E-1 g/L

90.80 ug C

Analyst 1: [signature] Analyst 2: Analyst 3: Analyst 4: [signature] Analyst 5:
Hrs: 82020
Date: 1-28-92 Time Completed: Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5927	103AP	12-16-91	16: 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TIC	LA-622-102	G/L	N12AW	

Sample Size: 200 z
Customer ID: SAPB91-6

Remarks, Calculations, Results
DUPLICATE SAMPLE

4.55 E-1 g/L

Analyst 1: [signature] Analyst 2: Analyst 3: Analyst 4: [signature] Analyst 5:
Hrs: 82020
Date: 1-28-92 Time Completed: Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5927	103AP	12-16-91	16: 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TIC	LA-622-102	% RECOVERY	N12AW	0

Sample Size: 50z sample + 100z spike inj: 50
Customer ID: SAPB91-6

Remarks, Calculations, Results
SAMPLE SPIKED ID R-941
SPIKE ID 69C11-L
SPIKE VOLUME 100
ug C spike + sample = 93.70 ug C
ug C sample = 90.80 ug C
ug C blank = 2.2 ug C
ug C spike = 2400 ug/ml x 0.1 mL = 240 ug C

% Rec = 105.2%

over

Analyst 1: [signature] Analyst 2: Analyst 3: Analyst 4: [signature] Analyst 5:
Hrs: 82020
Date: 1-28-92 Time Completed: Lab Unit Mgr: D Y Bisenius

$$\%\,spike\,rec = 100 \times \frac{\left[(93.70-2.2)\left(\frac{.15}{.05}\right)-(90.80-2.2)\left(\frac{.2\,mL}{.2\,mL}\right)\left(\frac{.05\,mL}{.2\,mL}\right)\right]}{240}$$

$$= 105.2\%$$

R941-5927

TOTAL INORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Sample No.	Sample Point	Date	Time Sampled	Priority
R [illegible]	[illegible]	12-16-91	[illegible]	

Determination	Method Standard	Report Units	Dilution Factor	Remarks
TIC	LH-522-102	% RECOVERY		

Sample Size	Container ID
50 g	STD

Remarks, Calculations, Results

STD# 69C11-L RESULT 2.055 E-1 M

STD VAL 2.000E-1 M REC 102.8%

$$\%Rec = \frac{2.055E-1\ M}{2.000E-1\ M} \times 100 = 102.8\%$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]			[signature]	
Hrs	Hrs	Hrs	Hrs	Hrs
8020			[signature]	
Date	Time Completed	Lab Unit Mgr.		
1-28-92		DY Bisenius		

54-6000-051 (R-10-63)

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R-939 69C11-L Date: 01/28/92 Time: 19:01:19

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .3141542 ug/minute C

Analyst : JI SOLBRACK
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	15.50	98.06
3	1.51	51.60	69.96
4	2.01	82.90	37.76
5	2.51	101.90	18.65
6	3.01	111.00	8.20
7	3.51	116.10	4.39
8	4.00	118.10	1.69
9	4.50	119.70	1.34
10	5.00	120.10	0.33
11	5.50	120.80	0.58
12	6.00	120.90	0.08
13	6.50	121.30	0.33
14	7.00	121.50	0.16

BEST AVAILABLE COPY

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 41 TO 46 .

BLANK VALUE = 2.2 micrograms carbon
BLANK FACTOR = 2.2 / 7.00293 = +3.1E-01 ug/min Carbon

SAMPLE RESULTS:
(121.5 - 2.200038)(1)/(50) = +2.386E+00 g/L Carbon
(121.5 - 2.200038)(1)/(50)(12) = +1.988E-01 Molar Carbon

JK Calculated by D.Y. Bisenius 81787 1/30/92

Sample Run By: _____
JI SOLBRACK 82020

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BLK R-940 Date: 01/28/92 Time: 18:48:20

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = N/A

Analyst : JI SOLBRACK
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.10	100.00
3	1.51	0.20	50.00
4	2.01	0.40	50.00
5	2.51	0.60	33.33
6	3.01	0.80	25.00
7	3.51	0.90	11.11
8	4.01	1.00	10.00
9	4.50	1.20	16.67
10	5.00	1.40	14.29
11	5.50	1.60	12.50
12	6.00	1.80	11.11
13	6.50	2.00	10.00
14	7.00	2.20	9.09

BEST AVAILABLE COPY

BLANK VALUE = 2.2 micrograms carbon
BLANK FACTOR = 2.2 / 7.00293 = +3.1E-01 ug/min Carbon

OK Calculated by D.G. Bisenius 81787 1/30/92

Sample Run By: _____
JI SOLBRACK 82020

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R-941 Date: 01/28/92 Time: 19:34:26

Sample Size = 200 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .3141542 ug/minute C

Analyst : JI SOLBRACK
Min Readings = 14
Max Readings = 14
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	7.60	97.37
3	1.51	29.70	74.41
4	2.00	53.10	44.07
5	2.50	69.50	23.60
6	3.00	79.20	12.25
7	3.50	84.40	6.16
8	4.01	87.20	3.21
9	4.50	88.40	1.36
10	5.00	89.20	0.90
11	5.50	89.60	0.45
12	6.00	90.10	0.55
13	6.50	90.30	0.22
14	7.00	90.80	0.55

BEST AVAILABLE COPY

BLANK VALUE = 2.2 micrograms carbon
BLANK FACTOR = 2.2 / 7.00293 = +3.1E-01 ug/min Carbon

SAMPLE RESULTS:
(90.8 - 2.2)(1)/(200) = +4.43E-01 g/L Carbon
(90.8 - 2.2)(1)/(200)(12) = +3.69E-02 Molar Carbon

Sample Run By: JI SOLBRACK 82020

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R-941-DUP Date: 01/28/92 Time: 19:45:47

Sample Size = 200 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .3141542 ug/minute C

Analyst : JI SOLBRACK
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	7.60	97.37
3	1.50	30.40	75.00
4	2.00	54.10	43.81
5	2.50	70.70	23.46
6	3.01	81.00	12.72
7	3.50	86.40	6.25
8	4.00	89.40	3.36
9	4.50	90.90	1.65
10	5.00	91.80	0.98
11	5.50	92.20	0.43
12	6.00	92.60	0.43
13	6.50	92.90	0.32
14	7.00	93.20	0.32

9 3 1 2 7 3 4 3 6

BEST AVAILABLE COPY

BLANK VALUE = 2.2 micrograms carbon
BLANK FACTOR = 2.2 / 7.00293 = +3.1E-01 ug/min Carbon

SAMPLE RESULTS:
(93.2 - 2.199732)(1)/(200) = +4.55E-01 g/L Carbon
(93.2 - 2.199732)(1)/(200)(12) = +3.79E-02 Molar Carbon

Sample Run By: _____
JI SOLBRACK 82020

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R-941+S69C1L Date: 01/28/92 Time: 21:24:50

Sample Size = 50 uL Analyst : JI SOLBRACK
Dil Factor = 3 Min Readings = 14
Blank ID # = BLK Max Readings = 14
Blank Value = .3141542 ug/minute C % Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	10.00	97.00
3	1.51	32.90	69.60
4	2.01	56.40	41.67
5	2.51	71.90	21.56
6	3.01	81.40	11.67
7	3.51	86.60	6.00
8	4.00	89.60	3.35
9	4.50	91.30	1.86
10	5.00	92.20	0.98
11	5.50	92.50	0.32
12	6.00	93.00	0.54
13	6.50	93.40	0.43
14	7.00	93.70	0.32

9.3 1 2 1 5 3 2 1 3 7

BEST AVAILABLE COPY

BLANK VALUE = 2.2 micrograms carbon
BLANK FACTOR = 2.2 / 7.00293 = +3.1E-01 ug/min Carbon

SAMPLE RESULTS:
(93.7 - 2.200307)(3)/(50) = +5.49E+00 g/L Carbon
(93.7 - 2.200307)(3)/(50)(12) = +4.57E-01 Molar Carbon

Sample Run By: JI SOLBRACK 82020

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R-946 Date: 01/28/92 Time: 22:39:44

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .3141542 ug/minute C

Analyst : JI SOLBRACK
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.90	0.00
2	1.01	28.00	96.79
3	1.50	60.70	53.87
4	2.00	83.30	27.13
5	2.50	97.40	14.48
6	3.00	106.40	8.46
7	3.50	112.50	5.42
8	4.00	116.50	3.43
9	4.50	119.40	2.43
10	5.00	121.40	1.65
11	5.50	122.90	1.22
12	6.00	123.70	0.65
13	6.50	124.70	0.80
14	7.00	125.50	0.64

BEST AVAILABLE COPY

BLANK VALUE = 2.2 micrograms carbon
BLANK FACTOR = 2.2 / 7.00293 = +3.1E-01 ug/min Carbon

SAMPLE RESULTS:
(125.5 - 2.199693)(1)/(50) = +2.466E+00 g/L Carbon
(125.5 - 2.199693)(1)/(50)(12) = +2.055E-01 Molar Carbon

Sample Run By: JI SOLBRACK 82020

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: AMMONIA	Sample Prep: UNDIGESTED

Instrument: NA	Procedure/Rev: LA-634-102/D-0
Technologist: S. LAI	Date: 1-13-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5528	11		
2	REAGENT BLANK	R940-5628	12		
3	SAMPLE 3AP891-6	R941-5728	13		
4	SAM DUP OF 3AP891-6	R941-5828	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5928	15		
6	FINAL LMCS CHECK STD	R946-5528	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	4C11-QX/0.250 mL			NA
SPIKE	4C11-QX/0.250 mL			NA
THESE SAMPLES WERE RERUN.				

A-6000-881 (03/92)

AMMONIA ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 939.-5528	103AP	12-16-91	16: 1	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	% RECOVERY	N124W	1

Sample Size: ? 250λ 0.0994M HCl
Customer ID: STD

Remarks, Calculations, Results:
S235 NH4CL 4C11-0X
STDH 4C11-0X RESULT 0.0493[M]
STD VAL 5x10⁻²[M] %REC 98.62%
(152λ-28λ)(0.0994M) / 250λ = 0.0493[M]
RERUN
Blank: 28λ
STD: 150λ

Analyst-1: Sue Lai; Analyst-2; Analyst-3: Leslie Diaz; Analyst-4; Analyst-5: RK Fuller 1-14-92
Hrs: 6C916
Date: 1-13-92; Time Completed; Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5628	103AP	12-16-91	16: 2	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	PPM	N124W	1

Sample Size: ? 1000λ 0.0994M HCl
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
< 5x10⁻⁶ moles x 18g NH4/mole x 1000mg/g = 0.09mg
0.09mg / 1ml x 1000ml/l = < 90ppm
RERUN
Blank: 28λ
(Reg) Blank: 29λ

Analyst-1: Sue Lai; Analyst-2; Analyst-3; Analyst-4; Analyst-5: RK Fuller 1-14-92
Hrs: 6C916
Date: 1-13-92; Time Completed; Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5728	103AP	12-16-91	16: 4	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	PPM	N124W	1

Sample Size: ? 1000λ 0.0994M HCl
Customer ID: 3AP891-6

Remarks, Calculations, Results:
< 6.0x10⁻⁶ moles x 18g/mole x 1000mg/g = 0.09mg
0.09mg / 1ml x 1000ml/l = < 90ppm
RERUN
Blank: 29λ
Sample: 41λ

Analyst-1: Sue Lai; Analyst-2; Analyst-3: Leslie Diaz; Analyst-4; Analyst-5: RK Fuller 1-14-92
Hrs: 6C916
Date: 1-13-92; Time Completed; Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5828	103AP	12-16-91	16: 5	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	PPM	N124W	1

Sample Size: ? 1000λ 0.0994M HCl
Customer ID: 3AP891-6

Remarks, Calculations, Results:
DUPLICATE SAMPLE
< 6.0x10⁻⁶ moles x 18g/mole x 1000mg/g = 0.09mg
0.09mg / 1ml x 1000ml/l = < 90ppm
RERUN
Blank: 29λ
Sample: 49λ

Analyst-1: Sue Lai; Analyst-2; Analyst-3; Analyst-4; Analyst-5: RK Fuller 1-14-92
Hrs: 6C916
Date: 1-13-92; Time Completed; Lab Unit Mgr: Leslie Diaz

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5928	103AP	12-16-91	16: 6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	% RECOVERY	N124W	1

Sample Size: ? 1000λ 0.0994M HCl
Customer ID: 3AP891-6

Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID 4C11-0X
SPIKE VOLUME (250λ)
(166λ-29λ)(0.0994M) - (12λ)(0.0994M) / (6.0x10⁻⁶[M])(250λ) x 100 = 99.4%
RERUN
Blank: 29λ
Sample: 166λ

Analyst-1: Sue Lai; Analyst-2; Analyst-3; Analyst-4; Analyst-5: RK Fuller 1-14-92
Hrs: 6C916
Date: 1-13-92; Time Completed; Lab Unit Mgr: Leslie Diaz

Serial No	Sample Point	Date	Time Issued	Priority
R 946.-5528	103AP	12-16-91	16:13	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	% RECOVERY	N124W	1

Sample Size: ? 250λ 0.0994M HCl
Customer ID: STD

Remarks, Calculations, Results:
S235 NH4CL 4C11-0X
STDH 4C11-0X RESULT 0.0485[M]
STD VAL 5.0x10⁻²[M] %REC 97.02%
(150λ-28λ)(0.0994M) / 250λ = 0.0485[M] STD: 150λ
RERUN
Blank: 28λ

Analyst-1: Sue Lai; Analyst-2; Analyst-3: Leslie Diaz; Analyst-4; Analyst-5: RK Fuller 1-14-92
Hrs: 6C916
Date: 1-13-92; Time Completed; Lab Unit Mgr: Leslie Diaz

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: DETERMINATION OF HYDROXIDE IONS IN SOLUTIONS	Sample Prep: UNDIGESTED

Instrument: AL10636, WB55123	Procedure/Rev: LA-661-102/F-1
Technologist: J. MIDDLETON	Date: 1-07-92
Starting Time: 00:15	Temperature: N/A
Ending Time: 04:05	Chemist: S. ISAACSON

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5529	11		
2	REAGENT BLANK	R940-5629	12		
3	SAMPLE 3AP891-6	R941-5729	13		
4	SAM DUP OF 3AP891-6	R941-5829	14		
5	FINAL LMCS CHECK STD	R946-5529	15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	9C11AG/.100 mL			NA

A-6000-881 (03/92)

DETERMINATION OF HYDROXIDE ION IN SOLUTION - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 939.-5629	103AP	12-16-91	16:1	25

Determination	Method/Standard	Result Units	Charge Code	Range
OH	LA-661-102	% RECOVERY	N124W	0

Sample Size: 3ml 100% — Customer ID: STD

Remarks, Calculations, Results: 9273 115-OH .1899= HNO_3

STD# 9C11AG RESULT 8.55E-1

STD VAL 8.57E-1 %REC 99.8%

$$\frac{(460-10)(.1899)}{100} =$$

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
82577				

Date: 1-7-92 — Time Completed: — Lab Unit Mgr: Stacie Isaacson

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5629	103AP	12-16-91	16:1	25

Determination	Method/Standard	Result Units	Charge Code	Range
OH	LA-661-102	M	N124W	0

Sample Size: 3ml — Customer ID: BLK

Remarks, Calculations, Results: REAGENT BLANK .1899= HNO_3

Complete

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
82577				

Date: 1-7-92 — Time Completed: — Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5629	103AP	12-16-91	16:4	25

Determination	Method/Standard	Result Units	Charge Code	Range
OH	LA-661-102	M	N124W	0

Sample Size: 1ml 100% SPIKE — Customer ID: SAF691-6

Remarks, Calculations, Results: .1899= HNO_3

SPIKE# 9C11AG $\frac{(958-460)(.1899)}{1000} = 9.46E^{-2}$

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
82577				

Date: 1-7-92 — Time Completed: — Lab Unit Mgr: Stacie Isaacson

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5629	103AP	12-16-91	16:5	25

Determination	Method/Standard	Result Units	Charge Code	Range
OH	LA-661-102	M	N124W	0

Sample Size: 1ml 100% SPIKE — Customer ID: SAF691-6

Remarks, Calculations, Results: DUPLICATE SAMPLE .1899= HNO_3

SPIKE# 9C11AG $\frac{(894-460)(.1899)}{1000} = 8.24E^{-2}$

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
82577				

Date: 1-7-92 — Time Completed: — Lab Unit Mgr: Stacie Isaacson

Serial No	Sample Point	Date	Time Issued	Priority
R 946.-5629	103AP	12-16-91	16:13	25

Determination	Method/Standard	Result Units	Charge Code	Range
OH	LA-661-102	% RECOVERY	N124W	

Sample Size: 100% — Customer ID: STD

Remarks, Calculations, Results: 9273 115-OH .1899= HNO_3

STD# 9C11AG RESULT 8.75E-1

STD VAL 8.57E-1 %REC 102.1%

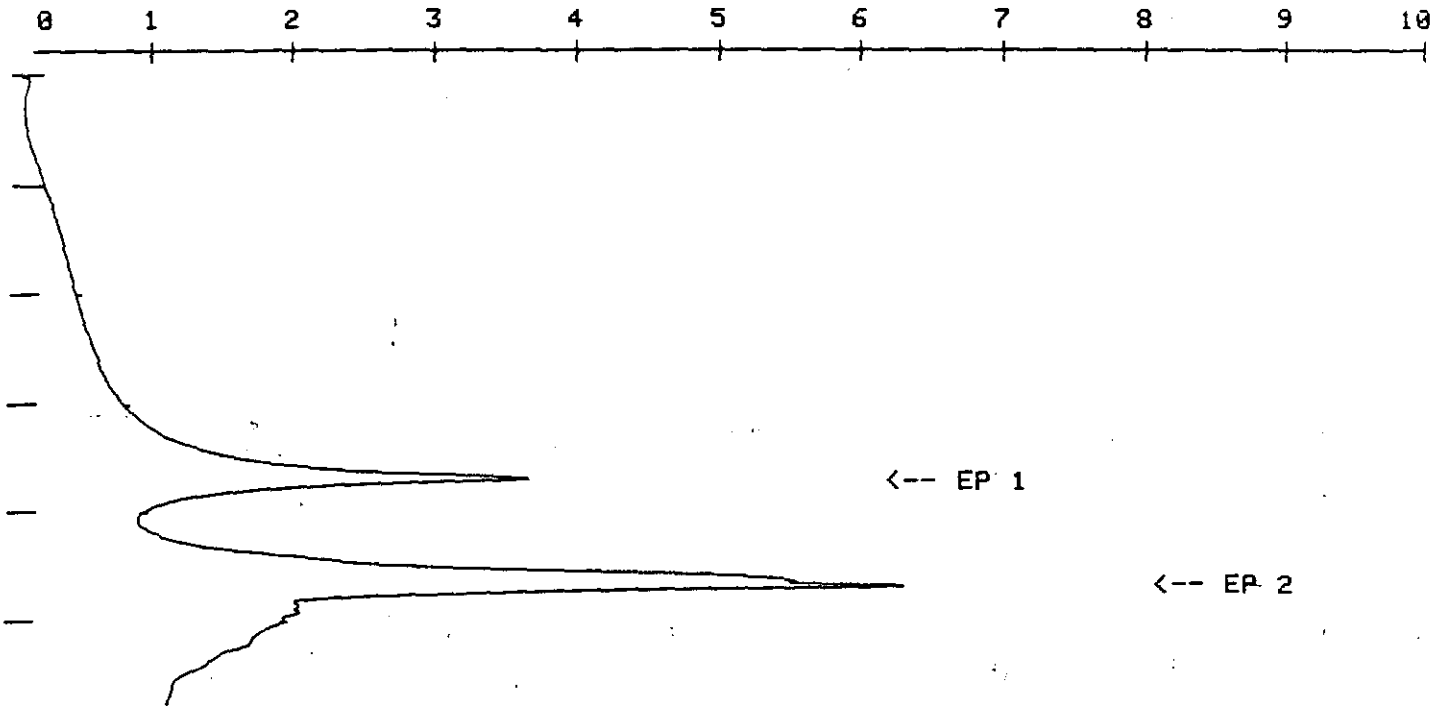
$$\frac{(471-10)(.1899)}{100} = 8.75E^{-1}$$

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
82577				

Date: 1-7-92 — Time Completed: — Lab Unit Mgr: Stacie Isaacson

SAMPLE NUMBER: 20
SAMPLE DATA: 897.
DIRECT READ PH: 12.209

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.78	0.460	0.0000
6.20	0.578	0.0000

TITRATION TERMINATED BY PH LIMIT.

JAN 7 1992 1:09 AM

SAMPLE NUMBER: 6
SAMPLE DATA: 897.
DIRECT READ PH: 4.416

DERIVATIVE OUTPUT, dE/dV

.010

0 1 2 3 4 5 6 7 8 9 10

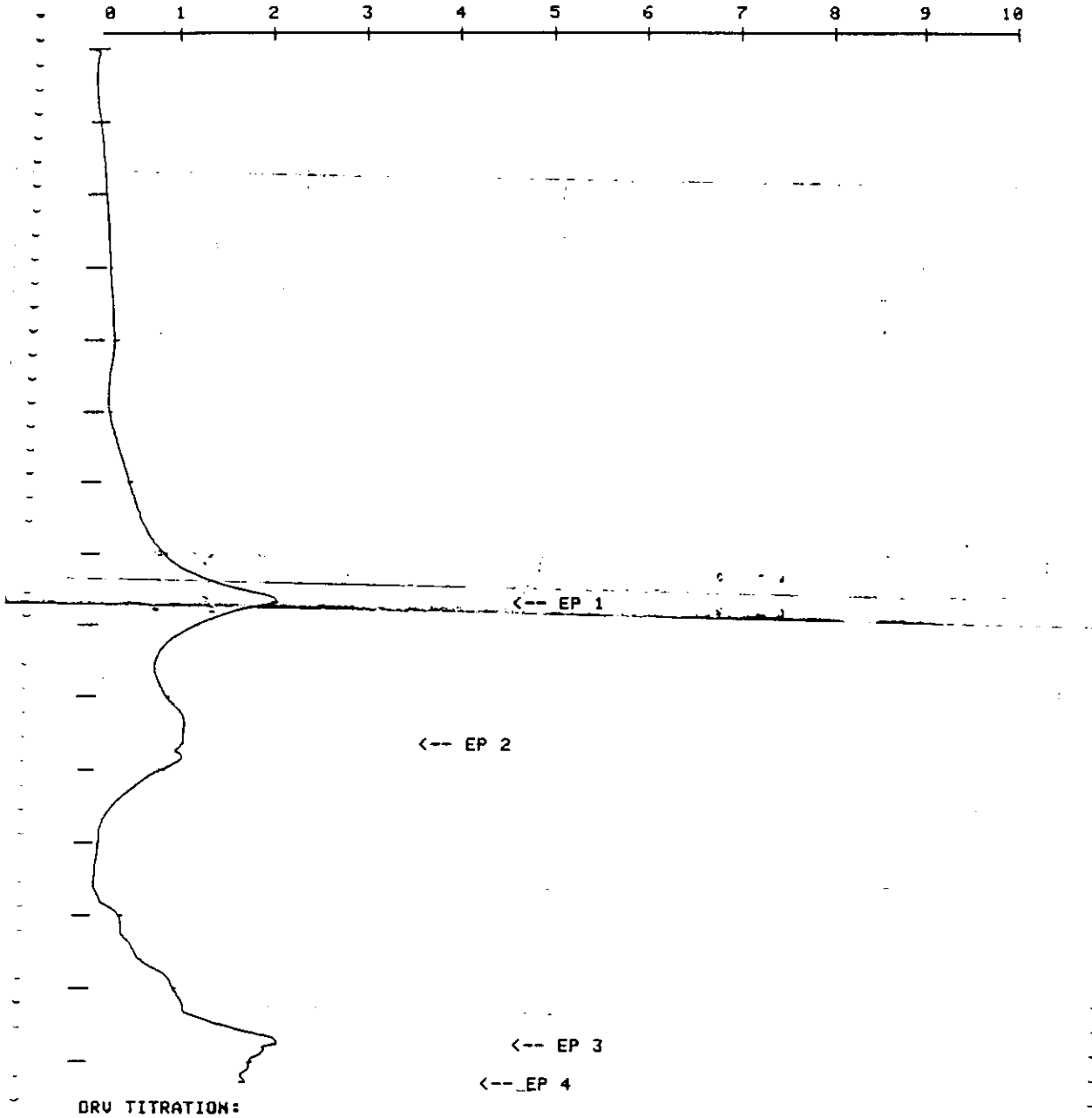
DRV TITRATION:

TITRATION TERMINATED BY PH LIMIT.

JAN 7 1992 12:47 AM

SAMPLE NUMBER: 22
SAMPLE DATA: 898.
DIRECT READ PH: 11.980

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

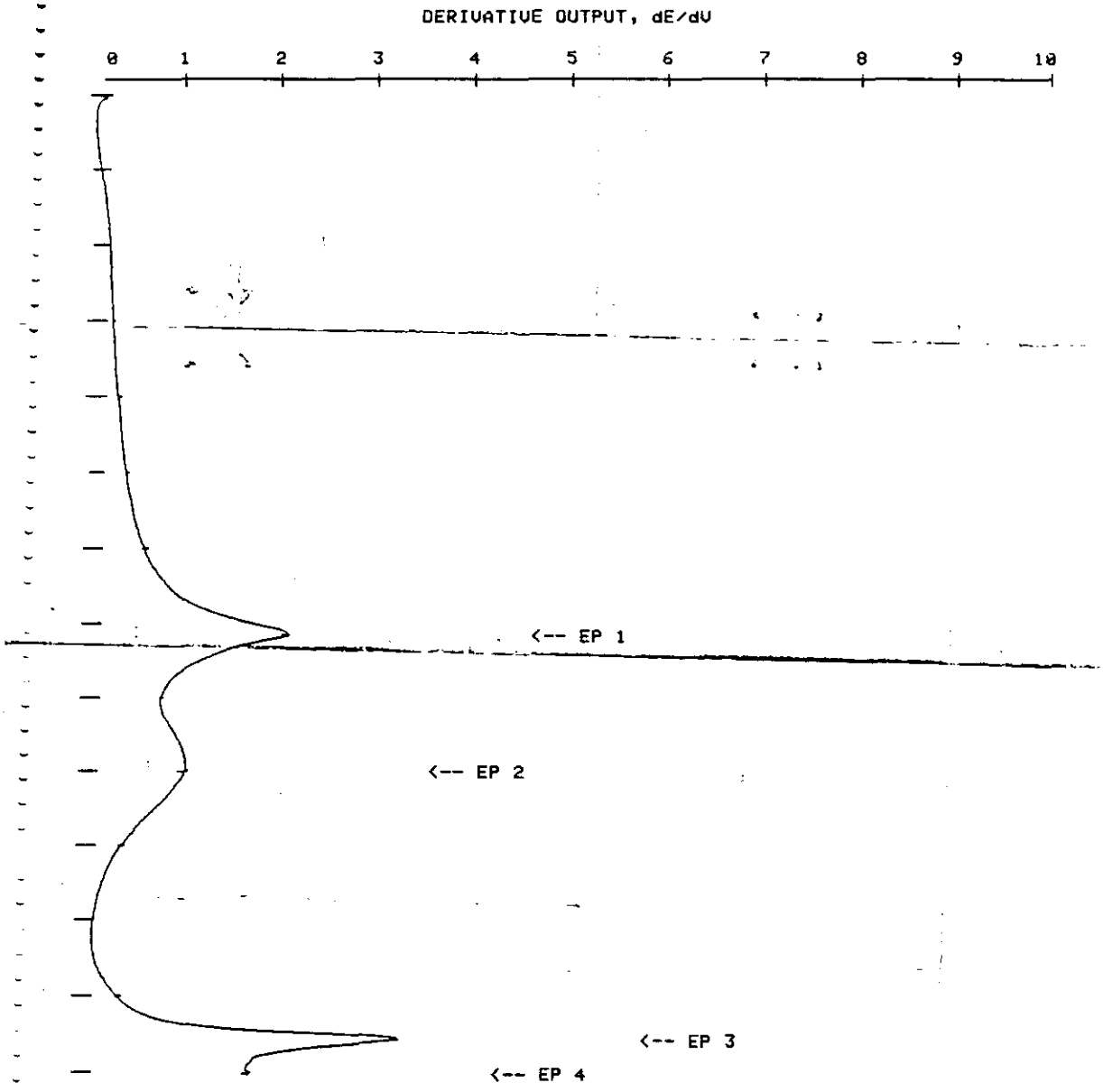
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.75	0.958	0.0000
8.27	1.203	0.0000
5.86	1.716	0.0000
4.38	1.779	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

JAN 7 1992 1:26 AM

94

SAMPLE NUMBER: 23
SAMPLE DATA: 899.
DIRECT READ PH: 11.993



DRV TITRATION:

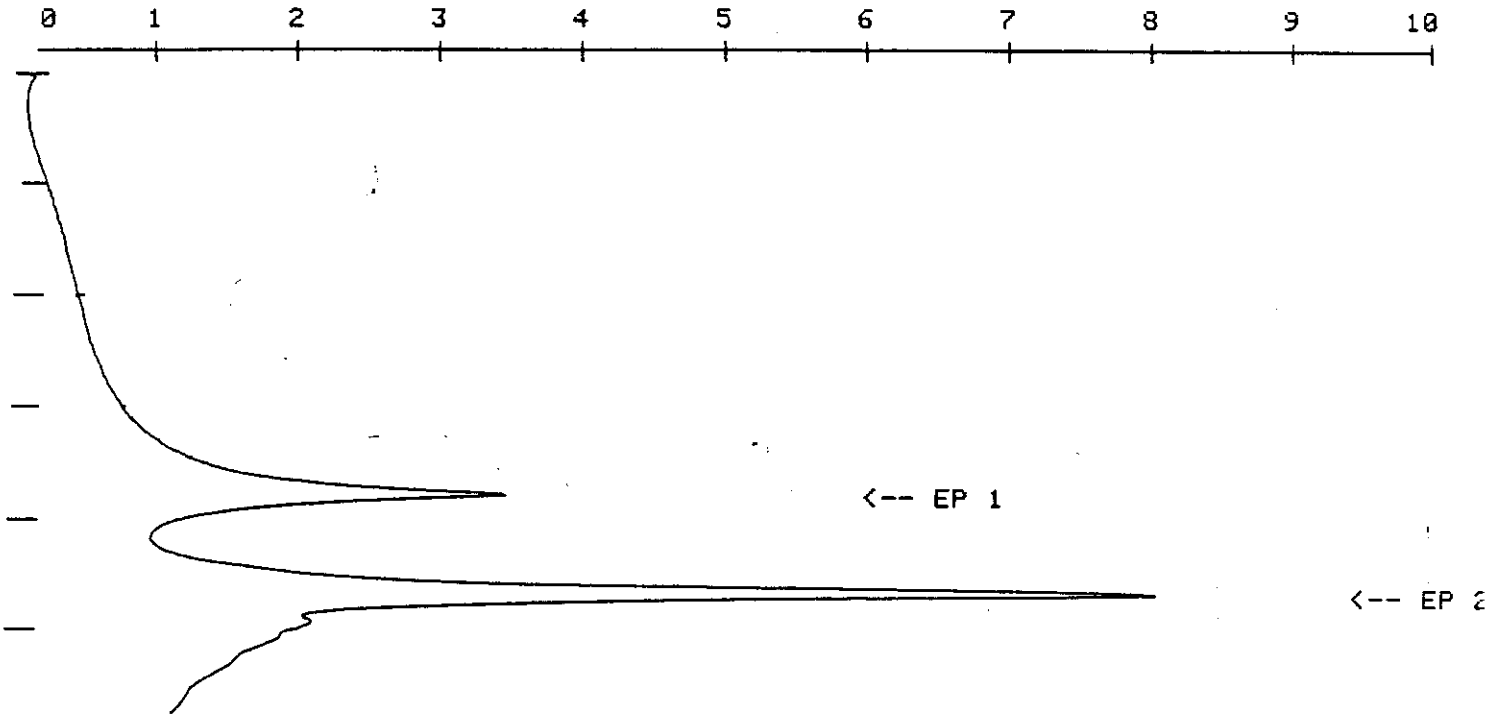
EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.78	0.894	0.0000
8.40	1.125	0.0000
6.39	1.570	0.0000
4.81	1.626	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

JAN 7 1992 2:40 AM

SAMPLE NUMBER: 31
SAMPLE DATA: 821.
DIRECT READ PH: 12.136

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.72	0.471	0.0000
6.08	0.581	0.0000

TITRATION TERMINATED BY PH LIMIT.

JAN 7 1992 3:59 AM

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: CYANIDE	Sample Prep: UNDIGESTED

Instrument: MILTON ROY SPEC 301 AL10724	Procedure/Rev: LA-695-102/B-0
Technologist: E. COLVIN	Date: 2-03-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5578	11		
2	REAGENT BLANK	R940-5678	12		
3	SAMPLE 3AP891-6	R941-5778	13		
4	SAM DUP OF 3AP891-6	R941-5878	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5978	15		
6	FINAL LMCS CHECK STD	R946-5578	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	75C11-X/0.100 mL			NA
SPIKE	75C11-X/0.750 mL			NA

A-6000-881 (03/92)

CYANIDE ANALYSIS - UNDIGESTED SAMPLE

Serial No: R 939.-5578 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16:2 | Priority: 25
Determination: CN | Method/Standard: LA-695-102 | Result Units: % RECOVERY | Charge Code: N124W | Remarks:
Sample Size: 100uL-10mL-500uL | Customer ID: STD
Remarks, Calculations, Results: 5244 KLN
STD# 75C11-X RESULT 8.90E2 ppm
STD VAL 8.98E2 ppm %REC (99.1%)
%Rec = 8.90 E2 ppm / 8.98 E2 ppm X100 = 99.1%
(.724 - .004) - (-.004303) / .162726 = 4.45 ug CN⁻
ABS .724
Blank = .004
D.F. = 10mL / 0.1mL X100
4.45 ug CN / 0.5 mL X 100 = 890 ppm
Analyst-1: 80028 | Analyst-2: | Analyst-3: | Analyst-4: | Analyst-5:
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
Date: 2-3-92 | Time Completed: | Lab Unit Mgr: D4 Bisenius

Serial No: R 940.-5578 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 15:[illegible] | Priority:
Determination: CN | Method/Standard: LA-695-102 | Result Units: PPM | Charge Code: N124W | Remarks: 0
Sample Size: ? | Customer ID: BLK
Remarks, Calculations, Results: REAGENT BLANK
< 0.1 ug CN⁻ / 5 mL = (< 2E-2 ppm)
.004 - (-.004303) / .162726 = .051 ug CN⁻ = < 0.1 ug CN⁻
ABS .004
Analyst-1: 80028 | Analyst-2: | Analyst-3: | Analyst-4: | Analyst-5:
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
Date: 2-3-92 | Time Completed: | Lab Unit Mgr: D4 Bisenius

Serial No: R 941.-5578 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16:4 | Priority: 25
Determination: CN | Method/Standard: LA-695-102 | Result Units: PPM | Charge Code: N124W | Remarks: 0
Sample Size: ? 750 uL | Customer ID: 3APB91-6
Remarks, Calculations, Results:
4.5E-1 ug CN⁻ / 0.75 mL = (6E-1 ppm)
(.073 - .004) - (-.004303) / .162726 = 4.5E-1 ug CN⁻
ABS .073
Blank = .004
Analyst-1: 80028 | Analyst-2: | Analyst-3: | Analyst-4: | Analyst-5:
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
Date: 2-3-92 | Time Completed: | Lab Unit Mgr: D4 Bisenius

Serial No: R 941.-5578 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16:5 | Priority: 25
Determination: CN | Method/Standard: LA-695-102 | Result Units: PPM | Charge Code: N124W | Remarks: 0
Sample Size: ? 750 uL | Customer ID: 3APB91-6
Remarks, Calculations, Results: DUPLICATE SAMPLE
4.6E-1 ug CN⁻ / 0.75 mL = (6.1E-1 ppm)
(0.074 - 0.004) - (-0.004303) / 0.162726 = 4.6E-1 ug CN⁻
ABS .074
Blank = 0.004
Analyst-1: 80028 | Analyst-2: | Analyst-3: | Analyst-4: | Analyst-5:
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
Date: 2-3-92 | Time Completed: | Lab Unit Mgr: J. S. Lachut

Serial No: R 941.-5578 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16:6 | Priority: 25
Determination: CN | Method/Standard: LA-695-102 | Result Units: % RECOVERY | Charge Code: N124W | Remarks: 0
Sample Size: ? 750 uL | Customer ID: 3APB91-6
Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID 75C11-X (%Rec = 98.2%)
SPIKE VOLUME
100uL-10mL-500uL
Sample = 4.5 E-1 ug CN⁻
(.790 - .004) - (-.004303) / .162726 = 4.86 ug CN⁻
ABS .790
Blank = .004
D.F. = 10mL / 0.1mL = 100
Spike = 898 ug/mL X 0.5mL / 100 = 4.49 ug CN⁻
over
Analyst-1: 80028 | Analyst-2: | Analyst-3: | Analyst-4: | Analyst-5:
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
Date: 2-3-92 | Time Completed: | Lab Unit Mgr: D4 Bisenius

Serial No: R 946.-5578 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16:10 | Priority: 25
Determination: CN | Method/Standard: LA-695-102 | Result Units: % RECOVERY | Charge Code: N124W | Remarks: 0
Sample Size: ? 100uL-10mL-500uL | Customer ID: STD
Remarks, Calculations, Results: 5244 KLN
STD# 75C11-X RESULT 886 E2 ppm CN⁻
STD VAL 8.98 E2 ppm %REC 98.7%
(0.721 - 0.004) - (-0.004303) / .162726 = 4.43 ug CN⁻
886 / 898 x 100 = (98.7%)
ABS .721
Blank = 0.004
DF = 10mL / 0.1mL = 100
4.43 / 0.5mL x 100 = 886 ppm CN⁻
Analyst-1: 80028 | Analyst-2: | Analyst-3: | Analyst-4: | Analyst-5:
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
Date: 2-3-92 | Time Completed: | Lab Unit Mgr: J. S. Lachut

TODAYS DATE: 02-03-1992

YROLL NO.: 80028

Y-INTERCEPT= -.004303
SLOPE= .162726

SAMPLE ID#: R-940 BLANK
SAMPLE SIZE: 0
WVL AND ABS= 580NM 0.004 A

SAMPLE ID#: R-939 75C11-X STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.724 A

SAMPLE ID#: R-941
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.073 A

SAMPLE ID#: R-941 DUPLICATE
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.074 A

SAMPLE ID#: R-941 + SPIKE
SAMPLE SIZE: 750UL + 100UL-10ML-500UL 75C11-X SPIKE
WVL AND ABS= 580NM 0.790 A

MPLE ID#: R-942
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.075 A

SAMPLE ID#: R-943
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.062 A

SAMPLE ID#: R-744
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.067 A

SAMPLE ID#: R-745
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.074 A

SAMPLE ID#: R-946 75C11-X STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.721 A

TECHNOLOGIST SIGNATURE: Ed Cohen

DATE SIGNED: 2-3-1992

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/ CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 58 TO 59.

CALIBRATION CURVE LACHAT NON-DISTILLED 25ML

CYANIDE DATE: 12-02-1991

CALIBRATION STANDARD # 351-R, 998 MG/ML CYANIDE

DILUTION FACTOR = 10/.1 = 100, WORKING STANDARD = 998 /100 = 9.9800

PIPET SIZE	MICROGRAMS CYANIDE	TOTAL ABS	NET ABS
BLANK	0	.012	0
50UL	.499	.0900	.0780
500UL	4.990	.8090	.7970
1000UL	9.980	1.6370	1.6250

Y INTERCEPT =-.004303
SLOPE = .162726
C C = .999953

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: ARSENIC	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-355-131/B-0
Technologist: D. R. JACKSON	Date: 1-7-92
Starting Time: 8:00	Temperature: N/A
Ending Time: 3:00	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5595	11		
2	REAGENT BLANK	R940-5695	12		
3	SAMPLE 3AP891-6	R941-5795	13		
4	SAM DUP OF 3AP891-6	R941-5895	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5995	15		
6	FINAL LMCS CHECK STD	R946-5595	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	129B38C/.500 mL			NA
SPIKE	129B38C/.500 mL			NA

A-6000-881 (03/92)

ARSENIC ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 10 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 939.-5595	10SHP	12-16-91	13: 2	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	% RECOVERY	N124W	0

Sample Size: .500 ml
Customer ID: SID

Remarks, Calculations, Results
EDF K741 AS/HYDRD
STD# 129838C RESULT ~~50.74~~ 105.6 PPB
STD VAL 0.10 ppm %REC 105.6%
0.819 = PKHT

$\frac{0.819 - 0.0326}{0.0149} = 52.78$ ngA

$\frac{52.78 \text{ ngA}}{500 \lambda} = 0.1056$ ppm

$\frac{0.1056 \text{ ppm}}{0.10 \text{ ppm}} \times 100 = 105.6\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				RK Hill 1-7-92
Date 1-7-92	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5595	10SHP	12-16-91	16: 0	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	PPM	N124W	0

Sample Size: 10.0 ml
Customer ID: BLK

Remarks, Calculations, Results
REAGENT BLANK
0.124 = PKHT

$\frac{0.124 - 0.0326}{0.0149} = 6.134$ ngA

$\frac{6.134 \text{ ngA}}{10000 \lambda} = 0.0006$ ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				RK Hill 1-7-92
Date 1-7-92	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5595	10SHP	12-16-91	16: 4	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	PPM	N124W	0

Sample Size: 1.0 ml
Customer ID: SAPBV1-6

Remarks, Calculations, Results
0.659 = PKHT

$\frac{0.659 - 0.0326}{0.0149} = 42.04$ ngA

$\frac{42.04 \text{ ngA}}{1000 \lambda} = 0.042$ ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				RK Hill 1-7-92
Date 1-7-92	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5595	10SHP	12-16-91	16: 5	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	PPM	N124W	0

Sample Size: 1.0 ml
Customer ID: SAPBV1-6

Remarks, Calculations, Results
0.574 = PKHT

$\frac{0.574 - 0.0326}{0.0149} = 36.34$ ngA

$\frac{36.34 \text{ ngA}}{1000 \lambda} = 0.036$ ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				RK Hill 1-7-92
Date 1-7-92	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5595	10SHP	12-16-91	16: 7	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	% RECOVERY	N124W	0

Sample Size: 1.0 ml
Customer ID: SAPBV1-6

Remarks, Calculations, Results
SAMPLE SPIKED ID
SPIKE ID 129838C
SPIKE VOLUME .500 ml
1.416 = PKHT

$\frac{1.416 - 0.0326}{0.0149} = 92.85$ ngA

$\frac{92.85 \text{ ngA} - 42.04 \text{ ngA}}{50 \text{ ngA}} \times 100 = 101.62\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				RK Hill 1-7-92
Date 1-7-92	Time Completed	Lab Unit Mgr		

Serial No	Sample Point	Date	Time Issued	Priority
R 946.-5595	10SHP	12-16-91	16:11	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
AS	LA-355-131	% RECOVERY	N124W	0

Sample Size: .500 ml
Customer ID: SID

Remarks, Calculations, Results
EDF K741 AS/HYDRD
STD# 129838C RESULT 111.6
STD VAL 0.10 ppm %REC 111.6%
0.864 = PKHT

$\frac{0.864 - 0.0326}{0.0149} = 55.80$ ngA

$\frac{55.80 \text{ ngA}}{500 \lambda} = 0.1116$ ppm

$\frac{0.116 \text{ ppm}}{0.10 \text{ ppm}} \times 100 = 111.60\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				RK Hill 1-7-92
Date 1-7-92	Time Completed	Lab Unit Mgr		

9 3 1 2 3 6 3 2 0 3

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte:	As		
Procedure:	LA-355-131	Revision:	B-0
Instrument:	PERKIN ELMER	Property No.:	WA77479
Technologist:	D. R. JACKSON	Payroll No.:	6C275	Date: 1-7-92

Calibration Standard: 128B38C
Analyte Concentration: 0.100 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.344
3	0.400 mL	40.0 ng	0.662
4	1.000 mL	100.0 ng	1.501
5			
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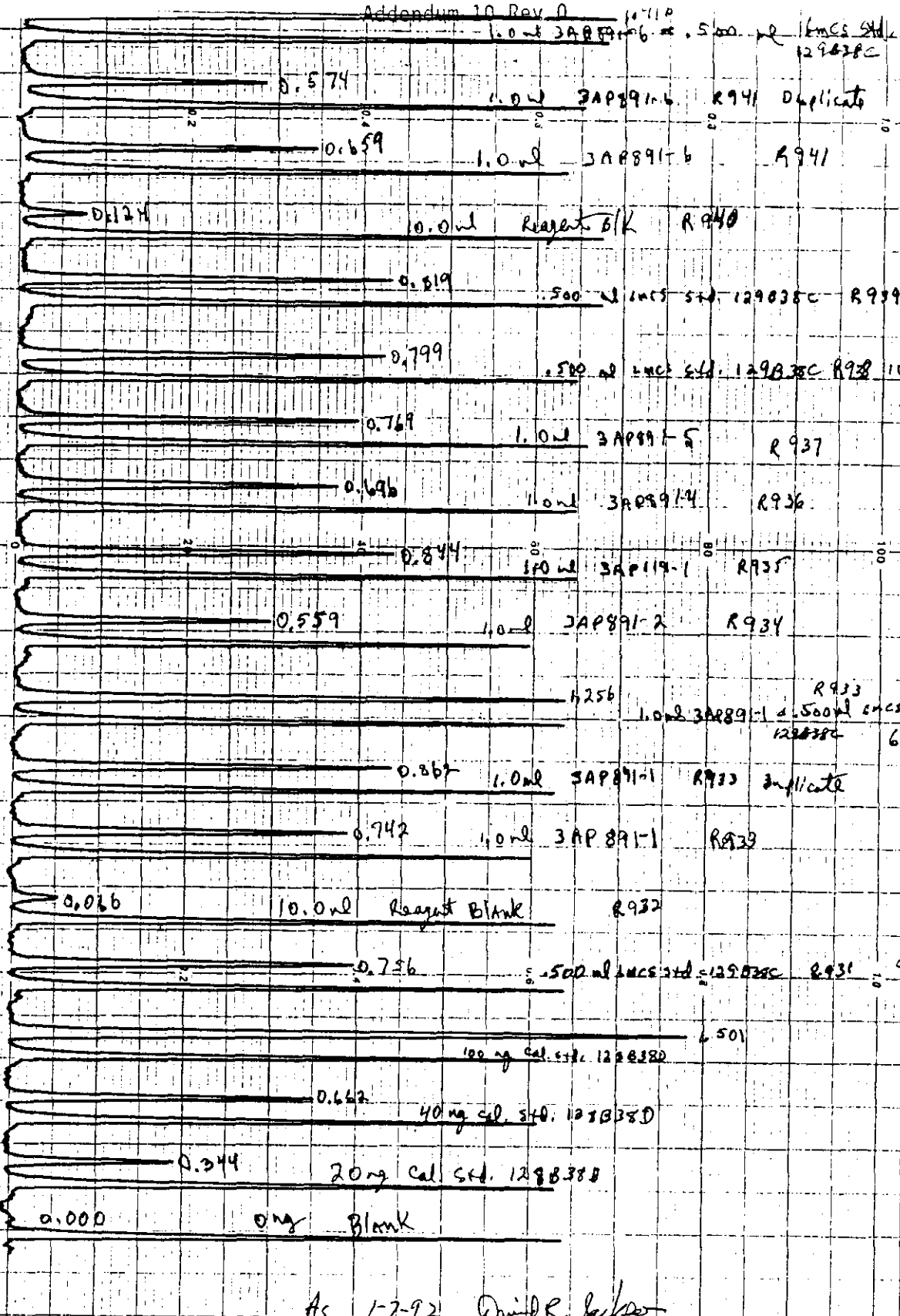
21			

Comments:

A-6000-882 (03/92)



As 1-7-92 David R. Jackson

Signal — conc.
mode — PKHC
recorder — TC3
EXP — 10
MN — 20
T — 60

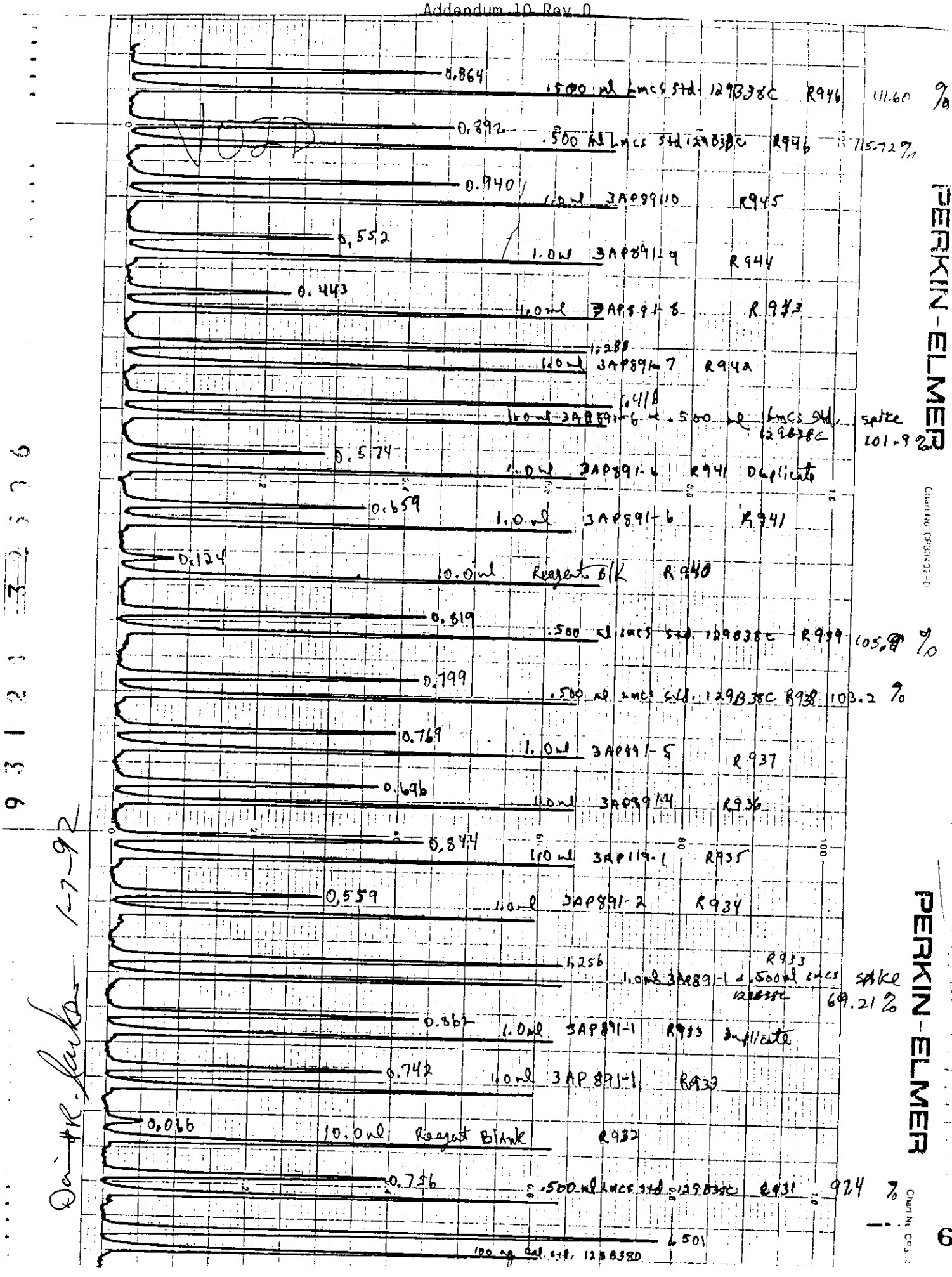
Speed = 5 mm/m
Purge I = 50 sec
Purge II = 80 sec
Rxn. = 20 sec
Temp. = 900°C
Lamp current = 15 mA

r^2 = 0.9972
Intercept = 0.0326
slope = 0.0149

LMCS Std. 129838C
Cal. Std. 128838D

PERKIN ELMER

Chart No CP3C402-0


0.864
.500 ml LMCS Std 129B38C R946 111.60 %
0.892
.500 ml LMCS Std 129B38C R946 115.72 %
0.940
1.0 ml 3AP89110 R945
0.552
1.0 ml 3AP891-9 R944
0.443
1.0 ml 3AP891-8 R943
1.288
1.0 ml 3AP891-7 R942
1.416
1.0 ml 3AP891-6 + .500 ml LMCS Std 129B38C spike 101.9 %
0.574
1.0 ml 3AP891-6 R941 Duplicate
0.659
1.0 ml 3AP891-6 R941
0.124
10.0 ml Reagent Blk R940
0.819
.500 ml LMCS Std 129B38C R939 105.9 %
0.799
.500 ml LMCS Std 129B38C R938 103.2 %
0.769
1.0 ml 3AP891-5 R937
0.696
1.0 ml 3AP891-4 R936
0.844
1.0 ml 3AP119-1 R935
0.559
1.0 ml 3AP891-2 R934
1.256
1.0 ml 3AP891-1 + .500 ml LMCS 129B38C R933 spike 69.21 %
0.867
1.0 ml 3AP891-1 R933 Duplicate
0.742
1.0 ml 3AP891-1 R933
0.066
10.0 ml Reagent Blank R932
0.756
.500 ml LMCS Std 129B38C R931 97.4 %
1.501
100 ng Std. Std. 129B38D
PERKIN-ELMER
Chart No. CP3342-0
PERKIN-ELMER
Chart No. CP3342-0

Date: 12-7-92

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: MERCURY	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-325-102/B-0
Technologist: D. R. JACKSON	Date: 1-21-92
Starting Time: 8:00	Temperature: N/A
Ending Time: 3:30	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5597	11		
2	REAGENT BLANK	R940-5697	12		
3	SAMPLE 3AP891-6	R941-5797	13		
4	SAM DUP OF 3AP891-6	R941-5897	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5997	15		
6	FINAL LMCS CHECK STD	R946-5597	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	129B38D/.300 mL			N/A
SPIKE	129B38D/.300 mL			N/A

A-6000-881 (03/92)

MERCURY ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 939-5597	103AP	12-16-91	161 2	25

Determination	Method Standard	Report Units	Charge Code	Range
Hg	LA-325-102	% RECOVERY	N124W	0

Sample Size: 300 ml
Customer ID: STD

Remarks, Calculations, Results: EDP R/16 HG/HYDRD STD# 129878D RESULT 0.1074 ppm
0.178 - 0.0036 / 0.0057 = 31.86 ng
STD VAL 0.100 ppm %REC 102.4 %
31.86 ng / 300 λ = 0.1062 ppm
~~PKHt = 0.178~~ DRJ 1-21-92
0.1074 ppm / 0.100 ppm × 100 = 104.2 %
PKHt = 0.194
over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				RK Tuller 1-22-92
Hrs	Hrs	Hrs	Hrs	Hrs
Date 1-21-92	Time Completed	Lab Unit Mgr		

PKHt = 0.194 R939-5597

$\frac{0.194 - 0.0007}{0.0060} = 32.22$ ng

$\frac{32.22 \text{ ng}}{300 \lambda} = 0.1074$ ppm

$\frac{0.1074 \text{ ppm}}{0.1000 \text{ ppm}} \times 100 = 107.4$ %

Serial No	Sample Point	Date	Time Issued	Priority
R 940-5697	103AP	12-16-91	161 3	25

Determination	Method Standard	Report Units	Charge Code	Range
Hg	LA-325-102	PPM	N124W	

Sample Size: 10.0 ml
Customer ID: BLK

Remarks, Calculations, Results: REAGENT BLANK
~~PKHt = 0.015~~ DRJ 1-21-92
0.015 - -0.0006 / 0.0057 = 0.69 ng
<5 ng / 10000 λ = <0.0005 ppm
PKHt = 0.006
over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				RK Tuller 1-22-92
Hrs	Hrs	Hrs	Hrs	Hrs
Date 1-21-92	Time Completed	Lab Unit Mgr		

PKHt = 0.006 R940-5697

$\frac{0.006 - 0.0007}{0.0060} = 0.88$ ng = <5 ng

$\frac{<5 \text{ ng}}{10000 \lambda} = <0.0005$

Serial No	Sample Point	Date	Time Issued	Priority
R 941-5797	103AP	12-16-91	161 4	25

Determination	Method Standard	Report Units	Charge Code	Range
Hg	LA-325-102	PPM	N124W	0

Sample Size: 3.0 ml
Customer ID: 3AP091-6

Remarks, Calculations, Results: ~~PKHt = 0.006~~ DRJ 1-21-92
0.006 - -0.0006 / 0.0057 = 1.68 ng = <5 ng
<5 ng / 1000 λ = <0.005 ppm
PKHt = 0.014
over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
6C275				RK Tuller 1-22-92
Hrs	Hrs	Hrs	Hrs	Hrs
Date 1-21-92	Time Completed	Lab Unit Mgr		

PKHt = 0.014 R941-5797

$\frac{0.014 - 0.0007}{0.0060} = 2.22$ ng = <5 ng

$\frac{<5 \text{ ng}}{3000 \lambda} = <0.0017$ ppm

MERCURY ANALYSIS - UNDIGESTED SAMPLE

R941-5897

Sample No	Sampling Point	Date	Time Sampled	Priority
R 941.-5897	103AP	12-16-91	121 2	25

Determination	Method/Standard	Report Units	Charge Code	Remarks
Hg	LH-325-102	PPM	N124W	0

Sample Size: DRJ 2.0 ml
Container ID: 3AP891-6

Remarks, Calculations, Results: DUPLICATE
PKHT = 0.001 DRJ 1-2-92
0.001 - 0.0036 / 0.0057 = 0.807 ng = <5 ng
<5 ng / 1000 λ ≈ <0.005 ppm
PKHT = 0.005
over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				RKHiller 1-22-92
Initials	Initials	Initials	Initials	Initials

Date: 1-2-92 | Time Completed | Lab Unit Mgr

PKHT = 0.005

$\frac{0.005 - 0.0007}{0.0060} = 0.72$ ng = <5 ng

$\frac{<5 \text{ ng}}{3000 \lambda} = <0.0017$ ppm

R941-5997

Sample No	Sampling Point	Date	Time Sampled	Priority
R 941.-5997	103AP	12-16-91	121 7	25

Determination	Method/Standard	Report Units	Charge Code	Remarks
Hg	LH-325-102	% RECOVERY	N124W	0

Sample Size: DRJ 3.0 ml
Container ID: 3AP891-6

Remarks, Calculations, Results: SAMPLE SPIKED ID
SPIKE ID 129638D
SPIKE VOLUME 0.700 ml
0.172 - 0.0036 / 0.0057 = 30.70 ng
DRJ 1-2-92
30.70 ng - 1.68 ng = 29.02 ng
29.02 ng / 300 λ = 0.0967 ppm
PKHT = 0.201
0.0967 ppm / 0.1000 ppm × 100 = 96.73 %
over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				RKHiller 1-22-92
Initials	Initials	Initials	Initials	Initials

Date: 1-21-92 | Time Completed | Lab Unit Mgr

PKHT = 0.201

$\frac{0.201 - 0.0007}{0.0060} = 33.38$ ng

33.38 ng − 2.22 ng = 31.16 ng

$\frac{31.16 \text{ ng}}{300 \lambda} = 0.1039$ ppm

$\frac{0.1039 \text{ ppm}}{0.1000 \text{ ppm}} \times 100 = 103.87$ %

R946-5597

Sample No	Sampling Point	Date	Time Sampled	Priority
R 946.-5597	10.AP	12-16-91	12314	25

Determination	Method/Standard	Report Units	Charge Code	Remarks
Hg	LH-325-102	% RECOVERY	N124W	

Sample Size: .300 l
Container ID: STD

Remarks, Calculations, Results: EDP R/15 HG/HYDRD
STD# 129638D RESULT 0.0907 ppm
0.172 - 0.0036 / 0.0057 = 30.81 ng
DRJ 5-28-92
STD VAL 0.100 ppm %REC 90.70 %
30.81 ng / 300 λ = 0.1027 ppm
DRJ
RKHT = 0.172 5-28-92
0.1027 ppm / 0.1000 ppm × 100 = 102.7 %
PKHT = 0.164
over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
GC275				RKHiller 1-22-92
Initials	Initials	Initials	Initials	Initials

Date: 1-21-92 | Time Completed | Lab Unit Mgr

PKHT = 0.164

$\frac{0.164 - 0.0007}{0.0060} = 27.22$ ng

$\frac{27.22 \text{ ng}}{300 \lambda} = 0.0907$ ppm

$\frac{0.0907 \text{ ppm}}{0.1000 \text{ ppm}} \times 100 = 90.70$ %

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

Analyte: Hg
Procedure: LA-325-102 | Revision: B-0
Instrument: PERKIN ELMER | Property No.: WA77479
Technologist: D. R. JACKSON | Payroll No.: 6C275 | Date: 1-21-92

Calibration Standard: 129B38D
Analyte Concentration: 0.1000 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.100 mL	15.2 ng	0.090
3	0.250 mL	38.0 ng	0.236
4	0.500 mL	76.0 ng	0.458
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21			

Comments:

A-6000-882 (03/92)

0.184 300 ml LiCS std. 129838D R946 90.70%

0.008 3.0 ml 3AP89110 R945

0.000 3.0 ml 3AP891-7 R944

0.014 3.0 ml 3AP891-9 R943

0.009 3.0 ml 3AP891-7 R942

0.201 3.0 ml 3AP891-8 + 300 ml LiCS std. 129838D R941 Spike 103.8%

0.005 3.0 ml 3AP891-6 R940 Duplicate

0.014 3.0 ml 3AP891-6 R941

0.006 10.0 ml Reagent Blank R940

0.188 300 ml LiCS std. 129838D R939 107.9%

0.190 300 ml LiCS std. 129838D R938 105.1%

0.006 3.0 ml 3AP891-5 R937

0.005 3.0 ml 3AP891-4 R936

0.002 3.0 ml 3AP891-1 R935

0.019 3.0 ml 3AP891-2 R934

0.203 3.0 ml 3AP891-1 + 300 ml LiCS std. 129838D R933 Spike 96.1%

0.031 3.0 ml 3AP891-11 Duplicate R933

0.030 3.0 ml 3AP891-1 R933

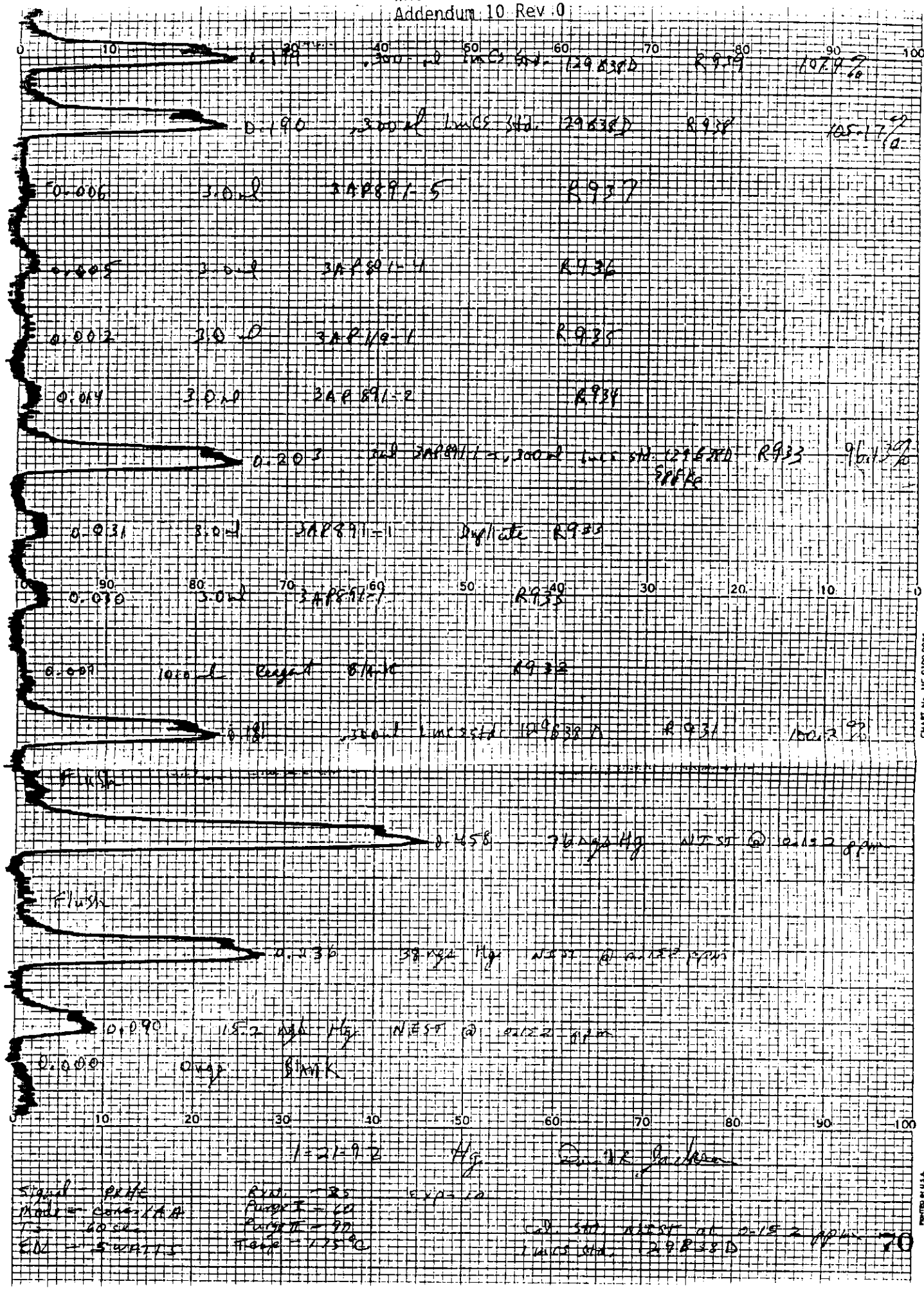
0.007 10.0 ml Reagent Blank R932

0.181 300 ml LiCS std. 129838D R931 100.7%

Lin. Calibration 1-21-92 HG

CHART No. LIC 0100-0023

PRINTED IN U.S.A.


0.119 .300 ml Inc Std. 129638D R939 107.9%
0.190 .300 ml Inc Std. 129638D R938 105.17%
0.006 3.0 ml 3AP891-5 R937
0.005 3.0 ml 3AP891-4 R936
0.002 3.0 ml 3AP119-1 R935
0.014 3.0 ml 3AP891-2 R934
0.203 .300 ml Inc Std. 129638D R933 96.1%
0.031 3.0 ml 3AP891-1 Duplicate R933
0.030 3.0 ml 3AP891-1 R933
0.001 10.0 ml Reagent Blank R932
0.181 .300 ml Inc Std. 129638D R931 100.3%
Flush
0.458 96 mm Hg NIST @ 0.152 gpm
Flush
0.236 38 mm Hg NIST @ 0.152 gpm
0.090 15.2 mm Hg NIST @ 0.152 gpm
0.000 0 mm Hg BLANK
1-21-92 Hg
Signal - PRHC
Mode - CONTINUOUS
Gas - 40 cc
Col - 5 WATTS
Rxn - 25
Purge I - 60
Purge II - 90
Temp - 175°C
Inc Std. 129638D
70

9312232512

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: SELENIUM	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-365-131/B-1
Technologist: D. R. JACKSON	Date: 1-29-92
Starting Time: 8:00	Temperature: N/A
Ending Time: 2:00	Chemist: R. K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5596	11		
2	REAGENT BLANK	R940-5696	12		
3	SAMPLE 3AP891-6	R941-5796	13		
4	SAM DUP OF 3AP891-6	R941-5896	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5996	15		
6	FINAL LMCS CHECK STD	R946-5596	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	133B38A/0.500 mL			NA
SPIKE	133B38A/0.250 mL			NA

A-6000-881 (03/92)

SELENIUM ANALYSIS - UNDIGESTED SAMPLE

Serial No. K 939.-5592 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:2 | Priority 25

Determination Se | Method/Standard LA-365-131 | Result Units % RECOVERY | Charge Code N124W | Report 0

Sample Size 0.500 ml | Customer ID STD

Remarks, Calculations, Results
EDP K/45 SE/HYDRD
STDR 133838A RESULT 0.1144 ppm
STD VAL 0.100 ppm %REC 114.38%
PKHt = 0.663

$\frac{0.663 - 0.0225}{0.0112} = 57.19$ ngp

$\frac{57.19 \text{ ng}}{500 \lambda} = 0.1144$ ppm

$\frac{0.1144 \text{ ppm}}{0.1000 \text{ ppm}} \times 100 = 114.38\%$

Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 RK Fuller 1-30-92
Date 1-29-92 | Time Completed | Lab Unit Mgr

Serial No. K 940.-5596 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:1 | Priority 25

Determination Se | Method/Standard LA-365-131 | Result Units PPM | Charge Code | Report

Sample Size 10.0 ml | Customer ID BLK

Remarks, Calculations, Results
REAGENT BLANK
PKHt = -0.021

-0.021 = < 5 ngp

$\frac{< 5 \text{ ngp}}{10000 \lambda}$ = < 0.0005 ppm

Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 RK Fuller 1-30-92
Date 1-29-92 | Time Completed | Lab Unit Mgr

Serial No. K 941.-5596 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:4 | Priority 25

Determination Se | Method/Standard LA-365-131 | Result Units PPM | Charge Code N124W | Report

Sample Size 0.250 ml | Customer ID SAPB91-6

Remarks, Calculations, Results
PKHt = 0.003

$\frac{0.003 - 0.0225}{0.0112} = -1.74 = < 5$ ngp

$\frac{< 5 \text{ ngp}}{250 \lambda} = < 0.020$ ppm

Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 RK Fuller 1-30-92
Date 1-29-92 | Time Completed | Lab Unit Mgr

Serial No. K 941.-5596 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:5 | Priority 25

Determination Se | Method/Standard LA-365-131 | Result Units PPM | Charge Code N124W | Report 0

Sample Size 0.250 ml | Customer ID SAPB91-6

Remarks, Calculations, Results
DUPLICATE SAMPLE
PKHt = 0.018

-0.018 = < 5 ngp

$\frac{< 5 \text{ ngp}}{250 \lambda} = < 0.020$ ppm

Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 RK Fuller 1-30-92
Date 1-29-92 | Time Completed | Lab Unit Mgr

Serial No. K 941.-5596 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:7 | Priority 25

Determination Se | Method/Standard LA-365-131 | Result Units % RECOVERY | Charge Code N124W | Report 0

Sample Size 0.250 ml | Customer ID SAPB91-6

Remarks, Calculations, Results
SAMPLE SPIKED ID
SPIKE ID 133838A
SPIKE VOLUME 0.500 ml
PKHt = 0.710

$\frac{0.710 - 0.0225}{0.0112} = 61.38$ ng

$\frac{61.38 \text{ ng}}{500 \lambda} = 0.1228$ ppm

$\frac{0.1228 \text{ ppm}}{0.1000 \text{ ppm}} \times 100 = 122.76\%$

Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 RK Fuller 1-30-92
Date 1-29-92 | Time Completed | Lab Unit Mgr

Serial No. K 946.-5596 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:13 | Priority 25

Determination Se | Method/Standard LA-365-131 | Result Units % RECOVERY | Charge Code N124W | Report 0

Sample Size 0.500 ml | Customer ID STD

Remarks, Calculations, Results
EDP K/45 SE/HYDRD
STDR 133838A RESULT 0.1121 ppm
STD VAL 0.1000 ppm %REC 112.06%
PKHt = 0.650

$\frac{0.650 - 0.0225}{0.0112} = 56.03$ ngp

$\frac{56.03 \text{ ngp}}{500 \lambda} = 0.1121$ ppm

$\frac{0.1121 \text{ ppm}}{0.1000 \text{ ppm}} \times 100 = 112.06\%$

Analyst-1 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5 RK Fuller 1-30-92
Date 1-29-92 | Time Completed | Lab Unit Mgr

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
CALIBRATION RECORD

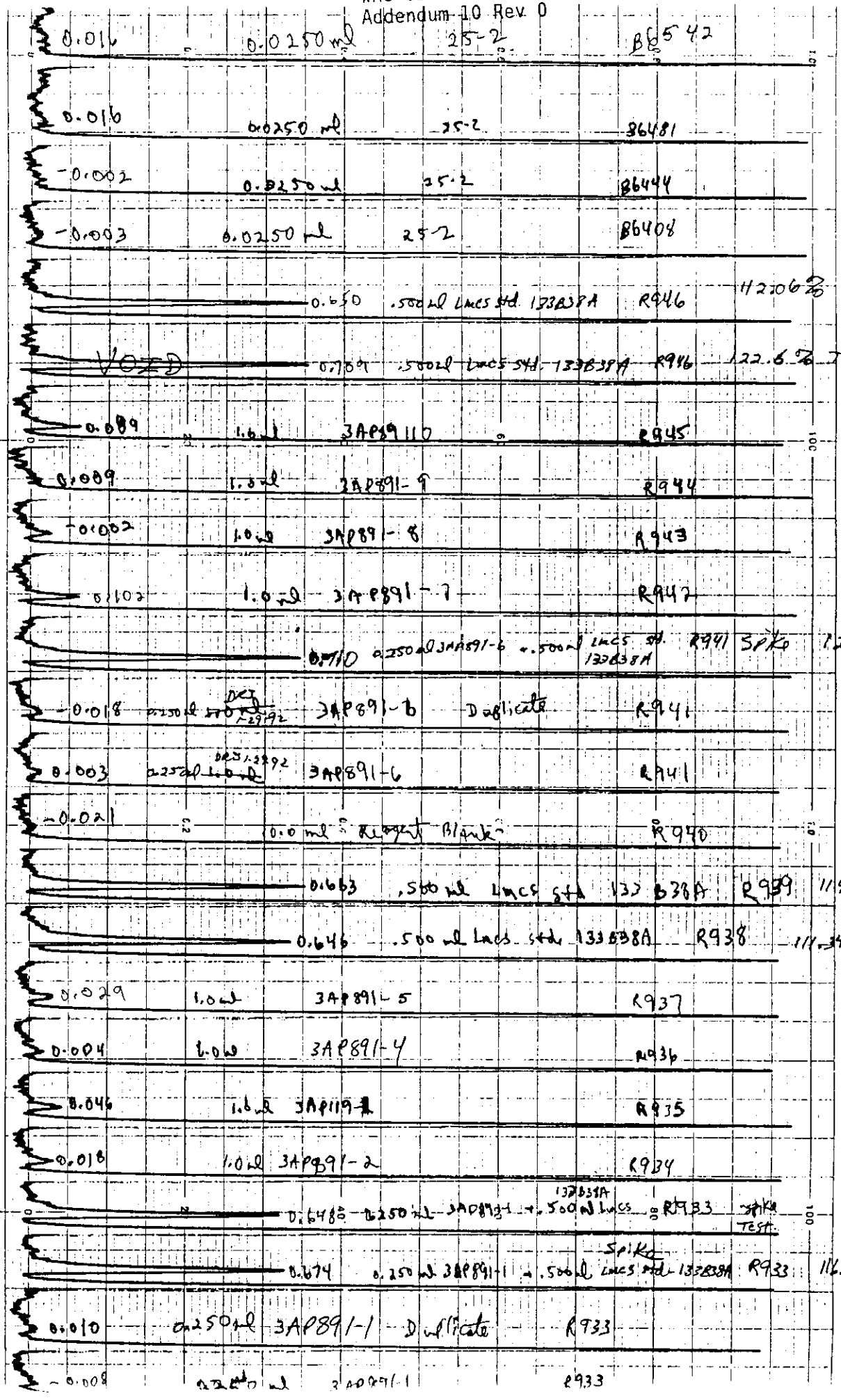
Analyte:	Se		
Procedure:	LA-365-131	Revision:	B-1
Instrument:	PERKIN ELMER	Property No.:	WA77479
Technologist:	D. R. JACKSON	Payroll No.:	6C275
Date:	1-29-92		

Calibration Standard: 132B38A
Analyte Concentration: 0.100 ppm
Type of Calibration: LINEAR

	Dilution	Concentration	Instrument Reading Unit
1	0.000 mL	0.0 ng	0.000
2	0.200 mL	20.0 ng	0.274
3	0.400 mL	40.0 ng	0.468
4	1.000 mL	100.0 ng	1.132
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/



PERKIN-ELMER

Chart No. CP33402-0

PERKIN

Sec 93123 3 3 1 6 Qai dk number 1-29-92

0.102	1.0 ml	3AP891		R944	
0.710	0.250 ml 3AP891-6 + .500 ml LMCS std. 133B38A			R941	Spike 122.76%
0.018	0.250 ml std DEJ 1-29-92	3AP891-6	Duplicate	R941	
0.003	0.250 ml std PRS 1-29-92	3AP891-6		R941	
-0.021	0.0 ml	Reagent Blank		R940	
0.663	.500 ml LMCS std	133 B38A		R939	114.38%
0.646	.500 ml LMCS std	133B38A		R938	114.34%
0.029	1.0 ml	3AP891-5		R937	
0.004	1.0 ml	3AP891-4		R936	
0.046	1.0 ml	3AP119-1		R935	
0.018	1.0 ml	3AP891-2		R934	
0.648	0.250 ml	3AP891-1 + .500 ml LMCS 133B38A		R933	Spike Test
0.674	0.250 ml	3AP891-1 + .500 ml LMCS std 133B38A	Spike	R933	116.3%
0.010	0.250 ml	3AP891-1	Duplicate	R933	
-0.008	0.250 ml	3AP891-1		R933	
-0.008	10.0 ml	Reagent Blank		R932	
0.658	.500 ml	LMCS std. 133B38A		R931	113.5%
1.132	100 ng/g Se	cal. std 132B38A			
0.468	40 ng/g Se	Cal. Cal. 132 B38A			
0.274	20 ng/g	cal. std. 132B38A			
0.000	0 ng/g	Blank			

Blank-conc. Cur = 8 Se 1-29-92 Range I - 50 λ - 196.3 nm David R. Jackson
Mode - Peak Ht. HV = 20 Range II - 25 Slit width - 2.0 nm DEJ 1-29-92
Recorder - TC3 T = 50 RIN - 20 BKGD corr - A.A. Temp. = 975 °C
Speed = 5 mm/min Lamp current = 6
Lamp # 9

LMCS std. # 133 B38A cal. std # 132 B38A

r^2 = 0.9981 Intercept - 0.0225 Slope = 0.0112

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: ION CHROMATOGRAPHIC - CHLORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MYERS	Date: 1-08-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5572	11		
2	REAGENT BLANK	R940-5672	12		
3	SAMPLE 3AP891-6	R941-5772	13		
4	SAM DUP OF 3AP891-6	R941-5872	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5972	15		
6	FINAL LMCS CHECK STD	R946-5572	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11DC/.100 mL -	10.0 mL		N/A
SPIKE	73C11DC/.05 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (CHLORIDE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 939.-5572	103AP	12-16-91	161 1	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	LA-533-105	% RECOVERY	N124W	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP K972 DIONEX
STD# 73C110C RESULT 6.9781 ppm
STD VAL 7.5001 %REC 92.9
ppm

Analyst 1: Juliana Lugan; Analyst 2; Analyst 3; Analyst 4; Analyst 5
Hrs 6C823
Date 1-8-92; Time Completed; Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5672	103AP	12-16-91	161 [illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	LA-533-105	PPM	N124W	0

Sample Size: ? DIRECT
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
2.10ppm

Analyst 1: Juliana Lugan; Analyst 2; Analyst 3; Analyst 4; Analyst 5
Hrs 6C823
Date 1-8-92; Time Completed; Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5772	103AP	12-16-91	161 4	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	LA-533-105	PPM	N124W	0

Sample Size: ? .250ml - 10ml
Customer ID: 3AP891-6

Remarks, Calculations, Results:
5.12E1ppm

Analyst 1: Juliana Lugan; Analyst 2; Analyst 3; Analyst 4; Analyst 5
Hrs 6C823
Date 1-8-92; Time Completed; Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5872	103AP	12-16-91	161 5	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	LA-533-105	UTD	N124W	0

Sample Size: ? .250ml-10ml
Customer ID: 3AP891-6

Remarks, Calculations, Results:
DUPLICATE SAMPLE
5.10 E1ppm

5.10 E1 - 5.12 E1 / 5.10 E1 + 5.12 E1 / 2(100) = -.39
% relative difference

Analyst 1: Juliana Lugan; Analyst 2; Analyst 3; Analyst 4; Analyst 5
Hrs 6C823
Date 1-8-92; Time Completed; Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5972	103AP	12-16-91	161 6	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	LA-533-105	% RECOVERY	N124W	0

Sample Size: ? .250ml - 10ml
Customer ID: 3AP891-6

Remarks, Calculations, Results:
SAMPLE SPIKED ID
SPIKE ID 73C110C
SPIKE VOLUME .05ml

(6.73E2 - 5.12E2) / (.05)(72)(41) / 10.2(100) = 107.06
% spike recovery

Analyst 1: Juliana Lugan; Analyst 2; Analyst 3; Analyst 4; Analyst 5
Hrs 6C823
Date 1-8-92; Time Completed; Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 946.-5572	103AP	12-16-91	1615	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Rerun
CL	LA-533-105	% RECOVERY	[illegible]	[illegible]

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP K972 DIONEX
STD# 73C110C RESULT 7.5581
STD VAL 7.5001 %REC 100.65

Analyst 1: Juliana Lugan; Analyst 2; Analyst 3; Analyst 4; Analyst 5
Hrs 6C823
Date 1-8-92; Time Completed; Lab Unit Mgr

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: ION CHROMATOGRAPHIC - FLUORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MYERS	Date: 1-10-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5571	11		
2	REAGENT BLANK	R940-5671	12		
3	SAMPLE 3AP891-6	R941-5771	13		
4	SAM DUP OF 3AP891-6	R941-5871	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5971	15		
6	FINAL LMCS CHECK STD	R946-5571	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11DC/.100 mL			N/A
SPIKE	73C11DC/.250 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (FLUORIDE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5971	103AP	12-16-91	16: 4	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	% RECOVERY	N124W	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R974 DIONEX
STD# 73C11DC RESULT 5.53E1ppm
STD VAL 5.60E1ppm %REC 98.8

Analyst 1: Lulam Tuyen
Hrs 0 | Hrs | Hrs | Hrs | Hrs
6CB23
Date 1-10-92 | Time Completed | Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5971	103AP	12-16-91	[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	PPM	[illegible]	[illegible]

Sample Size: ? DIRECT
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
DJH 5/24/92
~~<1.0ppm~~
<0.1 ppm

Analyst 1: Lulam Tuyen
Hrs 0 | Hrs | Hrs | Hrs | Hrs
6CB23
Date 1-10-92 | Time Completed | Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5971	103AP	12-16-91	16: 4	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	G/L	[illegible]	[illegible]

Sample Size: ? .250ml - 10ml
Customer ID: 3AP891-6

Remarks, Calculations, Results:
1.30E2ppm

Analyst 1: Lulam Tuyen
Hrs 0 | Hrs | Hrs | Hrs | Hrs
6CB23
Date 1-10-92 | Time Completed | Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5971	103AP	12-16-91	[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	PPM	[illegible]	[illegible]

Sample Size: ? .250ml - 10ml
Customer ID: 3AP891-6

Remarks, Calculations, Results:
DUPLICATE SAMPLE
1.29E2ppm

1.29E2 - 1.30E2ppm / 1.29E2 + 1.30E2 / 2 (100) = 0.77 %
% relative difference

Analyst 1: Lulam Tuyen
Hrs 0 | Hrs | Hrs | Hrs | Hrs
6CB23
Date 1-10-92 | Time Completed | Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5971	103AP	12-16-91	16: 6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	% RECOVERY	N124W	0

Sample Size: ? .750ml - 10ml
Customer ID: 3AP891-6

Remarks, Calculations, Results:
1.40E2ppm
SAMPLE SPIKED ID
SPIKE ID 73C11DC
SPIKE VOLUME .05ml

(1.40E2 - 1.30E2) / (.05)(56)(41) / 10.3 (100) = ~~103~~ 89.7 %
JJH 5/27/92
Spike recovery

Analyst 1: Lulam Tuyen
Hrs 0 | Hrs | Hrs | Hrs | Hrs
6CB23
Date 1-10-92 | Time Completed | Lab Unit Mgr

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5971	103AP	12-16-91	16:15	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
F	LA-533-105	% RECOVERY	[illegible]	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R974 DIONEX
STD# 73C11DC RESULT 5.76E1ppm
STD VAL 5.60E1ppm %REC 102.9%

BATCH WITH R939-5673

Analyst 1: Lulam Tuyen
Hrs 0 | Hrs | Hrs | Hrs | Hrs
6CB23
Date 1-10-92 | Time Completed | Lab Unit Mgr

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: ION CHROMATOGRAPHIC - NITRATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MYERS	Date: 1-10-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5573	11		
2	REAGENT BLANK	R940-5673	12		
3	SAMPLE 3AP891-6	R941-5773	13		
4	SAM DUP OF 3AP891-6	R941-5873	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5973	15		
6	FINAL LMCS CHECK STD	R946-5573	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11DC/.100 mL			N/A
SPIKE	73C11DC/.250 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRATE) - UNDIGESTED SAMPLE

Serial No: R 939.-5573 | Sample Point: 10SHP | Date: 12-16-91 | Time Issued: 16:1 | Priority: 25
Determination: NO3 | Method/Standard: LA-533-105 | Result Units: % RECOVERY | Charge Code: N124W | Remarks:
Sample Size: ? .100ml - 10ml | Customer ID: STD
Remarks, Calculations, Results: EDP R970 DIONEX
STD # 73C11DC RESULT 6.71E2ppm
STD VAL 6.33E2ppm %REC 106.1 %
BATCH WITH R946-5571 + 5576
Analyst 1: [illegible] | Analyst 2: | Analyst 3: | Analyst 4: [illegible] | Analyst 5: [illegible]
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
LC823
Date: 1-10-92 | Time Completed: | Lab Unit Mgr: [illegible]

Serial No: R 940.-5573 | Sample Point: 10SHP | Date: 12-16-91 | Time Issued: 16:0 | Priority:
Determination: NO3 | Method/Standard: LA-533-105 | Result Units: PPM | Charge Code: N124W | Remarks: 0
Sample Size: ? DIRECT | Customer ID: BLK
Remarks, Calculations, Results: REAGENT BLANK
DSH 5/27/92
~~<40.0ppm~~
<1.0 ppm
Analyst 1: [illegible] | Analyst 2: | Analyst 3: | Analyst 4: [illegible] | Analyst 5:
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
LC823
Date: 1-10-92 | Time Completed: | Lab Unit Mgr: [illegible]

Serial No: R 941.-5573 | Sample Point: 10SHP | Date: 12-16-91 | Time Issued: 16:4 | Priority: 25
Determination: NO3 | Method/Standard: LA-533-105 | Result Units: PPM | Charge Code: N124W | Remarks: 0
Sample Size: ? .05ml - 10ml | Customer ID: SAPB91-6
Remarks, Calculations, Results: 4.46E3ppm
Analyst 1: [illegible] | Analyst 2: | Analyst 3: | Analyst 4: [illegible] | Analyst 5:
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
LC823
Date: 1-10-92 | Time Completed: | Lab Unit Mgr: [illegible]

Serial No: R 941.-5573 | Sample Point: 10SHP | Date: 12-16-91 | Time Issued: 16:4 | Priority:
Determination: NO3 | Method/Standard: LA-533-105 | Result Units: PPM | Charge Code: N124W | Remarks: 0
Sample Size: ? .05ml - 10ml | Customer ID: SAPB91-6
Remarks, Calculations, Results: DUPLICATE SAMPLE 4.50E3ppm
4.50E3 - 4.46E3ppm / 4.50E3 + 4.46E3 / 2 (100) = 0.9%
% relative difference
Analyst 1: [illegible] | Analyst 2: | Analyst 3: | Analyst 4: [illegible] | Analyst 5:
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
LC823
Date: 1-10-92 | Time Completed: | Lab Unit Mgr: [illegible]

Serial No: R 941.-5573 | Sample Point: 10SHP | Date: 12-16-91 | Time Issued: 16:5 | Priority: 25
Determination: NO3 | Method/Standard: LA-533-105 | Result Units: % RECOVERY | Charge Code: N124W | Remarks: 0
Sample Size: ? .050 - 10ml | Customer ID: SAPB91-6
Remarks, Calculations, Results: SAMPLE SPIKED ID 5.12E3ppm
SPIKE ID 73C11DC
SPIKE VOLUME .05ml
(5.12E3 - 4.46E3ppm) / (.05)(633)(201) / 10.1 (100) = 104.2
% spike recovery
Analyst 1: [illegible] | Analyst 2: | Analyst 3: | Analyst 4: [illegible] | Analyst 5: [illegible]
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
LC823
Date: 1-10-92 | Time Completed: | Lab Unit Mgr: [illegible]

Serial No: R 946.-5573 | Sample Point: 10SHP | Date: 12-16-91 | Time Issued: 16:1 | Priority:
Determination: NO3 | Method/Standard: LA-533-105 | Result Units: % RECOVERY | Charge Code: N124W | Remarks: 0
Sample Size: ? .100ml - 10ml | Customer ID: STD
Remarks, Calculations, Results: EDP R970 DIONEX
STD # 73C11DC RESULT 6.51E2ppm
STD VAL 6.33E2ppm %REC 102.8
BATCH W/ R939A-5574
Analyst 1: [illegible] | Analyst 2: | Analyst 3: | Analyst 4: [illegible] | Analyst 5:
Hrs: | Hrs: | Hrs: | Hrs: | Hrs:
LC823
Date: 1-10-92 | Time Completed: | Lab Unit Mgr: [illegible]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: ION CHROMATOGRAPHIC - NITRITE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MYERS	Date: 1-10-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5576	11		
2	REAGENT BLANK	R940-5676	12		
3	SAMPLE 3AP891-6	R941-5776	13		
4	SAM DUP OF 3AP891-6	R941-5876	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5976	15		
6	FINAL LMCS CHECK STD	R946-5576	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11DC/.100 mL			N/A
SPIKE	73C11DC/.250 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRITE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 939.-5576	103AP	12-16-91	161 2	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	% RECOVERY	N124W	0

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R939 DIONEX
STDN 73C11DC RESULT 5.2782ppm
STD VAL 4.9162ppm %REC 107.3%

Analyst 1: [illegible] Hrs: 6CB23 Date: 1-10-92 Time Completed: Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5676	103AP	12-16-91	[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	PPM	N124W	0

Sample Size: ? DIRECT
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
DLH 9/4/92
~~<10.0ppm~~
<1.0 ppm

Analyst 1: [illegible] Hrs: 6CB23 Date: 1-10-92 Time Completed: Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5776	103AP	12-16-91	161 4	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	PPM	N124W	0

Sample Size: ? .250ml - 10ml
Customer ID: 3AP891-6

Remarks, Calculations, Results:
1.26E3ppm

Analyst 1: [illegible] Hrs: 6CB23 Date: 1-10-92 Time Completed: Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5876	103AP	12-16-91	161 5	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	PPM	N124W	0

Sample Size: ? .250ml - 10ml
Customer ID: 3AP891-6

Remarks, Calculations, Results:
DUPLICATE SAMPLE
1.25E3ppm
1.25E3 - 1.26E3ppm / (1.25E3 + 1.26E3)/2 (100) = 0.8%
% relative difference

Analyst 1: [illegible] Hrs: 6CB23 Date: 1-10-92 Time Completed: Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5976	103AP	12-16-91	161 6	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	% RECOVERY	N124W	0

Sample Size: ? .250ml - 10ml
Customer ID: 3AP891-6

Remarks, Calculations, Results:
1.34E3 ppm
SAMPLE SPIKED ID
SPIKE ID 73C11BC
SPIKE VOLUME .05ml
(1.34E3 - 1.26E3)/(.05)(491)(41)/10.3 (100) = [illegible]%
DLH 1/21/92
Spike
See [illegible]

Analyst 1: [illegible] Hrs: 6CB23 Date: 1-10-92 Time Completed: Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 946.-5576	103AP	12-16-91	1613	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
NO2	LA-533-105	% RECOVERY	N124W	[illegible]

Sample Size: ? .100ml - 10ml
Customer ID: STD

Remarks, Calculations, Results:
EDP R939 DIONEX
STDN 73C11BC RESULT 5.32E2ppm
STD VAL 4.91E2ppm %REC 108.4%
BATCH WITH 3939-5573

Analyst 1: [illegible] Hrs: 6CB23 Date: 1-10-92 Time Completed: Lab Unit Mgr:

1/8/92

DIONEX METHOD PARAMETERS - SYSTEM1.MET

System Parameters

System Name : system1/qpm

Number of Detectors	1
Detector 1 Type	CDM-1
Detector 1 real time plot scale (uS)	20.00
Run Time (minutes)	6.00
Sampling Rate (seconds)	0.20

-- DETECTOR 1 PARAMETERS --

Report Options

Save Data File	Yes
Data File Name: c:\dx\data\91010801.D07	
Create ASCII Report File	No
Print Report	Yes
List Peaks Not Found in this run	No
Report Unknowns Found in this run	Yes
Print Chromatogram	Yes
AutoScale Chromatogram to Highest Peak	Yes
Fill Peaks with Color	Yes
Draw Grid Lines on Chromatogram	No
Label with Peak Number	Yes
Label with Retention Times on Chromatogram	No
Label with Component Name	Yes
Format File Name: c:\dx\method\default.prt	

Integration Parameters

Starting Peak Width (seconds)	10.0
Peak Threshold (mV or uS/data pt interval)	0.500
Peak Area Reject	1000
Area Reject for Reference Peaks	1000
Percent Retention Time Window for Reference Peaks	5.0

Integration Timed Events

Time	Description
1.26	Start peak detection
1.28	Start peak detection

Calibration Parameters

Number Of Levels for Calibration	6
Calibration Fit Type	Quadratic
Replace Or Average Calibrations	Replace
External or Internal Calibration	External
Calibrate by Area or Height	Area
Default Injection Volume	1.0
Default Dilution Factor	101.0
Response Factor for Unknown Peaks	1.0
Calibration Standard Volume	1.0
Internal Standard Volume	1.0
Sample Unit	PPM

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Component # 1 FLUORIDE Retention Time 1.05
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 6.84259E-002
K1 = 5.41881E-005
K2 = -6.00022E-011

Level	Amount	Area	Height
1	1.10000E-001	1902	349
2	2.80000E-001	4256	848
3	5.60000E-001	8846	1706
4	1.12000E+000	17365	3475
5	2.19000E+000	42679	7321
6	4.22000E+000	84175	12636

Component # 2 CHLORIDE Retention Time 1.42
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.42635E-002
K1 = 9.53630E-005
K2 = -6.22379E-011

Level	Amount	Area	Height
1	1.30000E-001	1239	252
2	3.30000E-001	3208	567
3	6.60000E-001	6502	1337
4	1.31000E+000	12886	2429
5	2.58000E+000	27623	5058
6	5.00000E+000	53889	9322

Component # 3 NITRITE Retention Time 1.65
Reference Peak FLUORIDE Window Size 7.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.41934E-001
K1 = 1.39994E-004
K2 = -2.77337E-012

Level	Amount	Area	Height
1	1.25000E+000	7115	1213
2	3.10000E+000	19523	3097
3	6.18000E+000	39962	5860
4	1.22300E+001	81819	12982
5	2.40000E+001	170965	24711
6	4.62200E+001	328741	45930

Component # 4 NITRATE Retention Time 2.35
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 2.98060E-001
K1 = 1.56421E-004
K2 = -7.17711E-011

Level	Amount	Area	Height
1	1.10000E+000	6165	724
2	2.75000E+000	15858	1829
3	5.47000E+000	32863	3596
4	1.08200E+001	68086	6938
5	2.12300E+001	144490	14096
6	4.08900E+001	300858	26722

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Component # 5 BROMIDE Retention Time 2.55
Reference Peak FLUORIDE Window Size 1.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 8.78746E-002
K1 = 1.81945E-004
K2 = 5.81300E-010

Level	Amount	Area	Height
1	1.26000E+000	9418	543
2	3.14000E+000	10041	957
3	6.26000E+000	45736	2477
4	1.23900E+001	47855	4298
5	2.43100E+001	98344	8521
6	4.68100E+001	167809	8473

Component # 6 PHOSPHATE Retention Time 3.85
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 3.99318E-001
K1 = 3.17750E-004
K2 = -3.28707E-010

Level	Amount	Area	Height
1	1.14000E+000	2718	229
2	2.83000E+000	8086	626
3	5.63000E+000	16751	1277
4	1.15600E+001	34757	2630
5	2.18800E+001	74341	5560
6	4.21500E+001	156618	11077

Component # 7 SULFATE Retention Time 4.90
Reference Peak FLUORIDE Window Size 10.00%
Amount = K0 + K1*Area + K2*Area**2
K0 = 4.93833E-001
K1 = 1.23085E-004
K2 = -4.10577E-011

Level	Amount	Area	Height
1	1.26000E+000	8321	546
2	3.14000E+000	21548	1429
3	6.26000E+000	46141	2990
4	1.23900E+001	97737	6333
5	2.43100E+001	210064	13628
6	4.68100E+001	440811	27239

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IC Control File: C:\DX\METHOD\SYSTEM1.TE

Step	Time	Description
Init		CDM-1 AutoOffset Off
Init		CDM-1 Recorder Mark OFF
Init		CDM-1 Temp. Comp. = 1.7 % Deg C
Init		CDM-1 Recorder Range = 0.1 uS
Init		CDM-1 Cell ON
Init		CHA Heater = 25 Deg. C
Init		Valve A ON
Init		Valve B ON
Init		Inject Valve OFF
Init		ACI Autosmp OFF
Init		ACI RLY 2 OFF
Init		ACI TTL 1 OFF
Init		ACI TTL 2 OFF
Init		ACI AC 1 ON
Init		GPM Start
Init		GPM Hold Gradient Clock
Init		GPM Reset ON
1	0.0	CDM-1 AutoOffset ON
1	0.0	Start Sampling
1	0.0	GPM Reset OFF
2	0.1	CDM-1 Recorder Range = 10.0 uS
2	0.1	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	2.6	Inject Valve OFF
4	3.0	ACI Autosmp ON

GpmFile: C:\DX\METHOD\SYSTEM1.GPM
Lo Pressure Limit = 200
Hi Pressure Limit = 2000
Eluant 1 - DI WATER
Eluant 2 - SODIUM CARBONATE
Eluant 3 - SODIUM BICARBONATE
Eluant 4 - Eluant 4

Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	84	8	8	0	0	0	

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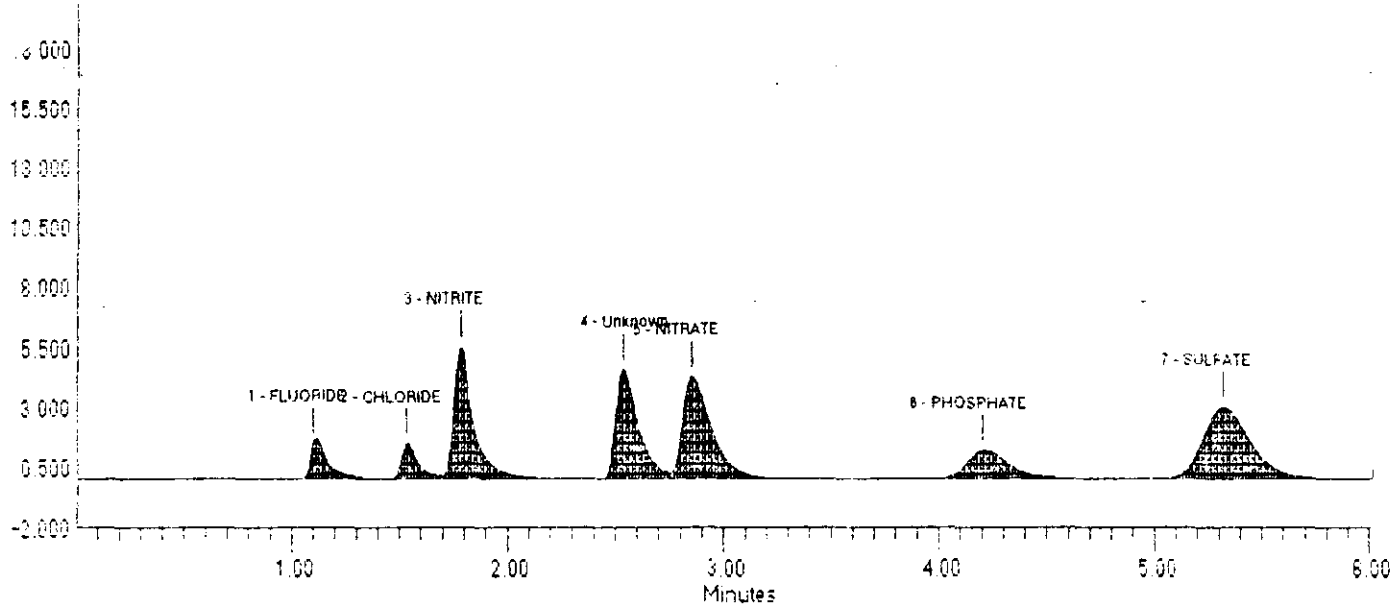
R939-5571-5576

Peak	Ret Time	Component Name	Concentration	Height	Area
1	1.11	FLUORIDE	55.261	1475	[illegible]
2	1.55	CHLORIDE	71.855	1474	[illegible]
3	1.77	NITRITE	527.028	5496	[illegible]
4	2.57		[illegible]	[illegible]	[illegible]
5	2.69	NITRATE	447.454	4245	[illegible]
6	[illegible]	PHOSPHATE	[illegible]	[illegible]	[illegible]
7	[illegible]	SULFATE	[illegible]	[illegible]	[illegible]

File: C:\DX\DATA\91010861.D01 Sample: LMCS/73C11DC



SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/ CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 88 TO 99 .

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Susan Myers 1-10-92

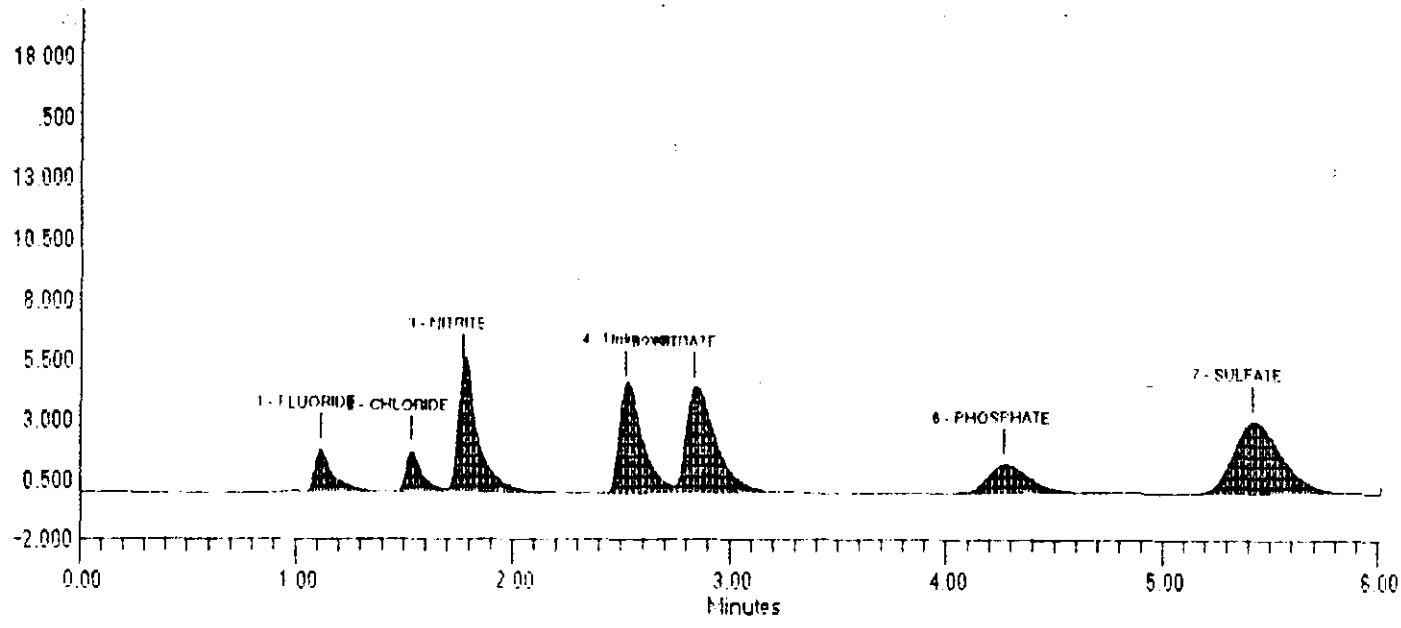
DATA REPROCESSED ON Sun Jan 12 19:55:14 1992

R946

Sample Name: LMCS/73C11DB 5573 5576 5571 NO_3 Date: Fri Jan 10 01:51:26 199
Data File : C:\DXDATA\91011001.D10 NO_2
Method : C:\DXMETHOD\SYSTEM1.MOD F
Peak Address: 1 System : 1 Injection: 1 Detector: CDM-1

Peak	Peak Time	Component Name	Concentration	Height	Area	% Area	Width
1	[illegible]	FLUORIDE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	1.93	CHLORIDE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	NITRITE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	
5	[illegible]	NITRATE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	PHOSPHATE	529.061	1164	[illegible]	[illegible]	[illegible]
7	3.12	SULFATE	438.495	[illegible]	[illegible]	[illegible]	[illegible]

File: C:\DX\DATA\91011001.D10 Sample: LMCS/73C11DB



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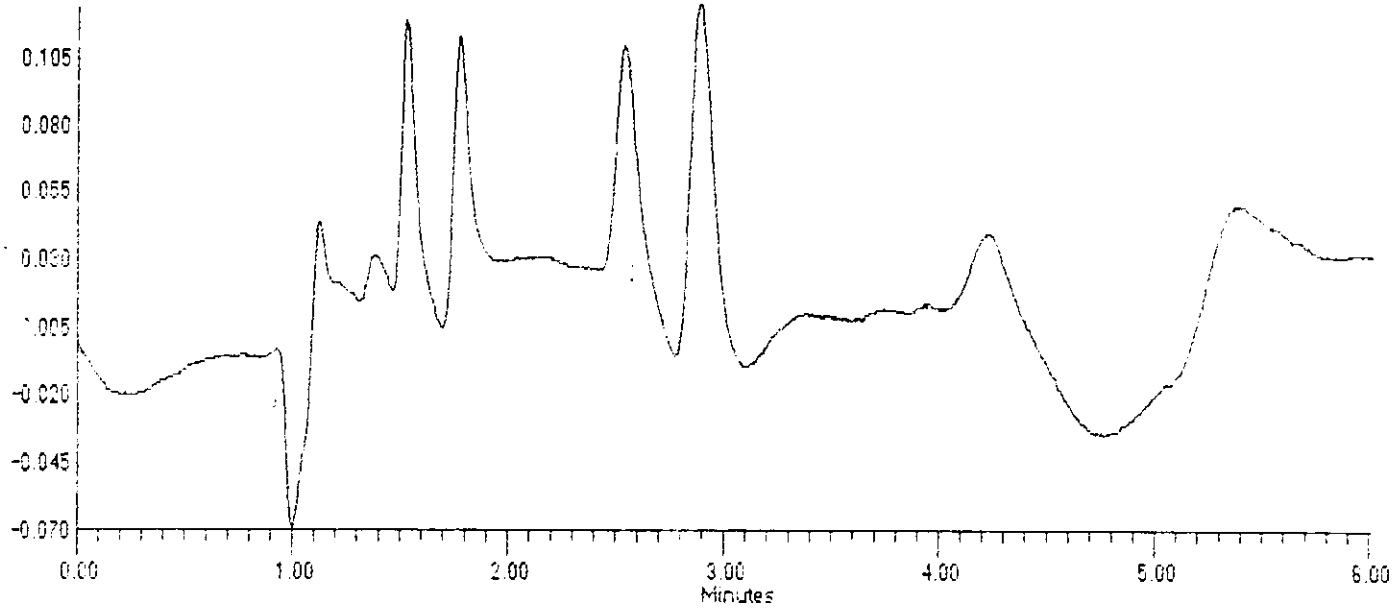
R940-5676

5671
F
NO2

VOLUME	DILUTION	FOINTS	RATE	START	STOP	AREA	TYPE
[illegible]	1	1	1205	[illegible]	[illegible]	[illegible]	[illegible]

Peak Number	Retention Time	Component Name	Concentration	Height	Area	Start Time

File: c:\dx\data\91011001.D02 Sample: BLANK



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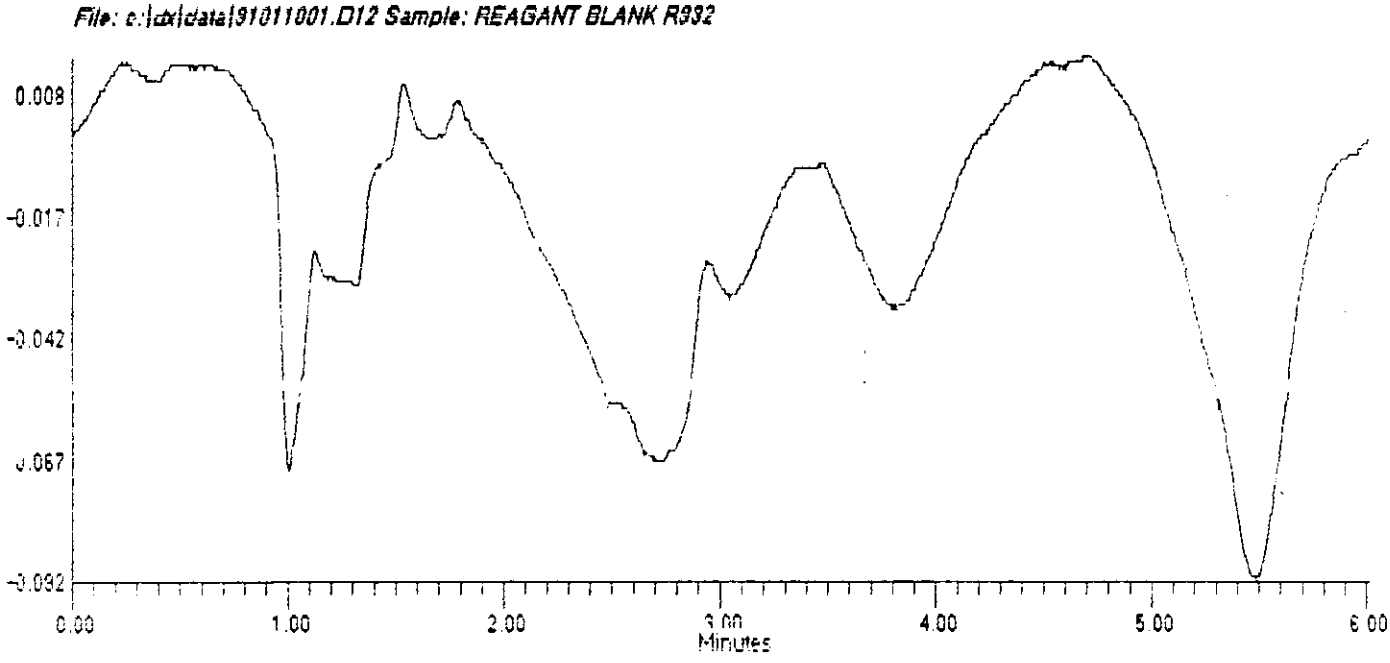
JH 3-24-92
R940 NO_3
5673



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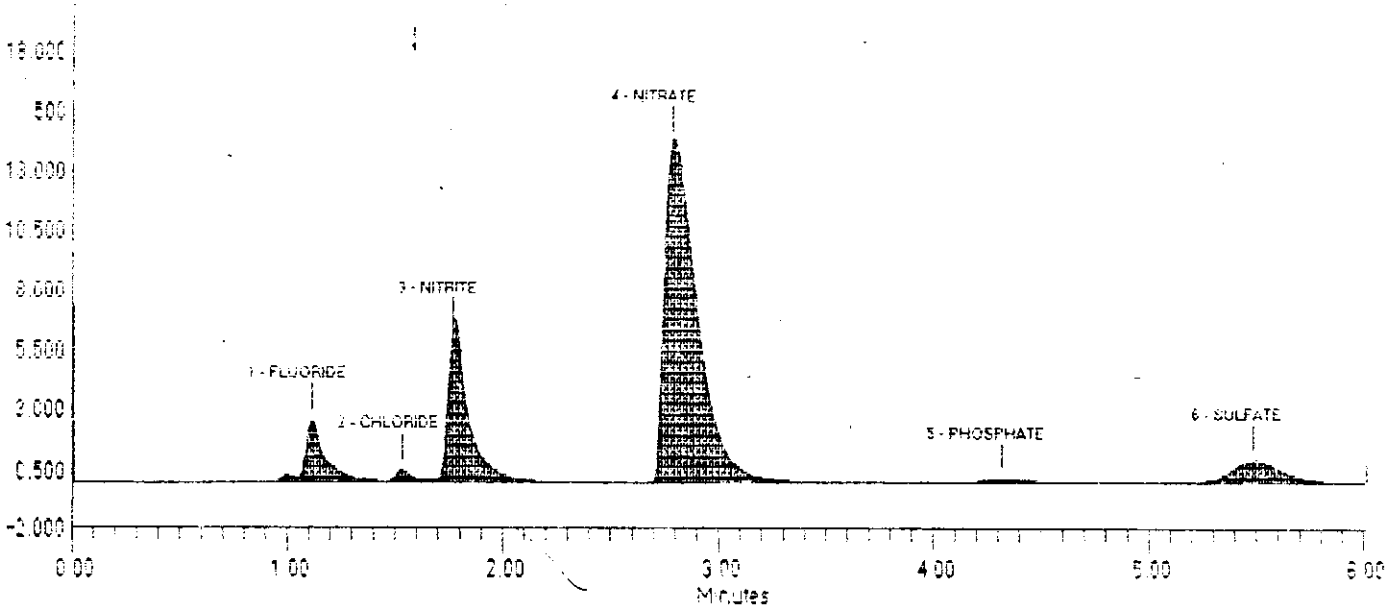
5773 NO_3

File: C:\DX\DATA\91011001.D13 Sample: 941



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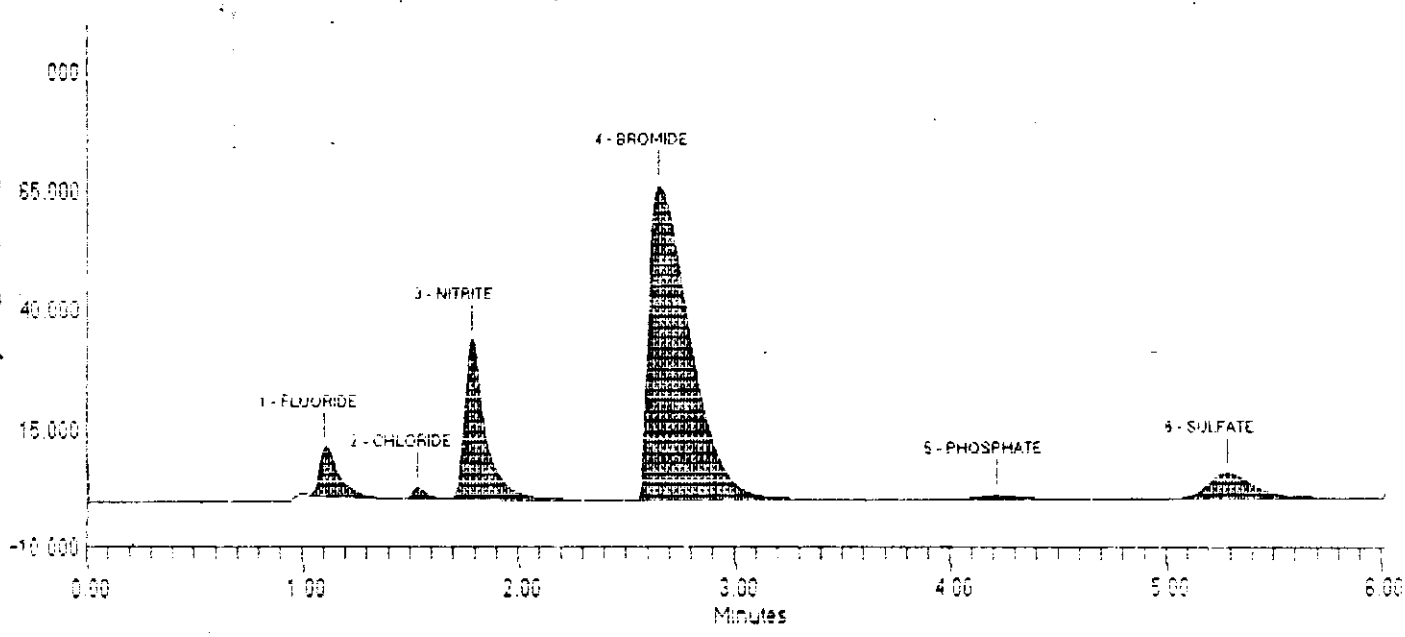
[illegible]

Sample Name: 94 -5771 & 5776 F-NO2 [illegible]
Data File: [illegible]
Method: [illegible]
ADC Address: 1 System: 1 [illegible]

REPORT	VOLUME	DILUTION	POINTS	RATE	START	END	PEAK AREA
Extended	1	41	1205	5Hz	0.00	[illegible]	100%

Ret. Time	Component Name	Concentration	Height	Area
[illegible]	FLUORIDE	[illegible]	[illegible]	[illegible]
[illegible]	CHLORIDE	[illegible]	[illegible]	[illegible]
[illegible]	NITRITE	[illegible]	[illegible]	[illegible]
[illegible]	BROMIDE	[illegible]	[illegible]	[illegible]
[illegible]	PHOSPHATE	[illegible]	[illegible]	[illegible]
[illegible]	SULFATE	[illegible]	[illegible]	[illegible]

File: C:\DX\DATA\91011001.D03 Sample: 941



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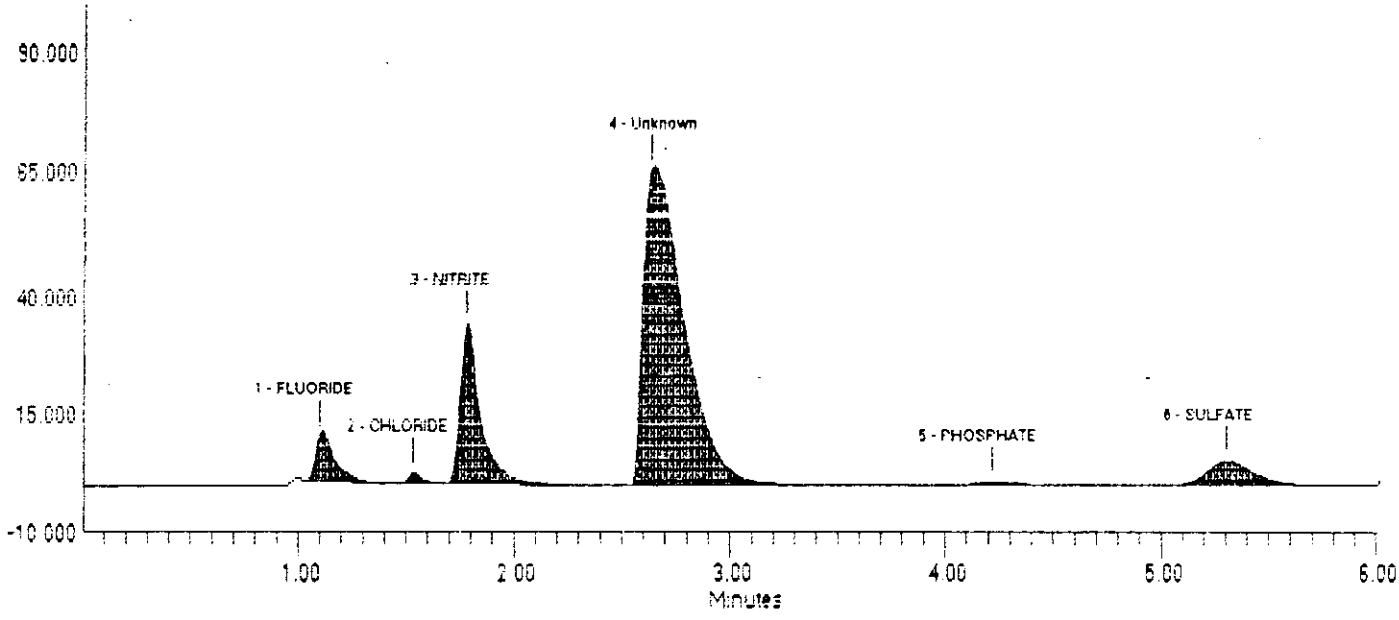
DATA REPROCESSED ON Fri Jan 1[illegible]

Sample Name: 941-DUPLICATE -5871 & 5876 FANO2 Date: Fri Jan 10 [illegible]
Data File : C:\DX\DATA\91011001.D04
Method : F:\dx\method\SYSTEM1.met
HCI Address: 1 System : 1 Inject#: 4 Dilution : [illegible]

Report	Volume	Dilution	Points	Rate	Start	Stop	Rel
External	1	41	1800	5Hz	0.00	[illegible]	[illegible]

Pk. No.	Ret Time	Component Name	Concentration	Height	Area	[illegible]
1	1.13	FLUORIDE	137.422	9318	61112	[illegible]
2	1.83	CHLORIDE	39.974	2335	9928	[illegible]
3	1.78	NITRITE	1269.017	33627	218546	[illegible]
4	2.65		35391355.800	65001	863224	[illegible]
5	4.58	PHOSPHATE	187.256	717	937[illegible]	[illegible]
6	[illegible]	SULFATE	399.536	5040	77142	[illegible]

File: C:\DX\DATA\91011001.D04 Sample: 941-DUPLICATE



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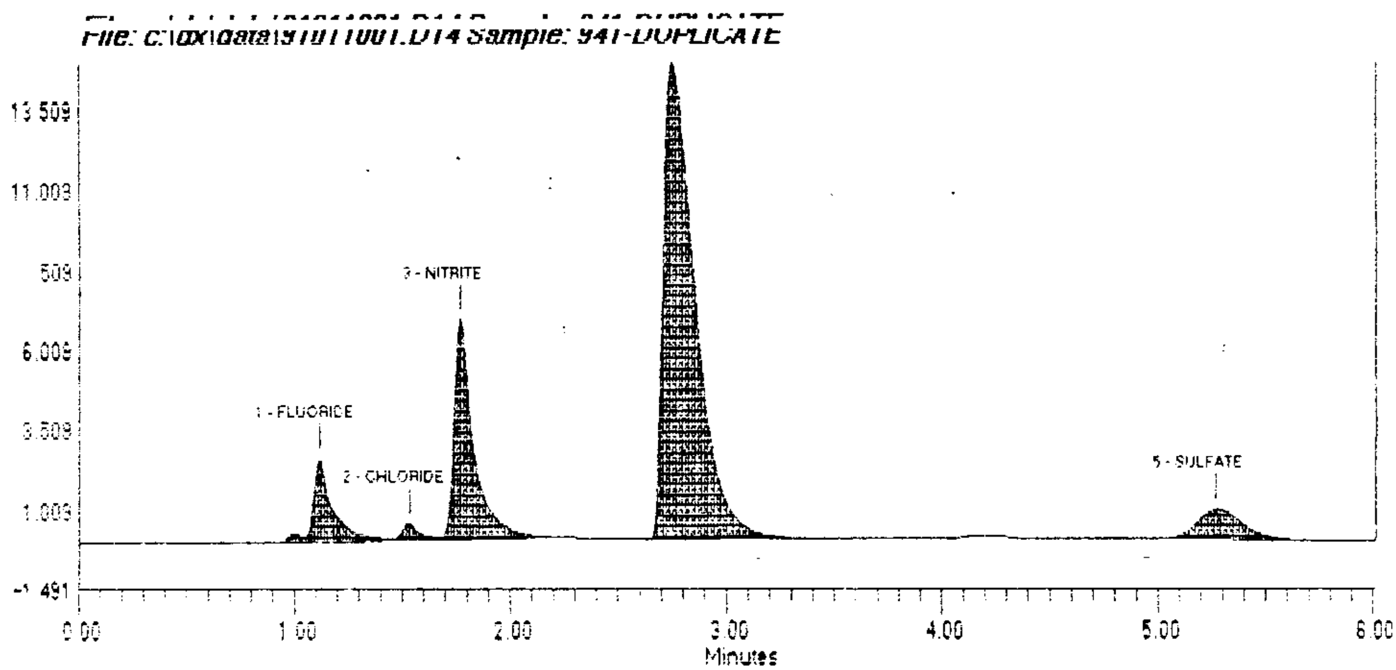
Sample Name: 941-DUPLICATE 5823 NO_3

[illegible]	[illegible] FLUORIDE	[illegible]	[illegible]	[illegible]
[illegible]	[illegible] CHLORIDE	[illegible]	[illegible]	[illegible]
[illegible]	1.77 NITRITE	1301.737	6843	42141
[illegible]	[illegible] NITRATE	[illegible].892	1480[illegible]	[illegible]
[illegible]	5.[illegible] SULFATE	407.670	[illegible]	[illegible]



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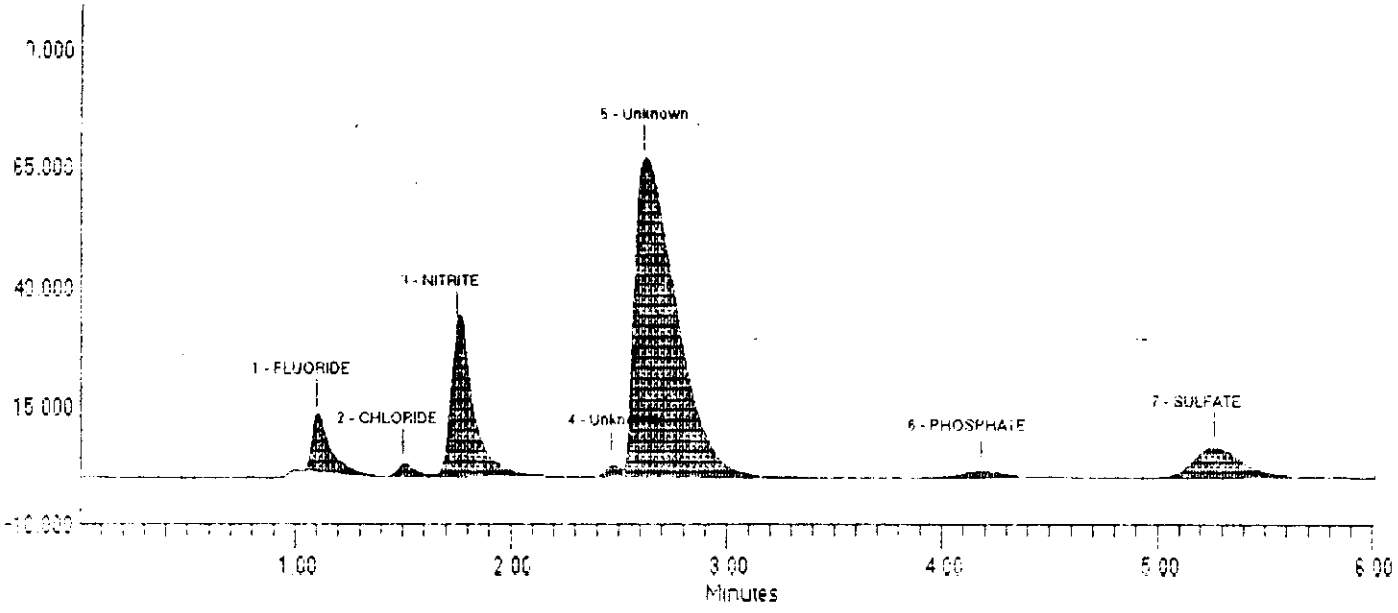
5971 & 5976 F & NO_2

Peak	Ret. Time	Component Name	Conc. Calibration	Height	Area
1	1.11	FLUORIDE	[illegible]	[illegible]	[illegible]
2	1.50	CHLORIDE	[illegible]	[illegible]	[illegible]
3	1.79	NITRITE	[illegible]	[illegible]	[illegible]
4	2.47		[illegible]	[illegible]	[illegible]
5	2.62		[illegible]	[illegible]	[illegible]
6	3.77	PHOSPHATE	[illegible]	[illegible]	[illegible]
7	4.21	SULFATE	[illegible]	[illegible]	[illegible]

File: C:\DX\DATA\91011001.D05 Sample: R941-SPIKE



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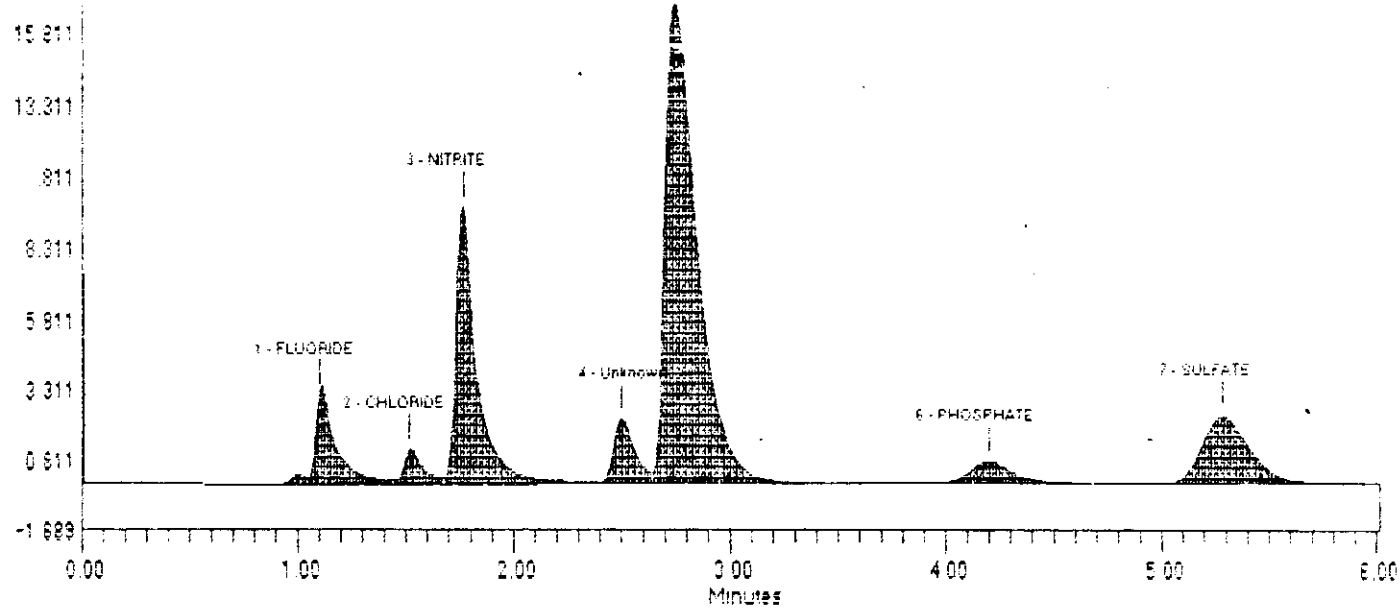
5973 NO3

File: c:\dx\data\91011001.D15 Sample: R941-SPIKE



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DATA REPROCESSED ON Sun Dec 10 19:[illegible]

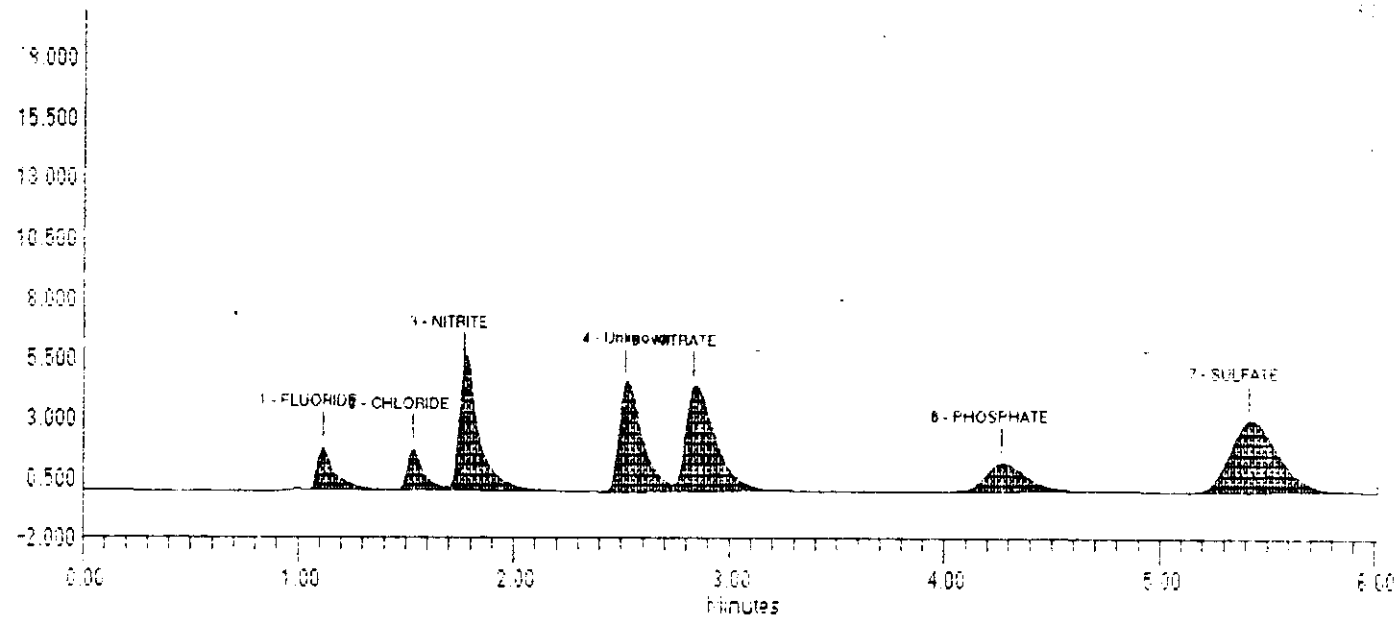
R946
5573 (R437) 557645571 NO_3 NO_2 F

Sample Name: [illegible] Date Run: [illegible]
Date Print: [illegible] Method: [illegible]
Operator: [illegible] Inject#: [illegible]

Peak	Name	Time	Dilution	Area	Start	Stop	Type
External	1	101	1.00	[illegible]	[illegible]	[illegible]	[illegible]

No.	Ret Time min	Component name	Concentration mg/L	Height uV	Area uV*sec
1	[illegible]	FLUORIDE	[illegible]	[illegible]	[illegible]
2	1.52	CHLORIDE	[illegible]	[illegible]	[illegible]
3	[illegible]	NITRITE	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	NITRATE	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	PHOSPHATE	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	SULFATE	[illegible]	[illegible]	[illegible]

File: C:\DX\DATA\91011001.D10 Sample: LMCS/73C11DB



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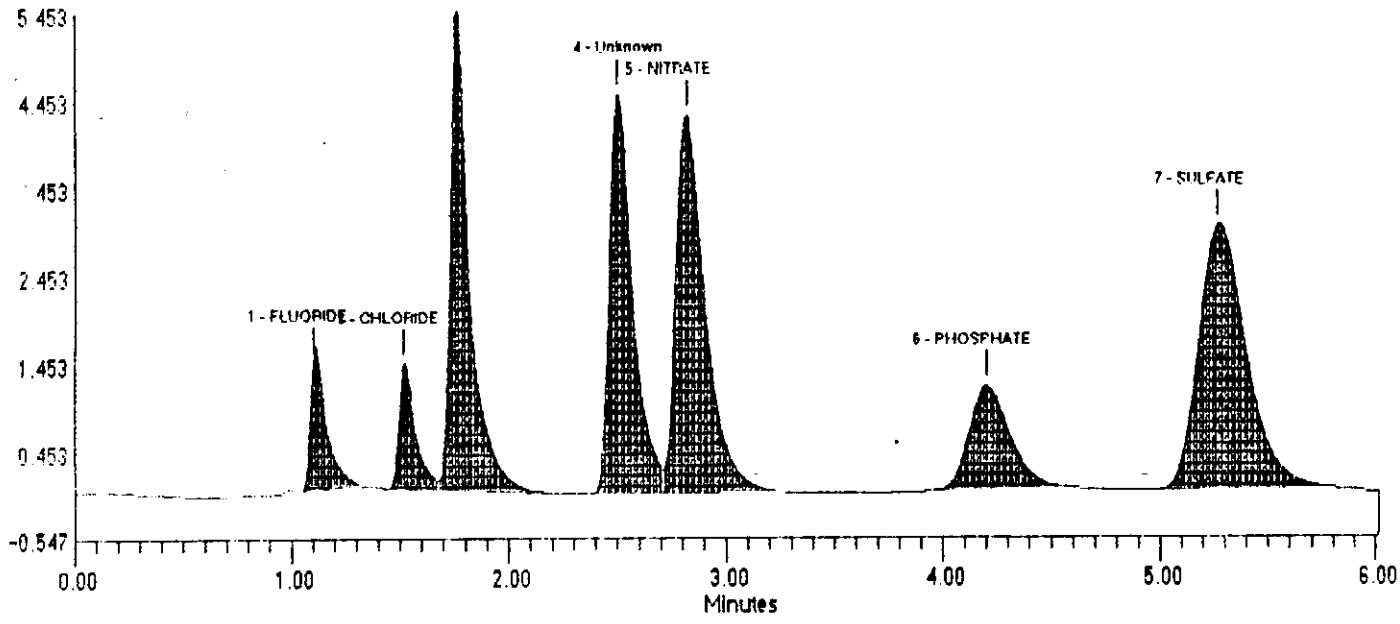
R938

Sample Name: LMCS/73C11DC R946-5571, 5573, 5574 Date: Fri Jan 10 01:06:19 1991
Data File : c:\dx\data\91011001.D20
Method : c:\dx\method\SYSTEM1.met
IC Address: 1 System : 1 Inject#: 20 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	100	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name		Concentration	Height	Area	Int. Code	Area
1	1.10	FLUORIDE	91.8	31.400	1462	8207	1	0.[illegible]
2	1.52	CHLORIDE		94.035	1121	7363	2	1.[illegible]
3	1.75	NITRITE		517.124	5000	33439	2	0.[illegible]
4	2.50			3402734.456	4542	33690	2	
5	2.82	NITRATE	102.9	651.172	4231	40049	2	0.[illegible]
6	4.20	PHOSPHATE	101.8	525.058	1181	13340	1	-2.78
7	5.27	SULFATE		517.751	2994	46398	1	-3.99

File: c:\dx\data\91011001.D20 Sample: LMCS/73C11DC



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WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: ION CHROMATOGRAPHIC - PHOSPHATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MYERS	Date: 1-08-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5574	11		
2	REAGENT BLANK	R940-5674	12		
3	SAMPLE 3AP891-6	R941-5774	13		
4	SAM DUP OF 3AP891-6	R941-5874	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5974	15		
6	FINAL LMCS CHECK STD	R946-5574	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11DC/.100 mL -	10.0 mL		N/A
SPIKE	73C11DC/.05 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (PHOSPHATE) - UNDIGESTED SAMPLE

Serial No: R 939.-5574 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16: 1 | Priority: 25
Determination: PO4 | Method/Standard: LA-533-105 | Report Units: % RECOVERY | Charge Code: N124W | Reruns: 0
Sample Size: 7 .100ml - 10ml | Customer ID: STD
Remarks, Calculations, Results: EDP K976 DIONEX
STD# 73C110C RESULT 5.0182 ppm
STD VAL 5.1682 %REC 97.3
ppm
Analyst - 1: [illegible] | Analyst - 2: | Analyst - 3: | Analyst - 4: | Analyst - 5: [illegible]
Hrs: 60823 | Date: 1-8-92 | Time Composed: | Lab Unit Mgr: [illegible]

Serial No: R 940.-5674 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16: 3 | Priority: 25
Determination: PO4 | Method/Standard: LA-533-105 | Report Units: PPM | Charge Code: N124W | Reruns: 0
Sample Size: 7 DIRECT | Customer ID: BLK
Remarks, Calculations, Results: REAGENT BLANK
< 1.0ppm
Analyst - 1: [illegible] | Analyst - 2: | Analyst - 3: | Analyst - 4: | Analyst - 5: [illegible]
Hrs: 60823 | Date: 1-8-92 | Time Composed: | Lab Unit Mgr: [illegible]

Serial No: R 941.-5774 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16: 4 | Priority: 25
Determination: PO4 | Method/Standard: LA-533-105 | Report Units: PPM | Charge Code: N124W | Reruns: 0
Sample Size: 7 .250ml - 10ml | Customer ID: 3AP891-6
Remarks, Calculations, Results: 1.3462 ppm
Analyst - 1: [illegible] | Analyst - 2: | Analyst - 3: | Analyst - 4: | Analyst - 5: [illegible]
Hrs: 60823 | Date: 1-8-92 | Time Composed: | Lab Unit Mgr: [illegible]

Serial No: R 941.-5874 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16: 5 | Priority: 25
Determination: PO4 | Method/Standard: LA-533-105 | Report Units: PPM | Charge Code: N124W | Reruns: 0
Sample Size: 7 .250ml - 10ml | Customer ID: 3AP891-6
Remarks, Calculations, Results: DUPLICATE SAMPLE
1.4062ppm
1.4062 - 1.3462/1.4062 + 1.3462/2(100) = 4.28
% relative difference
Analyst - 1: [illegible] | Analyst - 2: | Analyst - 3: | Analyst - 4: | Analyst - 5: [illegible]
Hrs: 60823 | Date: 1-8-92 | Time Composed: | Lab Unit Mgr: [illegible]

Serial No: R 941.-5974 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16: 6 | Priority: 25
Determination: PO4 | Method/Standard: LA-533-105 | Report Units: % RECOVERY | Charge Code: N124W | Reruns:
Sample Size: 7 .250ml - 10ml | Customer ID: 3AP891-6
Remarks, Calculations, Results: SAMPLE SPIKED ID
SPIKE ID 73C110C
SPIKE VOLUME .05ml
(2.3462 - 1.3462)/(.05)(51.6)(41)/16.2(100) = % 98.36
spike recovery
Analyst - 1: [illegible] | Analyst - 2: | Analyst - 3: | Analyst - 4: | Analyst - 5: [illegible]
Hrs: 60823 | Date: 1-8-92 | Time Composed: | Lab Unit Mgr: [illegible]

Serial No: R 946.-5574 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 16:13 | Priority: 25
Determination: PO4 | Method/Standard: LA-533-105 | Report Units: % RECOVERY | Charge Code: N124W | Reruns: 0
Sample Size: 7 .100ml - 10ml | Customer ID: STD
Remarks, Calculations, Results: EDP K976 DIONEX
STD# 73C110C RESULT 5.0982ppm
STD VAL 5.1682 %REC 100.52
Analyst - 1: [illegible] | Analyst - 2: | Analyst - 3: | Analyst - 4: | Analyst - 5: [illegible]
Hrs: 60823 | Date: 1-8-92 | Time Composed: | Lab Unit Mgr: [illegible]

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: ION CHROMATOGRAPHIC - SULFATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MYERS	Date: 1-08-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: D. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5575	11		
2	REAGENT BLANK	R940-5675	12		
3	SAMPLE 3AP891-6	R941-5775	13		
4	SAM DUP OF 3AP891-6	R941-5875	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5975	15		
6	FINAL LMCS CHECK STD	R946-5575	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	73C11DC/.100 mL -	10.0 mL		N/A
SPIKE	73C11DC/.05 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (SULFATE) - UNDIGESTED SAMPLE

Serial No R 939.-5575 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:1 1 | Priority 25
Determination SO4 | Method/Standard LA-533-105 | Result Units % RECOVERY | Charge Code N124W | Reruns 0
Sample Size ? .100ml - 10ml | Customer ID STD
Remarks, Calculations, Results
EDP R970 DIONEX
STD# 73C110C RESULT 5.6682 ppm
STD VAL 6.0952 %REC 93.0
ppm
Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5
Hrs | Hrs | Hrs | Hrs | Hrs
LOC823
Date 1-8-92 | Time Completed | Lab Unit Mgr

Serial No R 940.-5675 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:1 3 | Priority 25
Determination SO4 | Method/Standard LA-533-105 | Result Units PPM | Charge Code N124W | Reruns
Sample Size ? DIRECT | Customer ID BLK
Remarks, Calculations, Results
REAGENT BLANK
< 1.0ppm
Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5
Hrs | Hrs | Hrs | Hrs | Hrs
LOC823
Date 1-8-92 | Time Completed | Lab Unit Mgr

Serial No R 941.-5775 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:1 4 | Priority 25
Determination SO4 | Method/Standard LA-533-105 | Result Units PPM | Charge Code N124W | Reruns
Sample Size ? .250ml - 10ml | Customer ID 3AP891-6
Remarks, Calculations, Results
3.9562ppm
Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5
Hrs | Hrs | Hrs | Hrs | Hrs
LOC823
Date 1-8-92 | Time Completed | Lab Unit Mgr

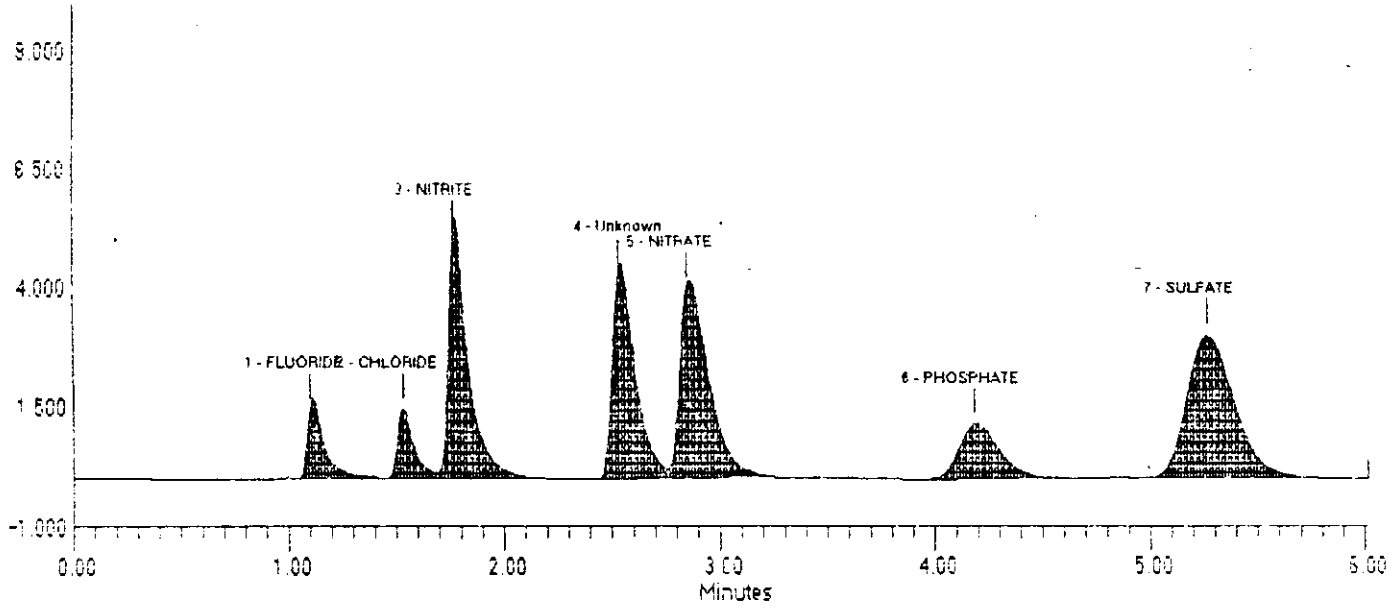
Serial No R 941.-5875 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:1 5 | Priority 25
Determination SO4 | Method/Standard LA-533-105 | Result Units PPM | Charge Code N124W | Reruns
Sample Size ? .250ml - 10ml | Customer ID 3AP891-6
Remarks, Calculations, Results
DUPLICATE SAMPLE
3.9462ppm
3.9462 - 3.9562/3.9462 + 3.9562/2(100) = .25
% relative diff
Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5
Hrs | Hrs | Hrs | Hrs | Hrs
LOC823
Date 1-8-92 | Time Completed | Lab Unit Mgr

Serial No R 941.-5975 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:1 6 | Priority 25
Determination SO4 | Method/Standard LA-533-105 | Result Units % RECOVERY | Charge Code N124W | Reruns
Sample Size ? .250ml - 10ml | Customer ID 3AP891-6
Remarks, Calculations, Results
SAMPLE SPIKED ID
SPIKE ID 73C110C
SPIKE VOLUME .05ml
(5.2862 - 3.9562)/(.05)(604)(41)/10.3(100) = 109.73
% spike recovery
Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5
Hrs | Hrs | Hrs | Hrs | Hrs
LOC823
Date 1-8-92 | Time Completed | Lab Unit Mgr

Serial No R 946.-5575 | Sample Point 103AP | Date 12-16-91 | Time Issued 16:13 | Priority 25
Determination SO4 | Method/Standard LA-533-105 | Result Units % RECOVERY | Charge Code N124W | Reruns 0
Sample Size ? .100ml - 10ml | Customer ID STD
Remarks, Calculations, Results
EDP R970 DIONEX
STD# 73C110C RESULT 6.1082ppm
STD VAL 6.0952 %REC 100.12
Analyst - 1 | Analyst - 2 | Analyst - 3 | Analyst - 4 | Analyst - 5
Hrs | Hrs | Hrs | Hrs | Hrs
LOC823
Date 1-8-92 | Time Completed | Lab Unit Mgr

1	1.15 FLUORIDE	100.65	[illegible]	1426	[illegible]
2	1.41 CHLORIDE		[illegible]	1444	[illegible]
3	1.77 NITRITE		[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	8-28-92	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
[illegible]	[illegible] PHOSPHATE	100.52	[illegible]	[illegible]	[illegible]
[illegible]	[illegible] SULFATE	100.12	[illegible]	[illegible]	[illegible]

File: C:\DX\DATA\91010851.D02 Sample: LMCS73C11DC



SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/ CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 104 TO 109 .

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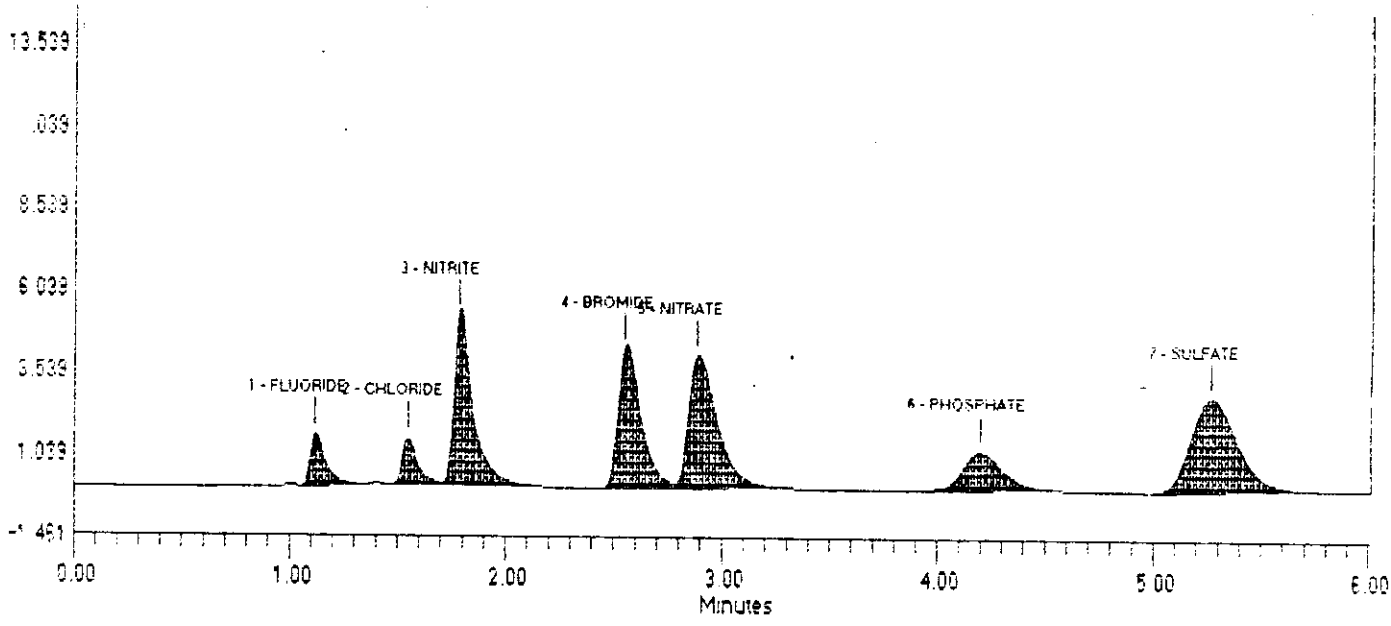
Melanie Myers 1/8/92

1	1.12	FLUORIDE		0.964	1530	[illegible]	
2	1.58	CHLORIDE	92.93	61.699	1411	[illegible]	
3	1.79	NITRITE		452.807	5161	[illegible]	
4	2.54	BROMIDE	8-18-92	443.548	1215	[illegible]	
5	2.82	NITRATE		601.143	4091	[illegible]	
6	4.22	PHOSPHATE	97.35	501.081	1137	[illegible]	
7	[illegible]	SULFATE	92.78	501.033	[illegible]	[illegible]	

File: c:\dx\data\91010801.D21 Sample: LMCS/73C11DC



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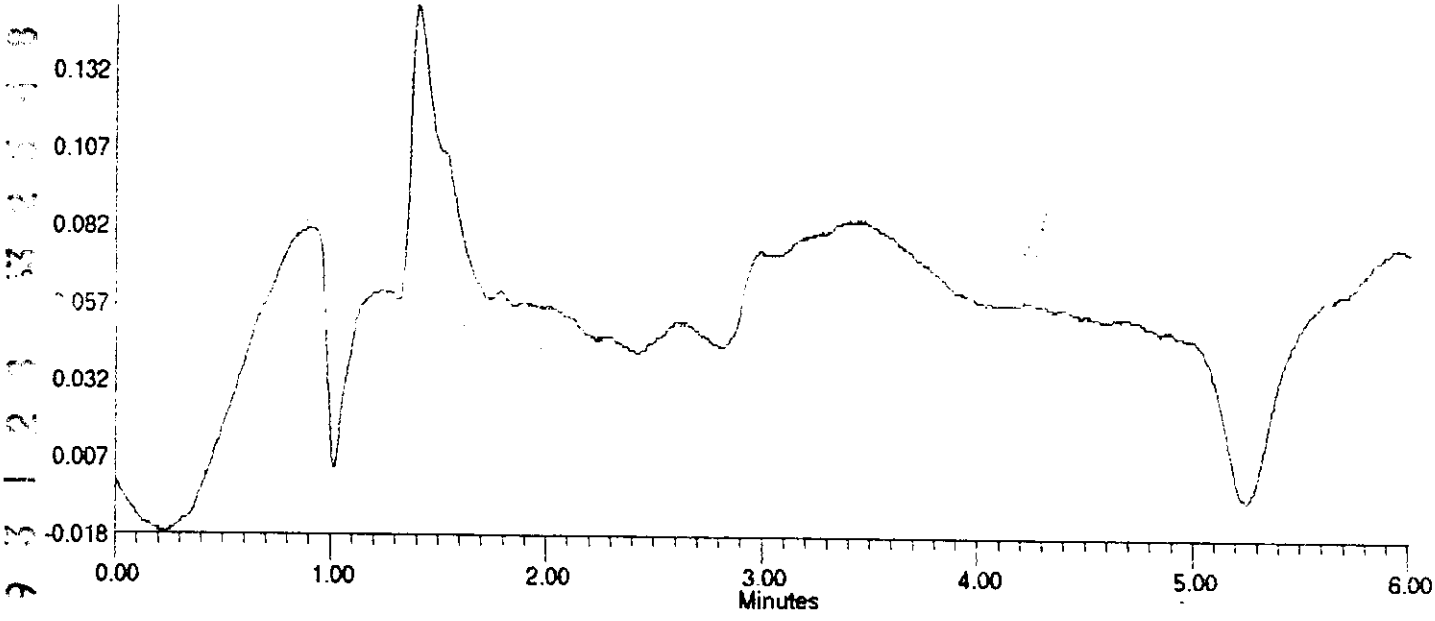
File: c:\dx\data\91010801.D22 Sample: REAG BLANK R940



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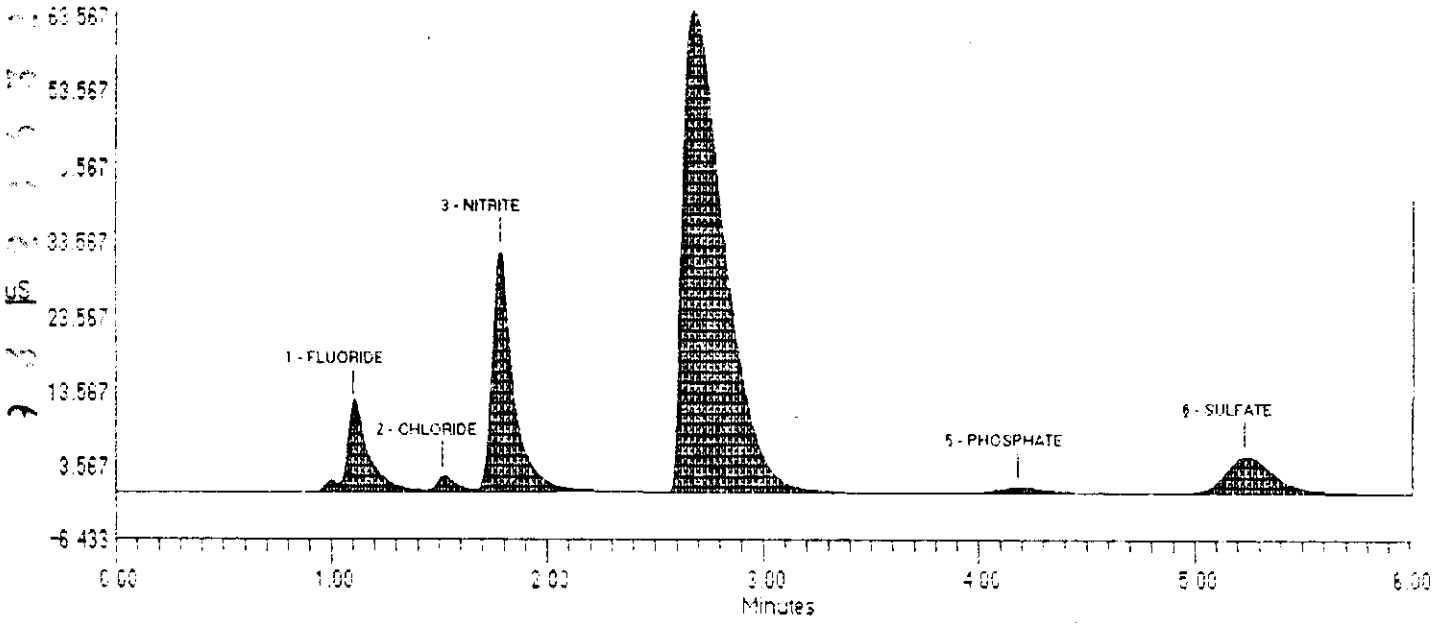
R941 9/11/92 8-28-92

File: c:\dx\data\91010801.D33 Sample: R941 REPLICATE



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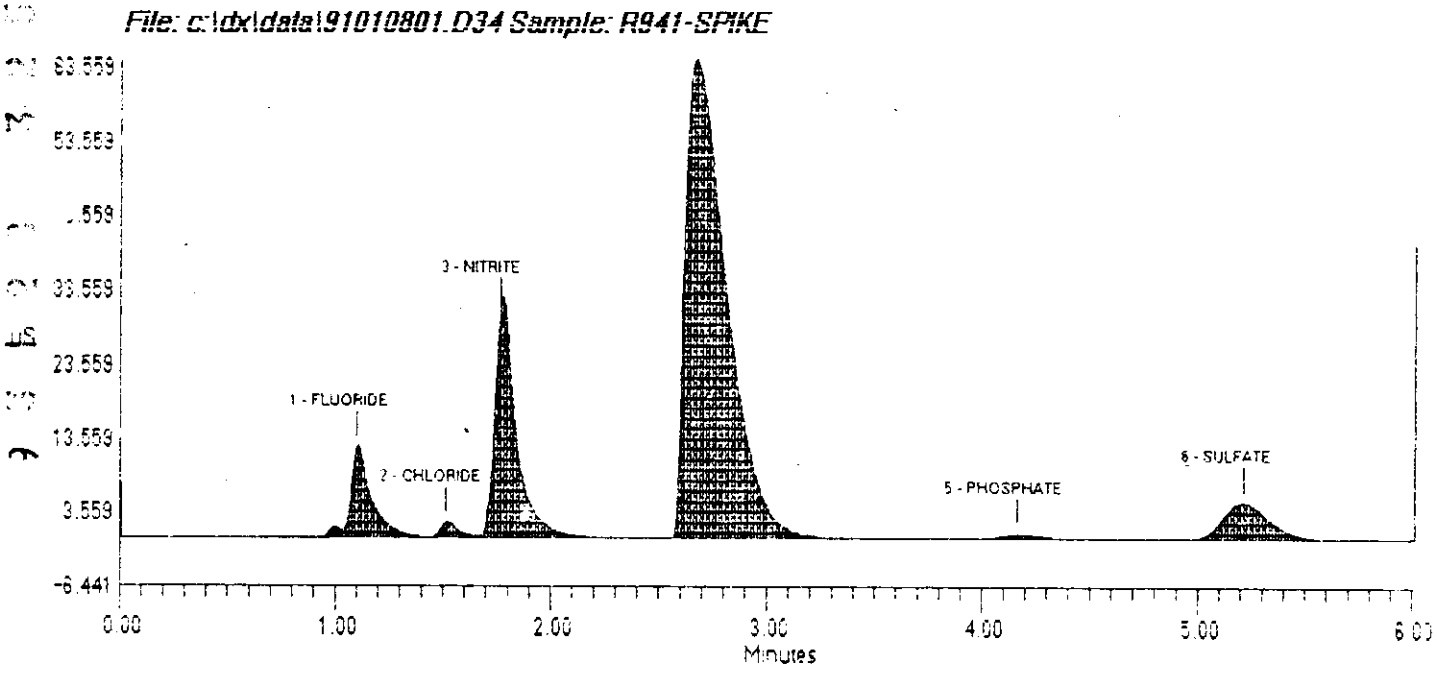
R941 9/1/92 Replicate 8-28-92



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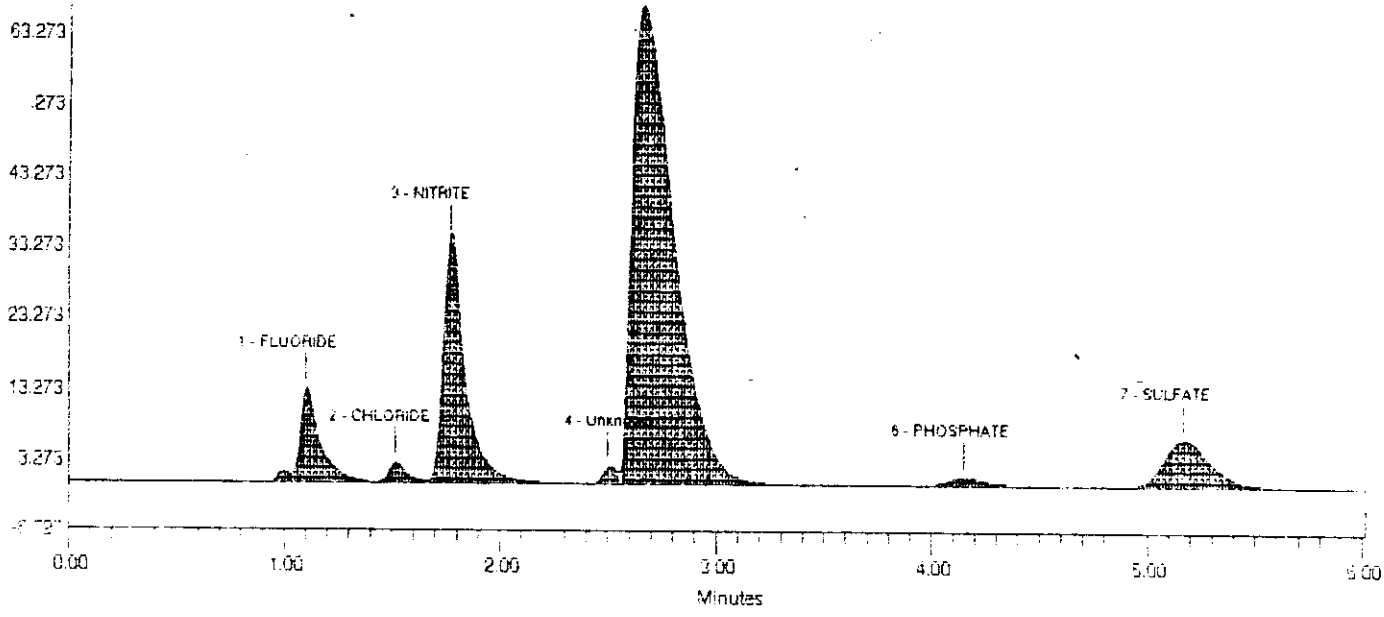
MM
R941 Spike 8-27-92

File: c:\dx\data\91010801.D35 Sample: R942



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WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: GAMMA ENERGY	Sample Prep: UNDIGESTED

Instrument: WB57237, WB57265	Procedure/Rev: LA-548-121/D-0
Technologist: L. TEMPLE	Date: 1-04-92
Starting Time: 00:30	Temperature: N/A
Ending Time: 01:20	Chemist: S. CATLOW

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-5530	11		
2	REAGENT BLANK	R940-5630	12		
3	SAMPLE 3AP891-6	R941-5730	13		
4	SAM DUP OF 3AP891-6	R941-5830	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-5930	15		
6	FINAL LMCS CHECK STD	R946-5530	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	48B49/.100 mL			NA
SPIKE	48B49/.400 mL			NA

A-6000-881 (03/92)

GAMMA ENERGY ANALYSIS - UNDIGESTED SAMPLE

2905 Need Long Form GEA

Serial No	Sample Point	Date	Time Issued	Priority
R 939.-5530	103AP	12-16-91	16: 1	25

Determination	Method/Standard	Result Units	Charge Code	Returns
GEA	LA-548-121	% RECOVERY	N124W	0

Sample Size: ? 100mL
Customer ID: STD

Remarks, Calculations, Results:
COLX STD# 48849 Co60 → 6.09 x10¹ → 101.1%
R901 STD VAL 7.90E¹ Cs137 → 8.01 x10¹ → 107.4%
RESULT % REC 1077 Ru106
R905 STD VAL 6.75E¹ Nb94
RESULT % REC 1026 Ce144
Eu 154/155 } NA Ra226 } NA
Sn 113

Analyst-1: 81808 Analyst-2: 69549

Date: 1-4-92

2906 Need Long Form GEA

Serial No	Sample Point	Date	Time Issued	Priority
R 940.-5630	103AP	12-16-91	16: 2	25

Determination	Method/Standard	Result Units	Charge Code	Returns
GEA	LA-548-121	uCI/L	N124W	0

Sample Size: ? 22ml H₂O
Customer ID: BLK

Remarks, Calculations, Results:
COUNT AS uCI/L
LASER PRINTOUT
Eu 154/155 → <5 x10⁻³ uCi/L
Sn 113 → <2 x10⁻³ "
Co 60 → <3.1 x10⁻³ "
Cs137 → 5.8 x10⁻³ uCi/L
Ru106 → <3.8 x10⁻² uCi/L
Nb94 → <1.9 x10⁻³ "
Ce144 → <1.8 x10⁻² "
Ra226 → <3.4 x10⁻³ "

Analyst-1: 81808 Analyst-2: 69549

Date: 1-4-92

2909 Need Long Form GEA

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5730	103AP	12-16-91	16: 4	25

Determination	Method/Standard	Result Units	Charge Code	Returns
GEA	LA-548-121	uCI/L	N124W	0

Sample Size: ? 100ml-10ml-500ml OP 202
Customer ID: 3APB91-6

Remarks, Calculations, Results:
COUNT AS uCI/L
LASER PRINTOUT
Sn113 → <2.7 x10¹ uCi/L
Co60 → <9.5 uCi/L
Cs137 → 6.41 x10³ uCi/L
Eu154/155 → <2.6 x10¹
Ru106 <3.1 x10² uCi/L
Nb94 <7.7 uCi/L
Ce144 <1.5 x10² uCi/L
Ra226 <3.7 x10¹ uCi/L
Cs134 <9.94 uCi/L

Analyst-1: 81808 Analyst-2: 69549

Date: 1-4-92

2910 Need Long Form GEA

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5830	103AP	12-16-91	16: 4	25

Determination	Method/Standard	Result Units	Charge Code	Returns
GEA	LA-548-121	uCI/L	N124W	0

Sample Size: ? 100ml-10ml-500ml
Customer ID: 3APB91-6

Remarks, Calculations, Results:
COUNT AS uCI/L
LASER PRINTOUT
Eu154/155 → <2.6 x10¹ uCi/L
Sn113 → <2.6 x10¹ "
Co60 → <1.1 x10¹ uCi/L
Cs137 → 6.42 x10³ uCi/L
Ru106 → <2.8 x10² uCi/L
Nb94 → <9.3 uCi/L
Ce144 → <1.6 x10² "
Ra226 → <3.5 x10¹ "
Cs134 <1.07E¹ uCi/L

Analyst-1: 81808 Analyst-2: 69549

Date: 1-4-92

2911 Need Long Form GEA

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-5930	103AP	12-16-91	16: 4	25

Determination	Method/Standard	Result Units	Charge Code	Returns
GEA	LA-548-121	% RECOVERY	N124W	0

Sample Size: ? 100ml-10ml-500ml 1202
Customer ID: 3APB91-6

Remarks, Calculations, Results:
SAMPLE SPIKED ID R941
SPIKE ID 48849
SPIKE VOLUME 400ml
Eu154/155 <6.6 x10¹ uCi/L
Sn113 <5.5 x10¹ uCi/L
Co60 102% (Recovery)
Cs137 → 113% (Recovery)
Ru106 <7.3 x10² uCi/L
Nb94 <3.3 x10¹ "
Ce144 <2.1 x10² "
Ra226 <7.9 x10¹ "
Cs134 <7.72E¹ uCi/L
Cs-137 → 113%
Co-60 → 101.6%

Analyst-1: 81808 Analyst-2: 62820

Date: 1-4-92

2917 Need Long Form GEA

Serial No	Sample Point	Date	Time Issued	Priority
R 946.-5530	103AP	12-16-91	16:13	25

Determination	Method/Standard	Result Units	Charge Code	Returns
GEA	LA-548-121	% RECOVERY	N124W	0

Sample Size: ? 100ml
Customer ID: STD

Remarks, Calculations, Results:
COLX STD# 49849
R901 STD VAL Co60 → 5.98 x10¹
Cs137 → 7.89 x10¹
Cs-137 → 7.4 x10¹
RESULT % REC 105.4%
R905 STD VAL 5.98 x10¹
RESULT % REC 105%
Eu 154/155 } NA Ru106
Sn113 Nb94
Ce144 } NA
Ra226

Analyst-1: 81808 Analyst-2: 62820

Date: 1-4-92

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

CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM                                    04-JAN-92  02:04:0

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

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

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

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER AND:
ANALYZED BY:         69549

 MPLE DESCRIPTION: R939-5530
 OMETRY DESCRIPTION:  22ML LIQ
SAMPLE SIZE:   1.0000E-03 LI        / CONVERSION FACTOR: 1.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON  4-JAN-92 AT 02:14:40

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-MAR-89
EFFICIENCY CALIBRATION PERFORMED 16-MAY-91
```

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K 934 - 5530

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

WHC-SD-WM-DP-025
Addendum 10 Rev 0

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1C	1126.19	562.73	1.56	334.	252.	20.9	CS-134, EU-152
2C	1138.50	568.88	1.56	334.	482.	17.6	CS-134, BI-207
3	1209.28	604.26	1.64	297.	3239.	3.8	CS-134
4	1323.11	661.17	1.63	190.	3687.	3.4	CS-137
4B		661.85			36.	13.9	
5C	1591.38	795.29	1.72	141.	2378.	4.9	CS-134
6C	1603.53	801.36	1.72	168.	190.	12.8	CS-134
7	2345.96	1172.54	2.00	113.	2069.	4.6	CO-60
8	2664.45	1331.77	2.10	26.	1832.	4.7	CO-60
8B		1332.24			9.	37.4	
9	2729.65	1364.37	1.99	8.	66.	28.2	CS-134
10	2921.02	1460.05	2.60	12.	134.	19.1	K-40
10B		1460.85			136.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 80.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
B - ENVIRONMENTAL BACKGROUND PEAK

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

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222-S COUNTING ROOM 04-JAN-92 03:04:35

SAMPLE: R939-0530
DATA COLLECTED ON 4-JAN-92 AT 02:14:40
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

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

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<4.55E+00		LLD<4.55E+00		911.07	
AC-228A	LLD<4.56E+00		LLD<4.56E+00		911.10	
AC-228B	LLD<5.68E+00		LLD<5.68E+00		338.40	
AG-108M	LLD<9.64E-01		LLD<9.64E-01		433.94	
AG-110M	LLD<4.56E+00		LLD<4.56E+00		657.76	
AM-241	LLD<5.27E+00		LLD<5.27E+00		59.54	
AM-243	LLD<1.34E+00		LLD<1.34E+00		74.67	
AM-243A	LLD<1.34E+00		LLD<1.34E+00		74.67	
AM-243B	LLD<1.49E+02		LLD<1.49E+02		43.10	
AR-41	LLD<6.95E-01		LLD<6.95E-01		1293.64	
AU-198	LLD<9.31E-01		LLD<9.31E-01		411.80	
BA-133	LLD<1.26E+00		LLD<1.26E+00		356.02	
BA-139	LLD<2.77E+00		LLD<2.77E+00		165.85	
BA-140	LLD<3.69E+00		LLD<3.69E+00		537.27	
BA-141	LLD<2.48E+00		LLD<2.48E+00		190.23	
BE-7	LLD<8.56E+00		LLD<8.56E+00		477.59	
BI-207	LLD<9.80E-01		LLD<9.80E-01		569.70	
BI-212	LLD<7.81E+00		LLD<7.81E+00		727.27	
-214	LLD<5.83E+00		LLD<5.83E+00		609.32	
BI-214A	LLD<5.83E+00		LLD<5.83E+00		609.32	
BI-214B	LLD<7.93E+00		LLD<7.93E+00		1120.28	
BI-214C	LLD<2.37E+00		LLD<2.37E+00		1764.51	
CD-109	LLD<1.74E+01		LLD<1.74E+01		88.03	
CE-139	LLD<6.26E-01		LLD<6.26E-01		165.85	
CE-141	LLD<9.72E-01		LLD<9.72E-01		145.44	
CEPR144	LLD<7.59E+00		LLD<7.59E+00		133.51	
CO-56	LLD<1.05E+00		LLD<1.05E+00		846.76	
CO-57	LLD<4.93E-01		LLD<4.93E-01		122.06	
CO-58	LLD<1.05E+00		LLD<1.05E+00		810.75	
CO-60	6.05E+01	+-3.04E+00	6.05E+01	+-3.04E+00	1332.50	-0.73
					1173.24	-0.70
CR-51	LLD<6.76E+00		LLD<6.76E+00		320.09	
CS-134	6.14E+01	+-3.24E+00	6.14E+01	+-3.24E+00	795.84	-0.36
					604.70	-0.44
CS-136	LLD<1.03E+00		LLD<1.03E+00		818.51	
CS-137	8.01E+01	+-3.23E+00	8.01E+01	+-3.23E+00	661.65	-0.48
CS-138	LLD<1.32E+00		LLD<1.32E+00		1435.86	
EU-152	LLD<2.77E+00		LLD<2.77E+00		1408.01	
EU-154	LLD<2.10E+00		LLD<2.10E+00		1274.45	
EU-155	LLD<2.27E+00		LLD<2.27E+00		105.31	
FE-59	LLD<2.38E+00		LLD<2.38E+00		1099.25	
HF-181	LLD<1.07E+00		LLD<1.07E+00		482.20	
HG-203	LLD<6.92E-01		LLD<6.92E-01		279.20	
I 131	LLD<9.58E-01		LLD<9.58E-01		364.48	
I 132	LLD<1.41E+00		LLD<1.41E+00		667.69	
I-133	LLD<9.92E-01		LLD<9.92E-01		529.69	
I-134	LLD<1.63E+00		LLD<1.63E+00		847.03	
I-135	LLD<2.60E+00		LLD<2.60E+00		1260.41	
K-40	LLD<4.94E+00		LLD<4.94E+00		1460.75	
KR-85	LLD<2.07E+02		LLD<2.07E+02		513.99	
KR-85M	LLD<6.34E-01		LLD<6.34E-01		151.17	

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LA-140	LLD<5.31E-01	LLD<5.31E-01	[illegible]
LA-142	LLD<2.08E+00	LLD<2.08E+00	641.83
MN-54	LLD<9.74E-01	LLD<9.74E-01	834.33
MN-56	LLD<1.19E+00	LLD<1.19E+00	846.78
NA-22	LLD<7.45E-01	LLD<7.45E-01	1274.05
NA-24	LLD<1.00E+00	LLD<1.00E+00	1368.60
NB-94	LLD<8.99E-01	LLD<8.99E-01	702.63
NB-95	LLD<9.91E-01	LLD<9.91E-01	765.78
NB-97	LLD<5.16E+00	LLD<5.16E+00	657.92
NP-237	LLD<4.98E+00	LLD<4.98E+00	86.50
NP-238	LLD<4.45E+00	LLD<4.45E+00	984.45
NP-239	LLD<4.36E+00	LLD<4.36E+00	277.60
PA-233	LLD<1.71E+00	LLD<1.71E+00	311.98
PA-234M	LLD<2.06E+02	LLD<2.06E+02	1001.03
PB-210	LLD<1.40E+02	LLD<1.40E+02	46.50
PB-212	LLD<1.32E+00	LLD<1.32E+00	239.00
PB-212A	LLD<1.32E+00	LLD<1.32E+00	239.00
PB-212B	LLD<2.00E+01	LLD<2.00E+01	300.10
PB-214	LLD<1.84E+00	LLD<1.84E+00	351.92
PB-214A	LLD<1.84E+00	LLD<1.84E+00	351.92
PB-214B	LLD<3.25E+00	LLD<3.25E+00	295.21
PO-210	LLD<8.75E+04	LLD<8.75E+04	804.00
PO-214	LLD<4.00E+04	LLD<4.00E+04	799.70
PO-216	LLD<7.37E+04	LLD<7.37E+04	804.90
PU-239	LLD<7.36E+03	LLD<7.36E+03	129.30
PU-241	LLD<2.33E+05	LLD<2.33E+05	148.57
RA-224	LLD<1.45E+01	LLD<1.45E+01	240.99
RA-226	LLD<1.37E+01	LLD<1.37E+01	186.10
RB-88	LLD<5.64E+00	LLD<5.64E+00	1836.00
RB-89	LLD<5.14E+00	LLD<5.14E+00	1031.88
RN-220	LLD<7.91E+02	LLD<7.91E+02	549.73
RU-103	LLD<9.13E-01	LLD<9.13E-01	497.08
RURH106	LLD<1.86E+01	LLD<1.86E+01	621.80
SB-124	LLD<1.26E+00	LLD<1.26E+00	602.72
SB-125	LLD<7.49E+00	LLD<7.49E+00	176.33
SC-46	LLD<1.19E+00	LLD<1.19E+00	1120.45
SE-75	LLD<1.08E+00	LLD<1.08E+00	264.66
SN-113	LLD<1.29E+00	LLD<1.29E+00	391.67
SR-85	LLD<9.07E-01	LLD<9.07E-01	513.99
SR-91	LLD<1.75E+00	LLD<1.75E+00	555.60
SR-92	LLD<6.66E-01	LLD<6.66E-01	1383.94
TA-182	LLD<3.64E+00	LLD<3.64E+00	1121.30
TC-99M	LLD<5.12E-01	LLD<5.12E-01	140.51
TE-123M	LLD<5.66E-01	LLD<5.66E-01	159.00
TE-125M	LLD<1.59E+02	LLD<1.59E+02	109.27
TE-132	LLD<6.18E-01	LLD<6.18E-01	228.16
TH-228	LLD<5.64E+01	LLD<5.64E+01	84.37
TH-234	LLD<1.01E+01	LLD<1.01E+01	92.50
TH-234A	LLD<1.01E+01	LLD<1.01E+01	92.50
TH-234B	LLD<3.65E+01	LLD<3.65E+01	63.30
TL-208	LLD<1.20E+00	LLD<1.20E+00	583.14
U-235	LLD<9.72E-01	LLD<9.72E-01	183.71
U-235A	LLD<9.72E-01	LLD<9.72E-01	180.71
U-235B	LLD<4.54E+00	LLD<4.54E+00	143.76
U-237	LLD<2.58E+00	LLD<2.58E+00	208.00
W-187	LLD<3.43E+00	LLD<3.43E+00	683.74
XE-131M	LLD<2.53E+01	LLD<2.53E+01	163.98
XE-133	LLD<1.94E+00	LLD<1.94E+00	81.00
XE-133M	LLD<5.57E+00	LLD<5.57E+00	233.21
XE-135	LLD<6.39E-01	LLD<6.39E-01	249.79
XE-138	LLD<4.89E+00	LLD<4.89E+00	258.41
Y-88	LLD<5.35E-01	LLD<5.35E-01	1836.06
Y-91	LLD<3.22E+02	LLD<3.22E+02	1204.90
Y-91M	LLD<1.32E+00	LLD<1.32E+00	355.60

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ZR-97    LLD<1.01E+00            LLD<1.01E
         --------------------    ----------
TOTAL    2.02E+02 +-5.50E+00     2.02E+02 +-5.50E+00
```

R 939-5530

STANDARD DEVIATION = 0.17

```
 MAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.30E-09 UC/LI
TOTAL MEASURED ACTIVITY = 2.02E+02 (+-5.50E+00) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%
```

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1126.19	562.73	252.	20.9	1.49E+01
1138.50	568.88	482.	17.6	2.88E+01
1603.53	801.36	195.	12.8	1.60E+01
2729.65	1364.37	66.	28.2	8.24E+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                                  04-JAN-92  04:05:48


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

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

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

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER AND:
ANALYZED BY:        69549

 MPLE DESCRIPTION: R940-5630
 OMETRY DESCRIPTION:  22ML LIQ
SAMPLE SIZE:   2.2000E-02 L1        / CONVERSION FACTOR: 1.0000E+00
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON  4-JAN-92 AT 03:15:36

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

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

ENERGY CALIBRATION PERFORMED 17-MAR-89
EFFICIENCY CALIBRATION PERFORMED 16-MAY-91
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P E A K A N A L Y S I S

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	1323.20	661.21	1.83	32.	93.	27.3	CS-137
1B		661.85			66.	13.9	
2	2921.66	1460.37	1.98	8.	147.	17.4	K-40
2B		1460.85			136.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

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

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SAMPLE: R940-5630
DATA COLLECTED ON 4-JAN-92 AT 03:15:36
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

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

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<6.05E-03		LLD<6.05E-03		911.07	
AC-228A	LLD<4.61E-03		LLD<4.61E-03		911.10	
AC-228B	LLD<1.00E-02		LLD<1.00E-02		338.40	
AG-108M	LLD<1.69E-03		LLD<1.69E-03		433.94	
AG-110M	LLD<3.62E-03		LLD<3.62E-03		657.76	
AM-241	LLD<1.19E-02		LLD<1.19E-02		59.54	
AM-243	LLD<3.30E-03		LLD<3.30E-03		74.67	
AM-243A	LLD<3.30E-03		LLD<3.30E-03		74.67	
AM-243B	LLD<3.26E-01		LLD<3.26E-01		43.10	
AR-41	LLD<3.03E-03		LLD<3.03E-03		1293.64	
AU-198	LLD<1.33E-03		LLD<1.33E-03		411.80	
BA-133	LLD<2.22E-03		LLD<2.22E-03		356.02	
BA-139	LLD<5.88E-03		LLD<5.88E-03		165.85	
BA-140	LLD<6.09E-03		LLD<6.09E-03		537.27	
BA-141	LLD<5.33E-03		LLD<5.33E-03		190.23	
BE-7	LLD<1.42E-02		LLD<1.42E-02		477.59	
BI-207	LLD<1.81E-03		LLD<1.81E-03		569.70	
BI-212	LLD<1.33E-02		LLD<1.33E-02		727.27	
-214	LLD<4.17E-03		LLD<4.17E-03		609.32	
BI-214A	LLD<4.17E-03		LLD<4.17E-03		609.32	
BI-214B	LLD<1.26E-02		LLD<1.26E-02		1120.28	
BI-214C	LLD<1.29E-02		LLD<1.29E-02		1764.51	
CD-109	LLD<4.15E-02		LLD<4.15E-02		88.03	
CE-139	LLD<1.33E-03		LLD<1.33E-03		165.85	
CE-141	LLD<2.27E-03		LLD<2.27E-03		145.44	
CEPR144	LLD<1.79E-02		LLD<1.79E-02		133.51	
CO-56	LLD<1.81E-03		LLD<1.81E-03		846.76	
CO-57	LLD<1.15E-03		LLD<1.15E-03		122.06	
CO-58	LLD<1.95E-03		LLD<1.95E-03		810.75	
CO-60	LLD<2.14E-03		LLD<2.14E-03		1332.50	
CR-51	LLD<1.21E-02		LLD<1.21E-02		320.09	
CS-134	LLD<2.00E-03		LLD<2.00E-03		795.84	
CS-136	LLD<1.98E-03		LLD<1.98E-03		818.51	
CS-137	5.83E-03	+-2.62E-03	5.83E-03	+-2.62E-03	661.65	-0.44
CS-138	LLD<6.27E-03		LLD<6.27E-03		1435.86	
EU-152	LLD<1.32E-02		LLD<1.32E-02		1408.01	
EU-154	LLD<7.77E-03		LLD<7.77E-03		1274.45	
EU-155	LLD<5.01E-03✓		LLD<5.01E-03		105.31	
FE-59	LLD<3.67E-03		LLD<3.67E-03		1099.25	
HF-181	LLD<1.69E-03		LLD<1.69E-03		482.20	
HG-203	LLD<1.41E-03		LLD<1.41E-03		279.20	
I-131	LLD<1.46E-03		LLD<1.46E-03		364.48	
I-132	LLD<2.20E-03		LLD<2.20E-03		667.69	
133	LLD<1.64E-03		LLD<1.64E-03		529.69	
134	LLD<2.74E-03		LLD<2.74E-03		847.03	
I-135	LLD<7.89E-03		LLD<7.89E-03		1260.41	
K-40	LLD<1.92E-02		LLD<1.92E-02		1460.75	
KR-85	LLD<5.43E-01		LLD<5.43E-01		513.99	
KR-85M	LLD<1.44E-03		LLD<1.44E-03		151.17	
KR-87	LLD<3.75E-03		LLD<3.75E-03		402.58	
KR-88	LLD<6.48E-02		LLD<6.48E-02		230.96	

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MN-54	LLD<2.05E-03	LLD<2.05E-03	[illegible]
MN-56	LLD<2.04E-03	LLD<2.04E-03	845.7[illegible]
NA-22	LLD<2.76E-03	LLD<2.76E-03	1279.[illegible]
NA-24	LLD<1.91E-03	LLD<1.91E-03	1368.[illegible]
NB-94	LLD<1.87E-03	LLD<1.87E-03	702.67
NB-95	LLD<1.80E-03	LLD<1.80E-03	765.7[illegible]
[illegible]-97	LLD<4.08E-03	LLD<4.08E-03	607.[illegible]
NP-237	LLD<1.22E-02	LLD<1.22E-02	86.30
NP-238	LLD<8.05E-03	LLD<8.05E-03	984.43
NP-239	LLD<8.21E-03	LLD<8.21E-03	277.60
PA-233	LLD<3.40E-03	LLD<3.40E-03	311.98
PA-234M	LLD<4.06E-01	LLD<4.06E-01	1001.03
PB-210	LLD<2.98E-01	LLD<2.98E-01	46.30
PB-212	LLD<2.40E-03	LLD<2.40E-03	239.00
PB-212A	LLD<2.39E-03	LLD<2.39E-03	239.00
PB-212B	LLD<4.14E-02	LLD<4.14E-02	300.10
PB-214	LLD<3.37E-03	LLD<3.37E-03	351.92
PB-214A	LLD<3.37E-03	LLD<3.37E-03	351.92
PB-214B	LLD<6.48E-03	LLD<6.48E-03	290.21
PO-210	LLD<1.45E+02	LLD<1.45E+02	804.00
PO-214	LLD<1.85E+01	LLD<1.85E+01	799.70
PO-216	LLD<9.03E+01	LLD<9.03E+01	804.90
PU-239	LLD<1.56E+01	LLD<1.56E+01	129.30
PU-241	LLD<5.26E+02	LLD<5.26E+02	148.07
RA-224	LLD<2.83E-02	LLD<2.83E-02	240.99
RA-226	LLD<2.75E-02	LLD<2.75E-02	186.10
RB-88	LLD<1.40E-02	LLD<1.40E-02	1836.00
RB-89	LLD<9.79E-03	LLD<9.79E-03	1061.88
RN-220	LLD<1.47E+00	LLD<1.47E+00	549.73
RU-103	LLD<1.61E-03	LLD<1.61E-03	497.08
RURH106	LLD<3.78E-02	LLD<3.78E-02	621.80
[illegible]-124	LLD<1.92E-03	LLD<1.92E-03	602.72
[illegible]-125	LLD<1.64E-02	LLD<1.64E-02	176.33
SC-46	LLD<1.90E-03	LLD<1.90E-03	1120.45
SE-75	LLD<2.01E-03	LLD<2.01E-03	264.66
SN-113	LLD<2.01E-03	LLD<2.01E-03	391.67
SR-89	LLD<2.38E-03	LLD<2.38E-03	913.99
SR-91	LLD<3.22E-03	LLD<3.22E-03	933.60
SR-92	LLD<3.20E-03	LLD<3.20E-03	1383.94
TA-182	LLD<5.11E-03	LLD<5.11E-03	1121.30
TC-99M	LLD<1.14E-03	LLD<1.14E-03	140.31
TE-123M	LLD<1.22E-03	LLD<1.22E-03	159.00
TE-125M	LLD<3.71E-01	LLD<3.71E-01	109.27
TE-132	LLD<1.24E-03	LLD<1.24E-03	228.16
TH-228	LLD<1.38E-01	LLD<1.38E-01	84.37
TH-234	LLD<2.29E-02	LLD<2.29E-02	92.30
TH-234A	LLD<2.29E-02	LLD<2.29E-02	92.30
TH-234B	LLD<8.89E-02	LLD<8.89E-02	83.30
TL-208	LLD<2.20E-03	LLD<2.20E-03	583.14
U-235	LLD<1.93E-03	LLD<1.93E-03	185.71
U-235A	LLD<1.93E-03	LLD<1.93E-03	185.71
U-235B	LLD<1.05E-02	LLD<1.05E-02	143.76
U-237	LLD<5.10E-03	LLD<5.10E-03	208.00
W-187	LLD<6.41E-03	LLD<6.41E-03	685.74
XE-131M	LLD<5.68E-02	LLD<5.68E-02	163.98
XE-133	LLD<4.29E-03	LLD<4.29E-03	81.00
[illegible]-133M	LLD<1.13E-02	LLD<1.13E-02	233.21
[illegible]-135	LLD<1.21E-03	LLD<1.21E-03	249.79
XE-138	LLD<9.54E-03	LLD<9.54E-03	258.41
Y-88	LLD<1.33E-03	LLD<1.33E-03	1836.06
Y-91	LLD<8.93E-01	LLD<8.93E-01	1204.90
Y-91M	LLD<2.43E-03	LLD<2.43E-03	353.60
ZN-65	LLD<6.72E-03	LLD<6.72E-03	1115.53
[illegible]	LLD<2.91E-03	LLD<2.91E-03	[illegible]

BEST AVAILABLE COPY

R940-5630

TOTAL	5.83E-03 +-2.62E-03	5.83E-03 +-2.62E-03

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI
TOTAL MEASURED ACTIVITY = 5.83E-03 (+-2.62E-03) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

BEST AVAILABLE COPY

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

222-S COUNTING ROOM 04-JAN-92 06:44:44

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

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

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

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER ANO:
'YZED BY: 69549

SAMPLE DESCRIPTION: R941-5730
GEOMETRY DESCRIPTION: 22ML LIQ
SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 4.9505E-03
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 4-JAN-92 AT 05:54:32

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-MAR-89
EFFICIENCY CALIBRATION PERFORMED 16-MAY-91

R 941-5739

222-S COUNTING ROOM 04-JAN-92 06:44:44

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

	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	1323.13	661.18	1.64	134.	14492.	1.6	CS-137
1B		661.85			36.	13.9	
2	2921.34	1460.21	2.43	8.	160.	16.6	K-40
2B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

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

222-S COUNTING ROOM R941-5730 04-JAN-92 06:44:44

PLE: R941-5730
COLLECTED ON 4-JAN-92 AT 05:54:32
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

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

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<4.04E+01		LLD<4.04E+01		911.07	
AC-228A	LLD<4.04E+01		LLD<4.04E+01		911.10	
AC-228B	LLD<1.14E+02		LLD<1.14E+02		338.40	
AG-108M	LLD<2.37E+01		LLD<2.37E+01		433.94	
AG-110M	LLD<1.80E+02		LLD<1.80E+02		657.76	
AM-241	LLD<1.08E+02		LLD<1.08E+02		59.54	
AM-243	LLD<2.79E+01		LLD<2.79E+01		74.67	
AM-243A	LLD<2.79E+01		LLD<2.79E+01		74.67	
AM-243B	LLD<3.03E+03		LLD<3.03E+03		43.10	
AR-41	LLD<7.46E+00		LLD<7.46E+00		1293.64	
AU-198	LLD<1.96E+01		LLD<1.96E+01		411.80	
BA-133	LLD<2.50E+01		LLD<2.50E+01		356.02	
BA-139	LLD<5.79E+01		LLD<5.79E+01		165.85	
BA-140	LLD<6.40E+01		LLD<6.40E+01		537.27	
BA-141	LLD<5.49E+01		LLD<5.49E+01		190.23	
BE-7	LLD<2.02E+02		LLD<2.02E+02		477.59	
[illegible]07	LLD<1.61E+01		LLD<1.61E+01		569.70	
[illegible]2	LLD<6.99E+01		LLD<6.99E+01		727.27	
BI-214	LLD<3.59E+01		LLD<3.59E+01		609.32	
BI-214A	LLD<3.59E+01		LLD<3.59E+01		609.32	
BI-214B	LLD<6.87E+01		LLD<6.87E+01		1120.28	
BI-214C	LLD<5.79E+01		LLD<5.79E+01		1764.51	
CD-109	LLD<3.62E+02		LLD<3.62E+02		88.03	
CE-139	LLD<1.31E+01		LLD<1.31E+01		165.85	
CE-141	LLD<2.07E+01		LLD<2.07E+01		145.44	
CEPR144	LLD<1.53E+02		LLD<1.53E+02		133.51	
CO-56	LLD<1.00E+01		LLD<1.00E+01		846.76	
CO-57	LLD<1.01E+01		LLD<1.01E+01		122.06	
CO-58	LLD<8.01E+00		LLD<8.01E+00		810.75	
CO-60	LLD<9.54E+00		LLD<9.54E+00		1332.50	
CR-51	LLD<1.38E+02		LLD<1.38E+02		320.09	
CS-134	LLD<9.94E+00		LLD<9.94E+00		795.84	
CS-136	LLD<8.80E+00		LLD<8.80E+00		818.51	
CS-137	6.41E+03	+-1.69E+02	6.41E+03	+-1.69E+02	661.65	-0.47
CS-138	LLD<1.54E+01		LLD<1.54E+01		1435.86	
EU-152	LLD<5.30E+01		LLD<5.30E+01		1408.01	
EU-154	LLD<2.59E+01		LLD<2.59E+01		1274.45	
EU-155	LLD<4.81E+01		LLD<4.81E+01		105.31	
FE-59	LLD<1.84E+01		LLD<1.84E+01		1099.25	
HF-181	LLD<2.50E+01		LLD<2.50E+01		482.20	
HG-203	LLD<1.53E+01		LLD<1.53E+01		279.20	
I-131	LLD<1.89E+01		LLD<1.89E+01		364.48	
	LLD<4.26E+01		LLD<4.26E+01		667.69	
[illegible]3	LLD<1.84E+01		LLD<1.84E+01		529.69	
I-134	LLD<1.61E+01		LLD<1.61E+01		847.03	
I-135	LLD<4.40E+01		LLD<4.40E+01		1260.41	
K-40	LLD<2.06E+02		LLD<2.06E+02		1460.75	

KR-85	LLD<4.43E+03	LLD<4.43E+03	513.99
KR-85M	LLD<1.32E+01	LLD<1.32E+01	151.17
KR-87	LLD<4.35E+01	LLD<4.35E+01	402.58
KR-89	LLD<6.20E+02	LLD<6.20E+02	220.90
I 10	LLD<8.51E+00	LLD<8.51E+00	1596.20
L. 42	LLD<3.78E+01	LLD<3.78E+01	641.83
MN-54	LLD<9.30E+00	LLD<9.30E+00	834.83
MN-56	LLD<1.13E+01	LLD<1.13E+01	846.76
NA-22	LLD<9.20E+00	LLD<9.20E+00	1274.55
NA-24	LLD<6.74E+00	LLD<6.74E+00	1368.60
NB-94	LLD<7.75E+00	LLD<7.75E+00	702.63
NB-95	LLD<8.02E+00	LLD<8.02E+00	765.78
NB-97	LLD<2.04E+02	LLD<2.04E+02	657.92
NP-237	LLD<1.04E+02	LLD<1.04E+02	86.50
NP-238	LLD<2.87E+01	LLD<2.87E+01	984.45
NP-239	LLD<9.09E+01	LLD<9.09E+01	277.60
PA-233	LLD<3.44E+01	LLD<3.44E+01	311.98
PA-234M	LLD<1.76E+03	LLD<1.76E+03	1001.03
PB-210	LLD<2.72E+03	LLD<2.72E+03	46.50
PB-212	LLD<2.66E+01	LLD<2.66E+01	239.00
PB-212A	LLD<2.65E+01	LLD<2.65E+01	239.00
PB-212B	LLD<4.27E+02	LLD<4.27E+02	300.10
PB-214	LLD<3.71E+01	LLD<3.71E+01	351.92
PB-214A	LLD<3.71E+01	LLD<3.71E+01	351.92
PB-214B	LLD<7.04E+01	LLD<7.04E+01	295.21
PO-210	LLD<7.08E+05	LLD<7.08E+05	804.00
PO-214	LLD<1.00E+05	LLD<1.00E+05	799.70
PO-216	LLD<4.29E+05	LLD<4.29E+05	804.90
PU-239	LLD<1.49E+05	LLD<1.49E+05	129.30
PU 241	LLD<4.61E+06	LLD<4.61E+06	148.57
R 24	LLD<2.92E+02	LLD<2.92E+02	240.99
RA-226	LLD<2.87E+02	LLD<2.87E+02	186.10
RB-88	LLD<1.00E+02	LLD<1.00E+02	1836.00
RB-89	LLD<4.02E+01	LLD<4.02E+01	1031.88
RN-220	LLD<1.34E+04	LLD<1.34E+04	549.73
RU-103	LLD<2.00E+01	LLD<2.00E+01	497.08
RURH106	LLD<3.09E+02	LLD<3.09E+02	621.80
SB-124	LLD<1.51E+01	LLD<1.51E+01	602.72
SB-125	LLD<1.45E+02	LLD<1.45E+02	176.33
SC-46	LLD<1.03E+01	LLD<1.03E+01	1120.45
SE-75	LLD<2.17E+01	LLD<2.17E+01	264.66
SN-113	LLD<2.69E+01	LLD<2.69E+01	391.67
SR-85	LLD<1.94E+01	LLD<1.94E+01	513.99
SR-91	LLD<2.81E+01	LLD<2.81E+01	555.60
SR-92	LLD<1.42E+01	LLD<1.42E+01	1383.94
TA-182	LLD<3.07E+01	LLD<3.07E+01	1121.30
TC-99M	LLD<9.95E+00	LLD<9.95E+00	140.51
TE-123M	LLD<1.21E+01	LLD<1.21E+01	159.00
TE-125M	LLD<3.38E+03	LLD<3.38E+03	109.27
TE-132	LLD<1.33E+01	LLD<1.33E+01	228.16
TH-228	LLD<1.20E+03	LLD<1.20E+03	84.37
TH-234	LLD<2.05E+02	LLD<2.05E+02	92.50
TH-234A	LLD<2.05E+02	LLD<2.05E+02	92.50
TH-234B	LLD<7.75E+02	LLD<7.75E+02	63.30
TL-208	LLD<1.82E+01	LLD<1.82E+01	583.14
U 5	LLD<2.07E+01	LLD<2.07E+01	185.71
U-235A	LLD<2.07E+01	LLD<2.07E+01	185.71
U-235B	LLD<8.99E+01	LLD<8.99E+01	143.76
U-237	LLD<5.45E+01	LLD<5.45E+01	208.00
W-187	LLD<3.48E+01	LLD<3.48E+01	685.74

XE-131M	LLD<5.49E+02	LLD<5.49E+02	163.98
XE-133	LLD<3.99E+01	LLD<3.99E+01	81.00
XE-133M	LLD<1.14E+02	LLD<1.14E+02	233.21
135	LLD<1.27E+01	LLD<1.27E+01	249.79
XE-138	LLD<9.96E+01	LLD<9.96E+01	258.41
Y-88	LLD<9.49E+00	LLD<9.49E+00	1836.06
Y-91	LLD<3.98E+03	LLD<3.98E+03	1204.90
Y-91M	LLD<2.12E+01	LLD<2.12E+01	555.60
ZN-65	LLD<2.68E+01	LLD<2.68E+01	1115.55
ZR-95	LLD<1.66E+01	LLD<1.66E+01	756.73
ZR-97	LLD<9.58E+00	LLD<9.58E+00	743.33
TOTAL	6.41E+03 +-1.69E+02	6.41E+03 +-1.69E+02	

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI
TOTAL MEASURED ACTIVITY = 6.41E+03 (+-1.69E+02) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.34	1460.21	160.	16.6	2.10E+01

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

222-S COUNTING ROOM 04-JAN-92 07:46:41

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

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

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

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER AN0:
ANALYZED BY: 69549

SAMPLE DESCRIPTION: R941-5830
GEOMETRY DESCRIPTION: 22ML LIQ
SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 4.9505E-03
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 4-JAN-92 AT 06:56:30

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-MAR-89
EFFICIENCY CALIBRATION PERFORMED 16-MAY-91

R941-5830 ~~R941-5843~~ B 3-23-91

222-S COUNTING ROOM 04-JAN-92 07:46:41

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

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	1323.12	661.18	1.68	141.	14512.	1.6	CS-137
1B		661.85			36.	13.9	
2	2921.36	1460.22	2.24	4.	181.	15.0	K-40
2B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

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

222-S COUNTING ROOM 04-JAN-92 07:46:41

SAMPLE: R941-5830
DATA COLLECTED ON 4-JAN-92 AT 06:56:30
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

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

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<3.39E+01		LLD<3.39E+01		911.07	
AC-228A	LLD<3.39E+01		LLD<3.39E+01		911.10	
AC-228B	LLD<1.14E+02		LLD<1.14E+02		338.40	
AG-108M	LLD<2.34E+01		LLD<2.34E+01		433.94	
AG-110M	LLD<1.80E+02		LLD<1.80E+02		657.76	
AM-241	LLD<1.08E+02		LLD<1.08E+02		59.54	
AM-243	LLD<2.88E+01		LLD<2.88E+01		74.67	
AM-243A	LLD<2.88E+01		LLD<2.88E+01		74.67	
AM-243B	LLD<2.88E+03		LLD<2.88E+03		43.10	
AR-41	LLD<1.02E+01		LLD<1.02E+01		1293.64	
AU-198	LLD<1.90E+01		LLD<1.90E+01		411.80	
BA-133	LLD<2.47E+01		LLD<2.47E+01		356.02	
BA-139	LLD<5.70E+01		LLD<5.70E+01		165.85	
BA-140	LLD<7.01E+01		LLD<7.01E+01		537.27	
BA-141	LLD<5.47E+01		LLD<5.47E+01		190.23	
BE-7	LLD<1.95E+02		LLD<1.95E+02		477.59	
BI-207	LLD<1.63E+01		LLD<1.63E+01		569.70	
BI-212	LLD<7.62E+01		LLD<7.62E+01		727.27	
BI-214	LLD<3.34E+01		LLD<3.34E+01		609.32	
BI-214A	LLD<3.34E+01		LLD<3.34E+01		609.32	
BI-214B	LLD<6.61E+01		LLD<6.61E+01		1120.28	
BI-214C	LLD<4.86E+01		LLD<4.86E+01		1764.51	
CD-109	LLD<3.49E+02		LLD<3.49E+02		88.03	
CE-139	LLD<1.29E+01		LLD<1.29E+01		165.85	
CE-141	LLD<2.07E+01		LLD<2.07E+01		145.44	
CEPR144	LLD<1.59E+02		LLD<1.59E+02		133.51	
CO-56	LLD<9.81E+00		LLD<9.81E+00		846.76	
CO-57	LLD<1.01E+01		LLD<1.01E+01		122.06	
CO-58	LLD<8.46E+00		LLD<8.46E+00		810.75	
CO-60	LLD<1.12E+01		LLD<1.12E+01		1332.50	
CR-51	LLD<1.40E+02		LLD<1.40E+02		320.09	
CS-134	LLD<1.07E+01		LLD<1.07E+01		795.84	
CS-136	LLD<9.27E+00		LLD<9.27E+00		818.51	
CS-137	6.42E+03	+-1.69E+02	6.42E+03	+-1.69E+02	661.65	-0.47
CS-138	LLD<2.54E+01		LLD<2.54E+01		1435.86	
EU-152	LLD<3.86E+01		LLD<3.86E+01		1408.01	
EU-154	LLD<2.59E+01		LLD<2.59E+01		1274.45	
EU-155	LLD<4.98E+01		LLD<4.98E+01		105.31	
FE-59	LLD<2.26E+01		LLD<2.26E+01		1099.25	
HF-181	LLD<2.29E+01		LLD<2.29E+01		482.20	
HG-203	LLD<1.46E+01		LLD<1.46E+01		279.20	
I-131	LLD<1.91E+01		LLD<1.91E+01		364.48	
I-132	LLD<4.20E+01		LLD<4.20E+01		667.69	
I-133	LLD<1.95E+01		LLD<1.95E+01		529.69	
I-134	LLD<1.55E+01		LLD<1.55E+01		847.03	
I-135	LLD<4.23E+01		LLD<4.23E+01		1260.41	
K-40	LLD<2.00E+02		LLD<2.00E+02		1460.75	

R941-5830

KR-85	LLD<4.30E+03	LLD<4.30E+03	513.99
KR-85M	LLD<1.27E+01	LLD<1.27E+01	151.17
KR-87	LLD<4.35E+01	LLD<4.35E+01	402.58
89	LLD<6.32E+02	LLD<6.32E+02	220.90
-140	LLD<1.17E+01	LLD<1.17E+01	1596.20
LA-142	LLD<3.75E+01	LLD<3.75E+01	641.83
MN-54	LLD<9.71E+00	LLD<9.71E+00	834.83
MN-56	LLD<1.11E+01	LLD<1.11E+01	846.76
NA-22	LLD<9.20E+00	LLD<9.20E+00	1274.55
NA-24	LLD<1.05E+01	LLD<1.05E+01	1368.60
NB-94	LLD<9.31E+00	LLD<9.31E+00	702.63
NB-95	LLD<7.13E+00	LLD<7.13E+00	765.78
NB-97	LLD<2.03E+02	LLD<2.03E+02	657.92
NP-237	LLD<1.00E+02	LLD<1.00E+02	86.50
NP-238	LLD<4.42E+01	LLD<4.42E+01	984.45
NP-239	LLD<8.95E+01	LLD<8.95E+01	277.60
PA-233	LLD<3.40E+01	LLD<3.40E+01	311.98
PA-234M	LLD<1.90E+03	LLD<1.90E+03	1001.03
PB-210	LLD<2.80E+03	LLD<2.80E+03	46.50
PB-212	LLD<2.77E+01	LLD<2.77E+01	239.00
PB-212A	LLD<2.76E+01	LLD<2.76E+01	239.00
PB-212B	LLD<4.20E+02	LLD<4.20E+02	300.10
PB-214	LLD<3.83E+01	LLD<3.83E+01	351.92
PB-214A	LLD<3.83E+01	LLD<3.83E+01	351.92
PB-214B	LLD<7.13E+01	LLD<7.13E+01	295.21
PO-210	LLD<8.17E+05	LLD<8.17E+05	804.00
PO-214	LLD<1.05E+05	LLD<1.05E+05	799.70
PO-216	LLD<6.05E+05	LLD<6.05E+05	804.90
PU-239	LLD<1.50E+05	LLD<1.50E+05	129.30
241	LLD<4.73E+06	LLD<4.73E+06	148.57
224	LLD<2.95E+02	LLD<2.95E+02	240.99
RA-226	LLD<2.94E+02	LLD<2.94E+02	186.10
RB-88	LLD<8.35E+01	LLD<8.35E+01	1836.00
RB-89	LLD<5.46E+01	LLD<5.46E+01	1031.88
RN-220	LLD<1.37E+04	LLD<1.37E+04	549.73
RU-103	LLD<1.93E+01	LLD<1.93E+01	497.08
RURH106	LLD<2.82E+02	LLD<2.82E+02	621.80
SB-124	LLD<1.48E+01	LLD<1.48E+01	602.72
SB-125	LLD<1.54E+02	LLD<1.54E+02	176.33
SC-46	LLD<9.94E+00	LLD<9.94E+00	1120.45
SE-75	LLD<2.19E+01	LLD<2.19E+01	264.66
SN-113	LLD<2.59E+01	LLD<2.59E+01	391.67
SR-85	LLD<1.89E+01	LLD<1.89E+01	513.99
SR-91	LLD<2.96E+01	LLD<2.96E+01	555.60
SR-92	LLD<9.80E+00	LLD<9.80E+00	1383.94
TA-182	LLD<3.28E+01	LLD<3.28E+01	1121.30
TC-99M	LLD<9.92E+00	LLD<9.92E+00	140.51
TE-123M	LLD<1.24E+01	LLD<1.24E+01	159.00
TE-125M	LLD<3.35E+03	LLD<3.35E+03	109.27
TE-132	LLD<1.34E+01	LLD<1.34E+01	228.16
TH-228	LLD<1.18E+03	LLD<1.18E+03	84.37
TH-234	LLD<2.07E+02	LLD<2.07E+02	92.50
TH-234A	LLD<2.07E+02	LLD<2.07E+02	92.50
TH-234B	LLD<7.81E+02	LLD<7.81E+02	63.30
TL-208	LLD<1.71E+01	LLD<1.71E+01	583.14
235	LLD<2.09E+01	LLD<2.09E+01	185.71
235A	LLD<2.09E+01	LLD<2.09E+01	185.71
U-235B	LLD<8.88E+01	LLD<8.88E+01	143.76
U-237	LLD<5.21E+01	LLD<5.21E+01	208.00
W-187	LLD<3.18E+01	LLD<3.18E+01	685.74

XE-131M	LLD<5.45E+02	LLD<5.45E+02	163.98
XE-133	LLD<3.95E+01	LLD<3.95E+01	81.00
XE-133M	LLD<1.14E+02	LLD<1.14E+02	233.21
XE-135	LLD<1.31E+01	LLD<1.31E+01	249.79
XE-138	LLD<1.01E+02	LLD<1.01E+02	258.41
Y-88	LLD<7.93E+00	LLD<7.93E+00	1836.06
Y-91	LLD<2.97E+03	LLD<2.97E+03	1204.90
Y-91M	LLD<2.24E+01	LLD<2.24E+01	555.60
ZN-65	LLD<2.55E+01	LLD<2.55E+01	1115.55
ZR-95	LLD<1.45E+01	LLD<1.45E+01	756.73
ZR-97	LLD<6.92E+00	LLD<6.92E+00	743.33
TOTAL	6.42E+03 +-1.69E+02	6.42E+03 +-1.69E+02	

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI
TOTAL MEASURED ACTIVITY = 6.42E+03 (+-1.69E+02) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.36	1460.22	181.	15.0	2.38E+01

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

222-S COUNTING ROOM 04-JAN-92 09:06:33

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

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

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

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER ANO:
LYZED BY: 62820

SAMPLE DESCRIPTION: R941-5930
GEOMETRY DESCRIPTION: 22ML LIQ
SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 4.9505E-03
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON 4-JAN-92 AT 08:16:09

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3011. SECONDS
DEAD TIME: 0.37 %

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

ENERGY CALIBRATION PERFORMED 17-MAR-89
EFFICIENCY CALIBRATION PERFORMED 16-MAY-91

222-S COUNTING ROOM R941-5930 04-JAN-92 09:06:33

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

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1C	1126.30	562.78	1.56	1228.	1147.	8.8	CS-134, EU-152
2C	1138.55	568.90	1.56	1238.	2137.	7.6	CS-134, BI-207
3	1209.26	604.25	1.65	1151.	12971.	1.9	CS-134
4	1323.13	661.18	1.65	827.	29802.	1.2	CS-137
4B		661.85			36.	13.9	
5C	1591.37	795.28	1.72	599.	9145.	2.5	CS-134
6C	1603.58	801.38	1.72	531.	904.	8.1	CS-134
7	2345.99	1172.55	1.92	533.	7758.	2.4	CO-60
8	2664.57	1331.83	2.24	86.	7284.	2.3	CO-60
8B		1332.24			9.	37.4	
9	2729.64	1364.36	1.77	24.	229.	14.8	CS-134
10	2920.64	1459.86	2.68	18.	151.	18.6	K-40
10B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
B - ENVIRONMENTAL BACKGROUND PEAK

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

222-S COUNTING ROOM 04-JAN-92 09:06:33

PLE: R941-5930
DATA COLLECTED ON 4-JAN-92 AT 08:16:09
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

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

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<1.58E+02		LLD<1.58E+02		911.07	
AC-228A	LLD<1.58E+02		LLD<1.58E+02		911.10	
AC-228B	LLD<2.30E+02		LLD<2.30E+02		338.40	
AG-108M	LLD<4.51E+01		LLD<4.51E+01		433.94	
AG-110M	LLD<2.59E+02		LLD<2.59E+02		657.76	
AM-241	LLD<2.11E+02		LLD<2.11E+02		59.54	
AM-243	LLD<5.51E+01		LLD<5.51E+01		74.67	
AM-243A	LLD<5.51E+01		LLD<5.51E+01		74.67	
AM-243B	LLD<6.02E+03		LLD<6.02E+03		43.10	
AR-41	LLD<2.67E+01		LLD<2.67E+01		1293.64	
AU-198	LLD<3.90E+01		LLD<3.90E+01		411.80	
BA-133	LLD<5.24E+01		LLD<5.24E+01		356.02	
BA-139	LLD<1.13E+02		LLD<1.13E+02		165.85	
BA-140	LLD<1.53E+02		LLD<1.53E+02		537.27	
BA-141	LLD<1.09E+02		LLD<1.09E+02		190.23	
BE-7	LLD<3.85E+02		LLD<3.85E+02		477.59	
207	LLD<3.87E+01		LLD<3.87E+01		569.70	
-212	LLD<2.88E+02		LLD<2.88E+02		727.27	
BI-214	LLD<2.35E+02		LLD<2.35E+02		609.32	
BI-214A	LLD<2.35E+02		LLD<2.35E+02		609.32	
BI-214B	LLD<2.99E+02		LLD<2.99E+02		1120.28	
BI-214C	LLD<9.54E+01		LLD<9.54E+01		1764.51	
CD-109	LLD<6.93E+02		LLD<6.93E+02		88.03	
CE-139	LLD<2.56E+01		LLD<2.56E+01		165.85	
CE-141	LLD<3.99E+01		LLD<3.99E+01		145.44	
CEPR144	LLD<3.05E+02		LLD<3.05E+02		133.51	
CO-56	LLD<3.77E+01		LLD<3.77E+01		846.76	
CO-57	LLD<2.04E+01		LLD<2.04E+01		122.06	
CO-58	LLD<3.43E+01		LLD<3.43E+01		810.75	
CO-60	4.88E+03	+-1.44E+02	4.88E+03	+-1.44E+02	1332.50	-0.67
					1173.24	-0.69
CR-51	LLD<2.84E+02		LLD<2.84E+02		320.09	
CS-134	4.77E+03	+-1.53E+02	4.77E+03	+-1.53E+02	795.84	-0.57
					604.70	-0.44
CS-136	LLD<3.88E+01		LLD<3.88E+01		818.51	
CS-137	1.32E+04	+-3.12E+02	1.32E+04	+-3.12E+02	661.65	-0.47
CS-138	LLD<2.79E+01		LLD<2.79E+01		1435.86	
EU-152	LLD<6.41E+01		LLD<6.41E+01		1408.01	
EU-154	LLD<6.58E+01		LLD<6.58E+01		1274.45	
EU-155	LLD<9.67E+01		LLD<9.67E+01		105.31	
FE-59	LLD<8.32E+01		LLD<8.32E+01		1099.25	
HF-181	LLD<4.60E+01		LLD<4.60E+01		482.20	
-203	LLD<3.02E+01		LLD<3.02E+01		279.20	
131	LLD<3.99E+01		LLD<3.99E+01		364.48	
I-132	LLD<6.93E+01		LLD<6.93E+01		667.69	
I-133	LLD<4.10E+01		LLD<4.10E+01		529.69	
I-134	LLD<5.81E+01		LLD<5.81E+01		847.03	

I-135	LLD<9.22E+01	LLD<9.22E+01	1260.41
Y-40	LLD<2.15E+02	LLD<2.15E+02	1460.75
KR-85	LLD<8.96E+03	LLD<8.96E+03	513.99
KR-85M	LLD<2.54E+01	LLD<2.54E+01	151.17
KR-87	LLD<8.89E+01	LLD<8.89E+01	402.58
KR-89	LLD<1.28E+03	LLD<1.28E+03	220.90
LA-140	LLD<1.25E+01	LLD<1.25E+01	1596.20
LA-142	LLD<8.77E+01	LLD<8.77E+01	641.83
MN-54	LLD<3.78E+01	LLD<3.78E+01	834.83
MN-56	LLD<4.25E+01	LLD<4.25E+01	846.76
NA-22	LLD<2.34E+01	LLD<2.34E+01	1274.55
NA-24	LLD<3.70E+01	LLD<3.70E+01	1368.60
NB-94	LLD<3.28E+01	LLD<3.28E+01	702.63
NB-95	LLD<3.57E+01	LLD<3.57E+01	765.78
NB-97	LLD<2.93E+02	LLD<2.93E+02	657.92
NP-237	LLD<2.05E+02	LLD<2.05E+02	86.50
NP-238	LLD<1.66E+02	LLD<1.66E+02	984.45
NP-239	LLD<1.88E+02	LLD<1.88E+02	277.60
PA-233	LLD<7.17E+01	LLD<7.17E+01	311.98
PA-234M	LLD<7.78E+03	LLD<7.78E+03	1001.03
PB-210	LLD<5.60E+03	LLD<5.60E+03	46.50
PB-212	LLD<5.52E+01	LLD<5.52E+01	239.00
PB-212A	LLD<5.50E+01	LLD<5.50E+01	239.00
PB-212B	LLD<8.46E+02	LLD<8.46E+02	300.10
PB-214	LLD<7.89E+01	LLD<7.89E+01	351.92
PB-214A	LLD<7.89E+01	LLD<7.89E+01	351.92
PB-214B	LLD<1.44E+02	LLD<1.44E+02	295.21
PO-210	LLD<3.34E+06	LLD<3.34E+06	804.00
PO-214	LLD<1.59E+06	LLD<1.59E+06	799.70
PO-216	LLD<2.95E+06	LLD<2.95E+06	804.90
PU-239	LLD<2.98E+05	LLD<2.98E+05	129.30
PU-241	LLD<9.41E+06	LLD<9.41E+06	148.57
RA-224	LLD<6.12E+02	LLD<6.12E+02	240.99
RA-226	LLD<5.73E+02	LLD<5.73E+02	186.10
RB-88	LLD<1.00E+02	LLD<1.00E+02	1836.00
RB-89	LLD<2.16E+02	LLD<2.16E+02	1031.88
RN-220	LLD<3.40E+04	LLD<3.40E+04	549.73
RU-103	LLD<3.90E+01	LLD<3.90E+01	497.08
RURH106	LLD<7.31E+02	LLD<7.31E+02	621.80
SB-124	LLD<5.07E+01	LLD<5.07E+01	602.72
SB-125	LLD<3.01E+02	LLD<3.01E+02	176.33
SC-46	LLD<4.50E+01	LLD<4.50E+01	1120.45
SE-75	LLD<4.45E+01	LLD<4.45E+01	264.66
SN-113	LLD<5.47E+01	LLD<5.47E+01	391.67
SR-85	LLD<3.93E+01	LLD<3.93E+01	513.99
SR-91	LLD<6.88E+01	LLD<6.88E+01	555.60
SR-92	LLD<1.63E+01	LLD<1.63E+01	1383.94
TA-182	LLD<1.29E+02	LLD<1.29E+02	1121.30
TC-99M	LLD<2.02E+01	LLD<2.02E+01	140.51
TE-123M	LLD<2.38E+01	LLD<2.38E+01	159.00
TE-125M	LLD<6.59E+03	LLD<6.59E+03	109.27
TE-132	LLD<2.67E+01	LLD<2.67E+01	228.16
TH-228	LLD<2.38E+03	LLD<2.38E+03	84.37
TH-234	LLD<4.11E+02	LLD<4.11E+02	92.50
TH-234A	LLD<4.11E+02	LLD<4.11E+02	92.50
TH-234B	LLD<1.55E+03	LLD<1.55E+03	63.30
TL-208	LLD<4.71E+01	LLD<4.71E+01	583.14
U-235	LLD<4.03E+01	LLD<4.03E+01	185.71
U-235A	LLD<4.03E+01	LLD<4.03E+01	185.71
U-235B	LLD<1.82E+02	LLD<1.82E+02	143.76

U-237	LLD<1.07E+02	LLD<1.07E+02	208.00
W-187	LLD<1.20E+02	LLD<1.20E+02	685.74
XE-131M	LLD<1.06E+03	LLD<1.06E+03	163.98
133	LLD<7.80E+01	LLD<7.80E+01	81.00
XE-133M	LLD<2.36E+02	LLD<2.36E+02	233.21
XE-135	LLD<2.70E+01	LLD<2.70E+01	249.79
XE-138	LLD<2.07E+02	LLD<2.07E+02	258.41
Y-88	LLD<9.49E+00	LLD<9.49E+00	1836.06
Y-91	LLD<9.94E+03	LLD<9.94E+03	1204.90
Y-91M	LLD<5.21E+01	LLD<5.21E+01	555.60
ZN-65	LLD<9.94E+01	LLD<9.94E+01	1115.55
ZR-95	LLD<6.44E+01	LLD<6.44E+01	756.73
ZR-97	LLD<3.49E+01	LLD<3.49E+01	743.33
TOTAL	2.28E+04 +-3.76E+02	2.28E+04 +-3.76E+02	

STANDARD DEVIATION = 0.11

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.78E-09 UC/LI
TOTAL MEASURED ACTIVITY = 2.28E+04 (+-3.76E+02) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1126.30	562.78	1147.	8.8	6.77E+01
1138.55	568.90	2137.	7.6	1.28E+02
1603.58	801.38	904.	8.1	7.43E+01
2729.64	1364.36	229.	14.8	2.86E+01

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2920.64	1459.86	151.	18.6	1.98E+01

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

222-S COUNTING ROOM '                                        04-JAN-92  14:41:03


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

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

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

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER ARO:
ANALYZED BY:         62820

SAMPLE DESCRIPTION: R946-5530
GEOMETRY DESCRIPTION:  22ML LIQ
SAMPLE SIZE:   1.0000E-03 LI        / CONVERSION FACTOR: 1.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL000

COLLECT STARTED ON  4-JAN-92 AT 13:51:52

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-MAR-89
EFFICIENCY CALIBRATION PERFORMED 16-MAY-91
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BEST AVAILABLE COPY

222-S COUNTING ROOM

R-946-5530

P E A K A N A L Y S I S
WHC-SD-WM-DP-025
ADDENDUM 10 REV 0

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1C	1126.30	562.78	1.53	343.	229.	26.3	CS-134, EU-152
2C	1138.50	568.88	1.53	331.	499.	19.0	CS-134, BI-207
3	1209.31	604.28	1.73	287.	3312.	2.7	CS-134
4	1323.07	661.13	1.69	210.	3631.	3.0	CS-137
4B		661.85			36.	13.9	
5C	1591.37	795.28	1.82	171.	2288.	5.0	CS-134
6C	1603.59	801.39	1.82	171.	206.	12.1	CS-134
7	2346.06	1172.58	1.99	159.	1968.	4.9	CO-60
8	2664.60	1331.84	2.10	32.	1812.	4.7	CO-60
8B		1332.24			9.	37.4	
9C	2918.36	1458.72	1.49	8.	33.	33.6	EU-152
10C	2921.78	1460.43	1.49	7.	118.	19.2	K-40
10B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

C - MULTIPLET ANALYSIS CONVERGED NORMALLY
B - ENVIRONMENTAL BACKGROUND PEAK

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

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SAMPLE: R946-5030
DATA COLLECTED ON 4-JAN-92 AT 13:51:52
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

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

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI MEASURED	ERROR	DECAY CORRECTED	ERROR	ENERGY COMPARISON (KEV) EXPECT	DIFF
AC-228	LLD<4.46E+00		LLD<4.46E+00		911.07	
AC-228A	LLD<4.46E+00		LLD<4.46E+00		911.10	
AC-228B	LLD<5.55E+00		LLD<5.55E+00		338.40	
AG-108M	LLD<1.03E+00		LLD<1.03E+00		433.94	
AG-110M	LLD<4.55E+00		LLD<4.55E+00		657.76	
AM-241	LLD<5.28E+00		LLD<5.28E+00		59.54	
AM-243	LLD<1.37E+00		LLD<1.37E+00		74.67	
AM-243A	LLD<1.37E+00		LLD<1.37E+00		74.67	
AM-243B	LLD<1.43E+02		LLD<1.43E+02		43.10	
AR-41	LLD<8.42E-01		LLD<8.42E-01		1293.64	
AU-198	LLD<8.71E-01		LLD<8.71E-01		411.80	
BA-133	LLD<1.21E+00		LLD<1.21E+00		356.02	
BA-139	LLD<2.78E+00		LLD<2.78E+00		165.85	
BA-140	LLD<3.59E+00		LLD<3.59E+00		537.27	
BA-141	LLD<2.49E+00		LLD<2.49E+00		190.23	
BE-7	LLD<8.65E+00		LLD<8.65E+00		477.59	
BI-207	LLD<9.24E-01		LLD<9.24E-01		569.70	
BI-212	LLD<8.12E+00		LLD<8.12E+00		727.27	
BI-214	LLD<6.04E+00		LLD<6.04E+00		609.32	
BI-214A	LLD<6.04E+00		LLD<6.04E+00		609.32	
BI-214B	LLD<9.18E+00		LLD<9.18E+00		1120.28	
BI-214C	LLD<4.47E+00		LLD<4.47E+00		1764.51	
CD-109	LLD<1.75E+01		LLD<1.75E+01		88.03	
CE-139	LLD<6.30E-01		LLD<6.30E-01		165.85	
CE-141	LLD<9.76E-01		LLD<9.76E-01		145.44	
CEPR144	LLD<7.66E+00		LLD<7.66E+00		133.51	
CO-56	LLD<9.60E-01		LLD<9.60E-01		846.76	
CO-57	LLD<5.05E-01		LLD<5.05E-01		122.06	
CO-58	LLD<9.53E-01		LLD<9.53E-01		810.75	
CO-60	5.98E+01	+-3.04E+00	5.98E+01	+-3.04E+00	1332.50	-0.66
					1173.24	-0.65
CR-51	LLD<6.89E+00		LLD<6.89E+00		320.07	
CS-134	5.91E+01	+-3.19E+00	5.91E+01	+-3.19E+00	795.84	-0.56
					604.70	-0.42
CS-136	LLD<1.08E+00		LLD<1.08E+00		818.51	
CS-137	7.89E+01	+-3.21E+00	7.89E+01	+-3.21E+00	661.65	-0.50
CS-138	LLD<7.61E-01		LLD<7.61E-01		1435.86	
EU-152	LLD<3.29E+00		LLD<3.29E+00		1408.01	
EU-154	LLD<1.89E+00		LLD<1.89E+00		1274.45	
EU-155	LLD<2.45E+00		LLD<2.45E+00		105.31	
FE-59	LLD<2.38E+00		LLD<2.38E+00		1099.25	
HF-181	LLD<1.11E+00		LLD<1.11E+00		482.20	
HG-203	LLD<7.43E-01		LLD<7.43E-01		279.20	
I-131	LLD<9.41E-01		LLD<9.41E-01		364.48	
I-132	LLD<1.40E+00		LLD<1.40E+00		667.69	
I-133	LLD<9.80E-01		LLD<9.80E-01		529.86	
I-134	LLD<1.48E+00		LLD<1.48E+00		847.03	
I-135	LLD<2.40E+00		LLD<2.40E+00		1260.41	
K-40	LLD<1.09E+01		LLD<1.09E+01		1460.75	
KR-85	LLD<2.16E+02		LLD<2.16E+02		513.99	
KR-85M	LLD<6.10E-01		LLD<6.10E-01		151.17	

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LA-140	LLD<4.79E-01	LLD<4.79E-01	[illegible]
LA-142	LLD<2.13E+00	LLD<2.13E+00	681.81
MN-54	LLD<9.88E-01	LLD<9.88E-01	834.03
MN-56	LLD<1.08E+00	LLD<1.08E+00	846.76
NA-22	LLD<6.70E-01	LLD<6.70E-01	1274.53
NA-24	LLD<9.53E-01	LLD<9.53E-01	1368.60
NB-94	LLD<9.41E-01	LLD<9.41E-01	702.63
NB-95	LLD<9.25E-01	LLD<9.25E-01	765.78
NB-97	LLD<5.15E+00	LLD<5.15E+00	657.92
NP-237	LLD<4.97E+00'	LLD<4.97E+00	86.50
NP-238	LLD<4.60E+00	LLD<4.60E+00	984.45
NP-239	LLD<4.48E+00	LLD<4.48E+00	277.60
PA-233	LLD<1.72E+00	LLD<1.72E+00	311.98
PA-234M	LLD<1.96E+02	LLD<1.96E+02	1001.03
PB-210	LLD<1.40E+02	LLD<1.40E+02	46.50
PB-212	LLD<1.36E+00	LLD<1.36E+00	239.00
PB-212A	LLD<1.35E+00	LLD<1.35E+00	239.00
PB-212B	LLD<1.98E+01	LLD<1.98E+01	300.10
PB-214	LLD<1.86E+00	LLD<1.86E+00	351.92
PB-214A	LLD<1.86E+00	LLD<1.86E+00	351.92
PB-214B	LLD<3.51E+00	LLD<3.51E+00	295.21
PO-210	LLD<9.15E+04	LLD<9.15E+04	804.00
PO-214	LLD<3.90E+04	LLD<3.90E+04	799.70
PO-216	LLD<7.71E+04	LLD<7.71E+04	804.90
PU-239	LLD<7.26E+03	LLD<7.26E+03	129.30
PU-241	LLD<2.27E+05	LLD<2.27E+05	148.57
RA-224	LLD<1.44E+01	LLD<1.44E+01	240.99
RA-226	LLD<1.35E+01	LLD<1.35E+01	186.10
RB-88	LLD<4.14E+00	LLD<4.14E+00	1836.00
RB-89	LLD<5.54E+00	LLD<5.54E+00	1031.88
RN-220	LLD<8.71E+02	LLD<8.71E+02	549.73
RU-103	LLD<8.87E-01	LLD<8.87E-01	497.08
RURH106	LLD<1.84E+01	LLD<1.84E+01	621.80
SB-124	LLD<1.31E+00	LLD<1.31E+00	602.72
SB-125	LLD<7.26E+00	LLD<7.26E+00	176.33
SC-46	LLD<1.38E+00	LLD<1.38E+00	1120.45
SE-75	LLD<1.06E+00	LLD<1.06E+00	264.66
SN-113	LLD<1.26E+00	LLD<1.26E+00	391.67
SR-85	LLD<9.50E-01	LLD<9.50E-01	513.99
SR-91	LLD<1.72E+00	LLD<1.72E+00	555.60
SR-92	LLD<8.95E-01	LLD<8.95E-01	1383.94
TA-182	LLD<3.63E+00	LLD<3.63E+00	1121.30
TC-99M	LLD<4.99E-01	LLD<4.99E-01	140.51
TE-123M	LLD<5.81E-01	LLD<5.81E-01	159.00
TE-125M	LLD<1.63E+02	LLD<1.63E+02	109.27
TE-132	LLD<6.35E-01	LLD<6.35E-01	228.16
TH-228	LLD<5.96E+01	LLD<5.96E+01	84.37
TH-234	LLD<9.56E+00	LLD<9.56E+00	92.50
TH-234A	LLD<9.56E+00	LLD<9.56E+00	92.50
TH-234B	LLD<3.74E+01	LLD<3.74E+01	63.30
TL-208	LLD<1.15E+00	LLD<1.15E+00	583.14
U-235	LLD<9.59E-01	LLD<9.59E-01	185.71
U-235A	LLD<9.59E-01	LLD<9.59E-01	185.71
U-235B	LLD<4.38E+00	LLD<4.38E+00	143.76
U-237	LLD<2.44E+00	LLD<2.44E+00	208.00
W-187	LLD<3.26E+00	LLD<3.26E+00	685.74
XE-131M	LLD<2.72E+01	LLD<2.72E+01	163.98
XE-133	LLD<2.01E+00	LLD<2.01E+00	81.00
XE-133M	LLD<5.57E+00	LLD<5.57E+00	233.21
XE-135	LLD<6.46E-01	LLD<6.46E-01	249.79
XE-138	LLD<5.20E+00	LLD<5.20E+00	258.41
Y-88	LLD<3.92E-01	LLD<3.92E-01	1836.06
Y-91	LLD<2.74E+02	LLD<2.74E+02	1204.90
Y-91M	LLD<1.30E+00	LLD<1.30E+00	555.60

R 946-5530

WHC-SD-WM-DP-025
ADDENDUM 10 REV

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ZR-97 LLD=9.6GE-01 LLD=9.6GE-01

TOTAL	1.98E+02 +-5.4GE+00	1.98E+02 +-5.4GE+00

WHC-SD-WM-DP-025
ADDENDUM 10 REV 0

STANDARD DEVIATION

R 946-5530

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.31E-09 UC/LI
TOTAL MEASURED ACTIVITY = 1.98E+02 (+-5.4GE+00) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 95.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1126.30	562.78	229.	26.3	1.35E+01
1138.50	568.88	499.	19.0	2.98E+01
1603.59	801.39	206.	12.1	1.69E+01
2918.36	1458.72	33.	33.6	4.39E+00

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.78	1460.43	118.	19.2	1.53E+01

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ACID DIGESTION ANALYSIS RESULTS

ACID DIGESTION RESULTS

Tank: 103AP
Core: NA
Sample No.: R941
Customer ID: 3AP891-6

	Check Standard		Blank		Sample		Duplicate Sample		Spike of Sample		Check Standard	
Lab ID:	R939		R940		R941-8705		R941-8805		R941-8905		R946	
Acid Digestion (01-07-92)	Complete		Complete		Complete		Complete		Complete		Complete	
Lab ID:					R941-8750		R941-8850		R941-8950			
ICP (01-23-92)												
Aluminum	116	%	9.97E+1	ug/L	2.60E+5	ug/L	2.58E+5	ug/L	98.59	%	133	%
Barium	97.75	%	<1.30E+1	ug/L	<6.50E+1	ug/L	<6.50E+1	ug/L	100.49	%	102	%
Cadmium	96.05	%	<4.00E+0	ug/L	1.26E+2	ug/L	1.25E+2	ug/L	98.5	%	93	%
Chromium	101.3	%	<8.00E+0	ug/L	5.05E+3	ug/L	4.67E+3	ug/L	98.37	%	101	%
Iron	103.5	%	<8.70E+1	ug/L	1.52E+3	ug/L	1.19E+3	ug/L	95.07	%	103	%
Lead	102.6	%	<8.00E+1	ug/L	<4.00E+2	ug/L	<4.00E+2	ug/L	93.95	%	95.9	%
Magnesium	102.8	%	<5.10E+1	ug/L	<2.55E+2	ug/L	<2.55E+2	ug/L	NO SPIKE ADDED		101	%
Manganese	97.8	%	<3.00E+0	ug/L	2.16E+1	ug/L	1.02E+2	ug/L	98.8	%	96.5	%
Silver	37.2	%	<8.00E+0	ug/L	<4.00E+1	ug/L	<4.00E+1	ug/L	99.5	%	113	%
Sodium	148.8	%	1.12E+3	ug/L	6.51E+6	ug/L	6.57E+6	ug/L	NO SPIKE ADDED		180	%
Zinc	97.75	%	<4.00E+0	ug/L	4.10E+1	ug/L	5.50E+1	ug/L	98.15	%	96	%

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: ACID DIGESTION	Sample Prep: ACID DIGESTION

Instrument: METTLER BAL. SNF04495	Procedure/Rev: LA-505-158/A-2
Technologist: L. MORRISON	Date: 1-07-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: L. OTTMAR

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-8505	11		
2	REAGENT BLANK	R940-8605	12		
3	SAMPLE 3AP891-6	R941-8705	13		
4	SAM DUP OF 3AP891-6	R941-8805	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-8905	15		
6	FINAL LMCS CHECK STD	R946-8505	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-1B48AA/50 mL	ICP2-2B48AB/50 mL	ICP3-3B48AB/50 mL	NA
SPIKE(SPEX)-1	LOT1-150AS/2 mL			NA

A-6000-881 (03/92)

ACID DIGESTION ANALYSIS

WHC-SD-WM-DP-025
ADDENDUM 10 REV 0

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-8505	103AP	12-16-91	12:[illegible]	[illegible]

Determination	Method/Standard	Report Units	Charge Code	Rerun
HCD-D16	LA-505-158	% RECOVERY	N124W	

Sample Size	Customer ID
10 mL in 50 mL	STD

Remarks, Calculations, Results
LMCS CHECK SAMPLE
LMCS ID
1849AA
2849AB
3849AB

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Initials	Initials: Laurine J. Ottman	Initials	Initials	Initials
Date: 1-7-92	Time Completed: 1/8/92	Lab Unit Mgr	1-9-92	

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-8505	103AP	12-16-91	[illegible]	[illegible]

Determination	Method/Standard	Report Units	Charge Code	Rerun
HCD-D16	LA-505-158	G/L	N124W	

Sample Size	Customer ID
	REAGENT BLANK

Remarks, Calculations, Results
REAGENT BLANK
VOLUME IN
COMPLETION 50 mL

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Initials	Initials: Laurine J. Ottman	Initials	Initials	Initials
Date: 1-7-92	Time Completed: 1/8/92	Lab Unit Mgr	1-9-92	

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-8505	103AP	12-16-91	16:7	25

Determination	Method/Standard	Report Units	Charge Code	Rerun
HCD-D16	LA-505-158	G/L	N124W	0

Sample Size	Customer ID
10 mL in 50 mL	SAP091-6

Remarks, Calculations, Results

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Initials	Initials: Laurine J. Ottman	Initials	Initials	Initials
Date: 1-7-92	Time Completed: 1/8/92	Lab Unit Mgr	1-9-92	

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-8505	103AP	12-16-91	16:7	25

Determination	Method/Standard	Report Units	Charge Code	Rerun
HCD-D16	LA-505-158	G/L	N124W	0

Sample Size	Customer ID
10 mL in 50 mL	SAP091-6

Remarks, Calculations, Results
DUPLICATE SAMPLE

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Initials	Initials: Laurine J. Ottman	Initials	Initials	Initials
Date: 1-7-92	Time Completed: 1/8/92	Lab Unit Mgr	1-9-92	

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-8505	103AP	12-16-91	16:7	25

Determination	Method/Standard	Report Units	Charge Code	Rerun
HCD-D16	LA-505-158	G/L	N124W	0

Sample Size	Customer ID
10 mL in 50 mL	SAP091-6

Remarks, Calculations, Results
SAMPLE SPIKED ID
SPIKE ID SPK-SPIKE-2 (LOT 1-150mg)
SPIKE VOLUME 2 mL

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Initials	Initials: Laurine J. Ottman	Initials	Initials	Initials
Date: 1-7-92	Time Completed: 1/8/92	Lab Unit Mgr	1-9-92	

Serial No	Sample Point	Date	Time Issued	Priority
R 941.-8505	103AP	12-16-91	13:[illegible]	[illegible]

Determination	Method/Standard	Report Units	Charge Code	Rerun
HCD-D16	LA-505-158	% RECOVERY	N124W	

Sample Size	Customer ID
10 mL in 50 mL	STD

Remarks, Calculations, Results
LMCS CHECK SAMPLE
LMCS ID
1849AA
2849AB
3849AB

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Initials	Initials: Laurine J. Ottman	Initials	Initials	Initials
Date: 1-7-92	Time Completed: 1/8/92	Lab Unit Mgr	1-9-92	

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R941	Customer ID: 3AP891-6
Analysis: INDUCTIVELY COUPLED PLASMA	Sample Prep: ACID DIGESTION

Instrument: WB39939	Procedure/Rev: LA-505-151/B-0
Technologist: T. FRAZIER	Date: 1-23-92
Starting Time: 11:20	Temperature: N/A
Ending Time: 14:26	Chemist: L. OTTMAR

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R939-8550	11		
2	REAGENT BLANK	R940-8650	12		
3	SAMPLE 3AP891-6	R941-8750	13		
4	SAM DUP OF 3AP891-6	R941-8850	14		
5	SPIKE OF SAMPLE 3AP891-6	R941-8950	15		
6	FINAL LMCS CHECK STD	R946-8550	16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS CHECK STD	ICP1-1B48AA/10 mL	ICP2-2B48AB/10 mL	ICP3-3B48AB/10 mL	NA
SPIKE(SPEX)-1	ICP1-1B48AC	ICP2-2B48AD	ICP3-3B48AD	NA
Lot #1-150AS	2 mL			

A-6000-881 (03/92)

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R939-8550	10	12-16-91	12:2	

Determination	Method Standard	Result Units	Charge Code	Reruns
ICP	1A-10-151	% RECOVERY	[illegible]	

Sample Size	Customer ID
10mL on 10 50mL	STD

Remarks, Calculations, Results

1st STD Digested STD 1B48AM, 2B48AB, 3B48AB

CD PB
CR ZN
FE
MG
MN
NA

2nd STD CCV OK LMCS
AG
AL
BA

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
62768	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Teresa Pitzinger	Laurie J. Ottman		Teresa Pitzinger	
Date	Time Completed	Lab Unit Mgr		
1-23-92	1/23/92		Teresa Pitzinger	

54-6600-001 (R-10-83)

DIGESTED LMCS STDS

Al	1.160 x 5 = 5.80	116.0% Rec	
Zn	1.955 x 5 = 9.775	97.75% Rec.	
Fe	1.035 x 5 = 5.175	103.5%	
Cr	1.013 x 5 = 5.065	101.3%	
Ba	1.955 x 5 = 9.775	97.85%	
Mg	1.028 x 5 = 5.14	102.8%	
Na	2.975 x 5 = 14.875	148.8%	
Ag	.372 x 5 = 1.86	37.2%	
Pb	1.026 x 5 = 5.13	102.6%	
Cd	1.921 x 5 = 9.605	96.05%	
Mn	.978 x 5 = 4.89	97.8%	

UNDIGESTED 1B48AC 2B48AD 3B48AD

Zn	9.83 ppm	98.3%
Fe	4.91 ppm	98.2%
Cr	5.06 ppm	101.2%
Ba	9.95 ppm	99.5%
Mg	5.00 ppm	100.0%
Na	9.84 ppm	98.4%
Cd	9.59 ppm	95.9%
Mn	4.85 ppm	97.0%
Ag	5.13 ppm	102.6%
Pb	4.85 ppm	97.0%
Al	4.75 ppm	95.0% Rec.

R939-8550

ICP ANALYSIS - ACID DIGESTION

Serial No	Sample Point	Date	Time Issued	Priority
R 540.-8650	105H	12-16-91	[illegible]	[illegible]

Determination	Method-Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPB	[illegible]	0

Sample Size	Customer ID
50 mL	BLK

Remarks, Calculations, Results
REQUEST BLANK

AG
AL
BA
CD
CR
FE
MG
MN
NA
PB
ZN

over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
67768	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Teresa L. Fogle	Janine J. Ottman			

Date	Time Completed	Lab Unit Mgr
1-23-92	1/23/92	Teresa L. Fogle

54-6810 (R-10-83)

Al 9.97 E1 ug/l
Zn <4.0 ug/l
Fe <8.70E1 ug/l
Cr <8.0 ug/l
Ba <1.30E1 ug/l
Mg <5.10E1 ug/l
Na 1.12E3 ug/l
Ag <8.0 ug/l
Pb <8.0E1 ug/l
Cd <4.0 ug/l
Mn <3.0 ug/l

R940-8650

ICP ANALYSIS - ACID DIGESTION

Serial No	Sample Point	Date	Time Issued	Priority
R, 941-8750	10 mP	12-16-91	[illegible]	25

Determination	Method Standard	Result Units	Charge Code	Reruns
ICP	[illegible]	[illegible]	[illegible]	0

Sample Size	Customer ID
10 mL to 50 mL -2 mL - 10 mL (for Na)	[illegible]

Remarks Calculations Results

Al (5.20E4)(5) = 2.60E5 ug/l
Zn (8.19)(5) = 4095E1 ug/l
Fe (7.03E2)(5) = 1515E3 ug/l
Cr (1.01E3)(5) = 5.05E3 ug/l
Ba (<1.30E1)(5) = <6.50E1 ug/l
Mg (<5.10E1)(5) = <2.55E2 ug/l
Na (2.17E5)(5) ~~2.35E6~~ 1.08E6 6.51E6 ug/l
1/23 A2

Ag (<8.0)(5) = <4.0E1 ug/l
Pb (<8.0E1)(5) = <4.0E2 ug/l
Cd (2.53E1)(5) = 1.26E2 ug/l
Mn (4.33)(5) = 2.16E1 ug/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
67768	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Teresa L. Frazier	Laurine J. Altmar			

Date	Time Completed	Lab Unit Mgr
1-23-92	1/23/92	Teresa L. Frazier

54-6600-06 (4-10-83)

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R941-8850	TOSHP	12-16-91	16:7	25

Determination	Method Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPB	112410	0

Sample Size	Customer ID
? 10ml to 50ml -2ml-10ml (for Na)	SAP691-6

Remarks, Calculations, Results
DUPLICATE SAMPLE

AL MG
AG MN
BA NA
CD PB
CR ZN
FE

OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
67768	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Teresa L. Frazier	Laurine J. Ottman			
Date	Time Completed	Lab Unit Mgr		
1-23-92	1/23/92		Teresa L. Frazier	

54-6800-06 (5/10/83)

Al (5.17E4)(5) = 2.58E5 ug/l

Zn (1.10E1)(5) = 5.50E1 ug/l

Fe (2.39E2)(5) = 1.19E3 ug/l

Cr (9.34E2)(5) = 4.67E3 ug/l

Ba (<1.30E1)(5) = <6.50E1 ug/l

Mg (<5.10E1)(5) = <2.55E2 ug/l

Na (2.19E5)(5)(1.09E1)(6) = 6.57E6 ug/l

Ag (<8.0)(5) = <4.0E1 ug/l

Pb (<8.0E1)(5) = <4.0E2 ug/l

Cd (2.51E1)(5) = 1.25E2 ug/l

Mn (2.04E1)(5) = 1.02E2 ug/l

R941-8850

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R941-8950	[illegible]	12-16-91	[illegible]	[illegible]

Determination	Method/Standard	Report Units	Group Code	Reruns
ICP	[illegible]-151	% RECOVERY	[illegible]	

Sample Size	Customer ID
10mL to 50mL 2mL-10mL (for Na)	SMP891-6

Remarks, Calculations, Results
SPIKE SAMPLE
SPIKE ID Spay Spike-1 (lot 1-150ml)
SPIKE VOLUME 2mL

AG
AL
BA
CD
CR
FE
MG
MN
NA
PB
ZN

OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
67768	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Teresa L. Fraire	Jaime J. Ottmer			
Date: 1-23-92	Time Completed: 1/23/92	Lab Unit Mgr: Teresa L. Fraire		

Al 59913 - 52026 / 8000 x100 = 98.59% Rec.
Zn 1971 - 8 / 2000 x100 = 98.15% Rec.
Fe 4106 - 303 / 4000 x100 = 95.07% Rec.
Cr 1802 - 1015 / 800 x100 = 98.37% Rec.
Ba 8039 - 0 / 8000 x100 = 100.49%
Mg No spike added
Na No spike added
Ag 199 - 0 / 200 x100 = 99.5%
Pb 1879 - 0 / 2000 x100 = 93.95%
Cd 222 - 25 / 200 x100 = 98.5%
Mn 1980 - 4 / 2000 x100 = 98.8%

R941-8950

ICP ANALYSIS - ACID DIGESTION

Serial No	Sample Point	Date	Time Issued	Priority
R 946-8550	103AP	12-16-91	16:14	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	81240	0

Sample Size	Customer ID
? 10ml in 50ml	STD

Remarks, Calculations, Results

1st STD Digested STD
1848AA, 2848AB, 3848AB

2nd STD CCV OR LMCS

OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
67768	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Teresa L Frazier	Laurine J. Ottman		Teresa L Frazier	
Date	Time Completed	Lab Unit Mgr		
1-23-92	1/23/92		Teresa L Frazier	

54-6800-001 (4/10-83)

DIGESTED LMCS STDS

Al	1.33x5 = 6.65	133.0% Rec.
Zn	1.92x5 = 9.60	96.0% Rec.
Fe	1.03x5 = 5.15	103.0% Rec.
Cr	1.01x5 = 5.05	101.0% Rec.
Ba	2.04x5 = 10.20	102.0% Rec.
Mg	1.01x5 = 5.05	101.0% Rec.
Na	3.60x5 = 18.0	180.0% Rec.
Ag	1.13x5 = 5.65	113.0% Rec.
Pb	.959x5 = 4.80	95.90% Rec.
Cd	1.86x5 = 9.30	93.0% Rec.
Mn	.965x5 = 4.83	96.5% Rec.

UNDIGESTED LMCS STDS 1848AC 2848AD 3848AD

Al	4.86 ppm	97.2% Rec.
Zn	9.78 ppm	97.8% Rec.
Fe	4.87 ppm	97.4% Rec.
Cr	5.02 ppm	100.4% Rec.
Ba	10.00 ppm	100.0% Rec.
Mg	4.97 ppm	99.4% Rec.
Na	10.01 ppm	100.1% Rec.
Ag	4.85 ppm	97.0% Rec.
Pb	5.25 ppm	105.0% Rec.
Cd	9.43 ppm	94.3% Rec. was 70.15
Mn	4.82 ppm	96.4% Rec.

R946-8550

R939-R946
1/23/92
Teresa L. Frazier

SIGNATURE ABOVE REPRESENTS THE CHEMICAL TECHNOLOGIST/ CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 149 TO 216 .

Corrected Counts Statistics 11:20 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.033	0.005	
Sr	2	245.906	1.532	
Bi	3	-0.080	0.023	
Ta	5	-0.010	0.005	
Hg	6	1.535	0.010	
Sn	7	21.186	0.235	
Si	8	0.069	0.007	
Al	9	0.059	0.011	
W	10	0.583	0.051	
Zn	11	110.588	0.733	
Cu	12	20.978	0.107	
Li	14	96.849	0.439	
Co	15	41.277	0.237	
Ni	16	20.475	0.162	
Ga	17	-0.005	0.001	
Eu	18	-0.069	0.003	
Fe	19	15.029	0.142	
Ca	20	56.989	0.366	
Cr	21	12.109	0.079	
Nd	22	0.332	0.076	
Ce	24	0.073	0.005	
Sm	25	-0.362	0.003	
Ba	26	163.222	1.066	
P	27	0.181	0.004	
S	28	0.128	0.009	
Mg	29	22.844	0.157	
As	30	-0.000	0.011	
Na	31	16.044	0.047	
Mo	32	0.006	0.007	
Se	33	0.410	0.002	
Ag	34	1.082	0.009	
Pb	35	0.015	0.013	
Ti	36	-0.114	0.004	
Cd	37	229.240	1.784	
B	38	24.324	0.180	
K	39	0.838	0.012	
Mn	40	48.352	0.318	
Sb	42	0.884	0.019	
V	43	0.018	0.003	
Be	44	-0.006	0.001	
Tl	45	-0.072	0.005	

Identity 1: SST1 STD 1B48AC Identity 2: Direct 11:20 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Zr	Sr	Bi	Ta	Hg	Sn	Si	Al

	(ppb)	(ppb)	(ppb)	(ppb)	(ppm)	(ppb)	(ppb)	(ppb)
Mean	-34.948	9897.465	-62.488	-15.945	-21.739	5003.279	-34.759	-180.284
S.D.	2.350	61.668	24.254	2.876	680.890	55.362	4.774	4.557
% R.S.D.	6.724	0.623	38.814	18.038	3132.092	1.107	13.736	2.528

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	778.140	9826.821	4853.330	9861.106	9746.507	4895.589	-5.433	-0.694
S.D.	72.376	65.450	24.756	44.668	56.064	38.542	4.075	0.188
% R.S.D.	9.301	0.666	0.510	0.453	0.575	0.787	75.007	27.062

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	4906.087	9585.664	5064.381	-19.614	25.637	-1132.575	9953.229	1183.709
S.D.	46.333	61.838	33.072	34.502	13.362	10.317	65.012	28.030
% R.S.D.	0.944	0.645	0.653	175.905	52.120	0.911	0.653	2.368

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	40.244	5000.962	-11.410	9843.647	-0.211	216.929	374.408	35.617
S.D.	10.149	34.336	14.198	29.333	2.289	11.437	2.848	24.049
% R.S.D.	25.220	0.687	124.438	0.298	1085.242	5.272	0.761	67.522

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-5.556	9592.813	4839.135	5265.494	4851.103	4835.758	0.234	0.311
S.D.	0.513	74.968	35.788	75.465	31.954	102.159	2.234	0.187
% R.S.D.	9.234	0.782	0.740	1.433	0.659	2.113	954.825	59.996

	Tl (ppb)
Mean	-78.995
S.D.	31.710
% R.S.D.	40.142

Corrected Counts Statistics 11:22 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.140	0.008	
Sr	2	0.014	0.011	
Bi	3	4.796	0.025	
Ta	5	-0.039	0.034	
Hg	6	1.553	0.014	
Sn	7	-0.080	0.018	
Si	8	0.014	0.006	
Al	9	1.176	0.039	
W	10	-0.001	0.007	
Zn	11	0.111	0.013	
Cu	12	0.095	0.003	
	14	-0.015	0.001	
	15	-0.015	0.011	

Ni	16	-0.071	0.010
La	17	1.251	0.006
Eu	18	78.068	0.196
Fe	19	0.005	0.013
Ca	20	0.529	0.003
Cr	21	-0.006	0.007
Nd	22	11.692	0.103
Ce	24	1.822	0.012
Sm	25	1.763	0.007
Ba	26	-0.419	0.014
P	27	0.018	0.003
S	28	0.005	0.008
Mg	29	0.011	0.002
As	30	0.080	0.003
Na	31	0.076	0.015
Mo	32	0.018	0.003
Se	33	-0.053	0.006
Ag	34	16.041	0.030
Pb	35	2.672	0.015
Ti	36	-0.136	0.009
Cd	37	-0.045	0.038
B	38	0.005	0.009
K	39	-0.064	0.020
Mn	40	0.000	0.003
Sb	42	-0.018	0.013
V	43	0.057	0.005
Be	44	-0.005	0.002
Tl	45	-0.055	0.004

Identity 1: SST2 STD 2848AD Identity 2: Direct 11:23 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-84.252	-0.416	5044.073	-34.443	1173.913	-17.155	-70.618	283.580
S.D.	3.437	0.430	26.000	21.728	913.820	4.159	3.810	16.264
% R.S.D.	4.079	103.478	0.515	63.083	77.844	24.243	5.396	5.735

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-21.649	-38.475	6.345	-2.648	-1.180	-3.336	5112.874	5080.546
S.D.	10.026	1.189	0.670	0.118	2.681	2.316	24.788	12.758
% R.S.D.	46.312	3.259	10.559	4.441	227.172	69.427	0.485	0.251

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-5.012	39.525	-6.278	5155.984	4972.773	5196.930	-27.548	53.187
S.D.	4.341	0.429	2.849	46.456	34.203	19.377	0.828	17.454
% R.S.D.	86.612	1.086	45.380	0.901	0.688	0.373	3.006	32.817

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-17.669	-2.776	90.726	-31.949	3.586	12.008	5127.584	4847.065
S.D.	8.821	0.380	3.942	9.468	0.967	18.911	9.491	26.679

% R.S.D.	49.923	13.674	4.345	29.634	26.956	157.480	0.185	0.550

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
[illegible]	-8.446	1.079	2.983	-184.430	-0.631	-141.575	27.101	0.435
S...	1.281	1.600	1.715	121.293	0.253	73.456	3.184	0.295
% R.S.D.	15.163	148.354	57.478	65.767	40.060	51.885	11.749	65.462

	Tl (ppb)
Mean	38.209
S.D.	30.653
% R.S.D.	80.225

Corrected Counts Statistics 11:24 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	22.566	0.035	
Sr	2	0.011	0.003	
Bi	3	-1.801	0.034	
Ta	5	15.552	0.046	
Hg	6	26.580	0.035	
Sn	7	0.099	0.021	
[illegible]	8	12.380	0.011	
[illegible]	9	11.929	0.024	
[illegible]	10	30.832	0.129	
Zn	11	0.070	0.006	
Cu	12	0.062	0.002	
Li	14	-0.020	0.002	
Co	15	-0.069	0.005	
Ni	16	0.255	0.028	
La	17	-0.006	0.001	
[illegible]	18	-0.149	0.004	
Fe	19	0.022	0.007	
Ca	20	0.143	0.001	
Cr	21	0.013	0.005	
Nd	22	-0.117	0.058	
Ce	24	0.021	0.001	
Se	25	-0.096	0.005	
Ba	26	-0.014	0.002	
P	27	1.508	0.010	
S	28	4.544	0.008	
Mg	29	0.010	0.001	
As	30	3.904	0.018	
Na	31	0.072	0.004	
Mo	32	31.232	0.104	
Se	33	1.458	0.021	
Ag	34	-0.053	0.028	
Pb	35	-0.087	0.002	
[illegible]	36	35.915	0.051	
[illegible]	37	-0.268	0.042	

B	38	0.048	0.008
K	39	-0.058	0.006
Mn	40	0.012	0.005
Sb	42	0.045	0.015
V	43	14.023	0.023
Be	44	52.314	0.077
Tl	45	0.622	0.002

Identity 1: SSTS STD 3B48AD Identity 2: Direct 11:25 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	10313.976	-0.564	-1864.865	9910.061	1633326.087	25.182	8099.681	4750.379
S.D.	16.134	0.129	35.736	29.379	2297.776	4.946	7.270	10.073
% R.S.D.	0.156	22.961	1.916	0.296	0.141	19.643	0.090	0.212

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	43573.456	-40.166	-1.469	-3.157	-14.007	74.392	-19.017	-5.939
S.D.	182.756	0.558	0.536	0.156	1.165	6.720	4.706	0.228
% R.S.D.	0.419	1.388	36.492	4.928	8.314	9.033	24.744	3.845

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	0.436	-25.591	1.814	-151.429	-120.449	-341.387	-2.826	10385.091
S.D.	2.288	0.166	2.175	26.018	2.827	13.429	0.106	68.309
% R.S.D.	524.363	0.648	119.899	17.182	2.347	3.934	3.738	0.658

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	5223.611	-2.922	5022.719	-34.630	9881.434	4403.638	13.782	-149.113
S.D.	9.259	0.127	23.159	2.474	32.989	60.572	8.927	3.770
% R.S.D.	0.177	4.330	0.461	7.144	0.334	1.376	64.772	2.528

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	4876.468	-8.305	11.534	-146.163	0.554	207.776	9730.940	9760.897
S.D.	6.971	1.766	1.656	36.917	0.506	83.473	15.850	14.332
% R.S.D.	0.143	21.266	14.356	25.258	91.300	40.175	0.163	0.147

	Tl (ppb)
Mean	4801.375
S.D.	16.240
% R.S.D.	0.338

Corrected Counts Statistics 11:27 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.008	0.009	
[illegible]	2	0.011	0.006	
[illegible]	3	-0.398	0.031	
Ta	5	0.008	0.005	
Hg	6	1.569	0.015	
Sn	7	0.072	0.017	
Si	8	1.332	0.007	
Al	9	2.686	0.061	
W	10	0.099	0.010	
Zn	11	11.348	0.033	
Cu	12	4.262	0.013	
Li	14	-0.018	0.005	
Co	15	4.263	0.010	
Ni	16	4.104	0.034	
La	17	-0.005	0.000	
Eu	18	-0.092	0.012	
Fe	19	3.030	0.054	
Ca	20	5.990	0.020	
Cr	21	2.449	0.009	
Mo	22	-0.018	0.068	
Ce	24	0.010	0.011	
Sm	25	-0.073	0.010	
Ba	26	16.195	0.042	
P	27	0.015	0.003	
S	28	0.023	0.003	
Mg	29	4.658	0.020	
As	30	0.808	0.016	
[illegible]	31	1.646	0.011	
	32	3.115	0.009	
Se	33	0.371	0.008	
Ag	34	3.149	0.005	
Pb	35	0.556	0.012	
Ti	36	7.221	0.031	
Cd	37	23.723	0.157	
B	38	4.666	0.048	
K	39	1.631	0.003	
Na	40	9.873	0.032	
Sb	42	0.173	0.003	
V	43	1.457	0.007	
Be	44	5.168	0.022	
Tl	45	0.091	0.010	

Identity 1: ICV Identity 2: ICV 11:27 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-16.478	-0.537	-395.525	-4.889	2173.913	18.808	799.014	910.973
S.D.	4.255	0.229	32.690	2.876	945.840	3.901	4.620	25.180
[illegible] S.D.	25.823	42.647	8.265	58.830	43.509	20.740	0.578	2.764

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	114.111	966.761	973.359	-2.953	1008.723	992.265	-5.433	-2.189
S.D.	14.708	2.904	2.984	0.513	2.252	7.998	0.000	0.795
% R.S.D.	12.889	0.300	0.307	17.356	0.223	0.806	0.000	36.297

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	983.593	961.996	1021.219	-113.959	-150.609	-272.890	985.792	32.380
S.D.	17.797	3.322	3.608	30.549	29.700	30.997	2.535	22.295
% R.S.D.	1.809	0.345	0.353	26.807	19.720	11.359	0.257	68.854

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-5.745	1015.576	1029.354	938.664	983.745	1013.016	1031.268	1014.810
S.D.	3.320	4.399	21.210	6.785	2.900	22.410	1.681	20.886
% R.S.D.	57.786	0.433	2.061	0.723	0.295	2.212	0.163	2.058

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	988.347	999.729	929.909	10058.848	990.738	915.672	1000.102	965.481
S.D.	4.177	6.593	9.612	19.422	3.227	17.732	4.730	4.029
% R.S.D.	0.423	0.660	1.034	0.193	0.326	1.936	0.473	0.417

	Tl (ppb)
Mean	1064.915
S.D.	67.816
% R.S.D.	6.368

Corrected Counts Statistics 11:29 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.005	0.002	
Sr	2	-0.002	0.004	
Bi	3	-0.045	0.030	
Ta	5	0.002	0.012	
Hg	6	1.554	0.009	
Sn	7	-0.023	0.016	
Si	8	0.154	0.063	
Al	9	0.428	0.011	
W	10	-0.031	0.021	
Zn	11	0.038	0.007	
Cu	12	0.053	0.004	
Li	14	-0.025	0.003	
Co	15	-0.016	0.019	
Ni	16	-0.061	0.001	
La	17	-0.005	0.000	
Eu	18	-0.104	0.004	
Fe	19	0.003	0.007	
Ca	20	0.095	0.000	

Cr	21	-0.008	0.006
Nd	22	0.070	0.054
Ce	24	0.027	0.008
Sm	25	-0.030	0.004
Y	26	-0.011	0.004
	27	0.012	0.005
S	28	0.022	0.007
Mg	29	0.003	0.001
As	30	-0.009	0.009
Na	31	0.048	0.006
Mo	32	0.002	0.009
Se	33	-0.050	0.006
Ag	34	-0.110	0.008
Pb	35	-0.002	0.008
Ti	36	-0.109	0.006
Cd	37	-0.064	0.033
B	38	0.041	0.033
K	39	-0.051	0.006
Mn	40	0.002	0.004
Sb	42	-0.023	0.005
V	43	0.021	0.003
Be	44	-0.008	0.002
[illegible]	45	-0.058	0.004

Identity 1: ICB Identity 2: ICB 11:29 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-17.851	-1.060	-25.135	-8.716	1239.130	-3.541	21.779	-27.001
S.D.	1.058	0.168	31.789	7.873	584.536	3.882	41.722	4.557
% R.S.D.	5.924	15.810	126.473	90.322	47.173	109.612	191.565	16.876

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-65.006	-42.993	-3.403	-3.632	-1.416	-0.872	-5.433	-3.013
S.D.	29.328	0.646	0.938	0.269	4.559	0.238	0.000	0.263
% R.S.D.	45.116	1.502	27.564	7.418	321.906	27.350	0.000	8.722

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-5.774	-33.699	-6.836	-67.171	-102.542	-144.831	-2.643	11.573
S.D.	2.144	0.004	2.305	24.181	21.222	11.275	0.220	32.777
% R.S.D.	37.121	0.013	33.721	35.999	20.696	7.785	8.321	283.215

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	1.832	-4.602	-24.942	-49.267	-1.266	20.859	-4.117	4.829
S.D.	7.688	0.127	11.706	3.779	2.854	16.497	2.548	15.080
% R.S.D.	419.555	2.749	46.931	7.670	225.466	79.091	61.899	312.282

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
	-4.788	0.280	10.010	-107.897	-0.445	-165.478	2.318	-0.124

S.D.	0.746	1.400	6.463	36.917	0.418	25.478	1.749	0.285
% R.S.D.	15.587	499.540	64.572	34.215	93.995	15.396	75.423	229.169

	Tl (ppb)
Mean	14.768
S.D.	24.696
% R.S.D.	167.231

Corrected Counts Statistics 11:31 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.021	0.002	
Sr	2	0.110	0.002	
Bi	3	-0.135	0.008	
Ta	5	-0.040	0.008	
Hg	6	2.016	0.022	
Sn	7	6.016	0.039	
Si	8	0.546	0.004	
Al	9	607.534	0.414	
W	10	0.044	0.017	
Zn	11	0.263	0.013	
Cu	12	0.060	0.003	
Li	14	-0.025	0.008	
Co	15	-0.013	0.016	
Ni	16	-0.056	0.012	
La	17	-0.042	0.000	
Eu	18	0.055	0.004	
Fe	19	304.617	0.932	
Ca	20	1134.050	3.449	
Cr	21	0.016	0.013	
Mo	22	3.623	0.076	
Ce	24	0.015	0.006	
Sm	25	-8.518	0.004	
Ba	26	0.030	0.005	
P	27	0.018	0.001	
S	28	2.215	0.028	
Mg	29	936.602	3.533	
As	30	0.100	0.004	
Na	31	0.077	0.011	
Mn	32	0.007	0.005	
Se	33	-0.061	0.012	
Ag	34	-0.116	0.001	
Pb	35	-0.101	0.002	
Tl	36	-0.074	0.006	
Cd	37	0.341	0.020	
B	38	-0.446	0.023	
K	39	-0.046	0.009	
Mn	40	1.696	0.009	
Sb	42	-0.007	0.010	
V	43	0.027	0.003	

Be	44	-0.002	0.001
Tl	45	-0.075	0.009

y 1: ICSA-1 Identity 2: ICSA 11:31 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-10.372	3.448	-119.740	-35.507	31347.826	1422.055	280.051	252164.997
S.D.	0.916	0.084	7.907	5.195	1412.374	9.261	2.748	172.036
% R.S.D.	8.830	2.430	6.603	14.631	4.505	0.651	0.981	0.068

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	41.460	-22.905	-1.933	-3.598	-0.708	0.400	-156.211	7.348
S.D.	23.805	1.116	0.709	0.771	3.865	2.874	0.000	0.234
% R.S.D.	57.417	4.874	36.682	21.430	545.754	718.856	0.000	3.191

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	99567.437	191878.127	3.069	135.168	-137.414	-25421.158	-0.142	48.564
S.D.	304.564	583.665	5.441	30.940	17.199	11.275	0.280	8.009
% R.S.D.	0.306	0.304	177.262	22.890	12.516	0.044	196.426	16.491

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	850.820	205243.473	116.099	-31.743	0.316	-15.299	-6.129	-174.468
S.D.	26.859	774.275	5.162	6.497	1.561	35.451	0.318	4.183
% R.S.D.	3.157	0.377	4.446	20.466	493.253	231.714	5.184	2.397

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-0.045	17.297	-86.773	-77.687	34.000	-80.898	6.024	0.995
S.D.	0.817	0.819	4.587	52.093	0.801	55.253	1.749	0.215
% R.S.D.	1808.314	4.737	5.286	67.054	2.356	68.299	29.027	21.650

	Tl (ppb)
Mean	-100.092
S.D.	59.808
% R.S.D.	59.753

Corrected Counts Statistics 11:33 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
	1	0.020	0.006	
	2	0.115	0.006	

Bi	3	-0.148	0.017
Ta	5	-0.041	0.013
Hg	6	2.029	0.013
Sn	7	6.049	0.064
Si	8	0.551	0.017
Al	9	608.603	4.348
W	10	0.036	0.026
Zn	11	11.631	0.083
Cu	12	2.197	0.016
Li	14	-0.011	0.012
Co	15	2.099	0.019
Ni	16	4.088	0.012
La	17	-0.041	0.002
Eu	18	0.058	0.007
Fe	19	306.086	2.360
Ca	20	1140.154	5.671
Cr	21	1.275	0.027
Nd	22	3.572	0.079
Ce	24	0.017	0.011
Sm	25	-8.567	0.009
Ba	26	8.390	0.057
P	27	0.018	0.003
S	28	2.251	0.021
Mg	29	938.508	4.562
Mo	30	0.131	0.002
Na	31	0.107	0.026
Ho	32	0.010	0.003
Se	33	-0.004	0.009
Ag	34	3.227	0.023
Pb	35	0.441	0.018
Ti	36	-0.076	0.011
Cd	37	24.319	0.140
Y	38	-0.470	0.020
K	39	-0.060	0.007
Mn	40	6.748	0.045
Sb	42	-0.012	0.009
V	43	0.763	0.006
Be	44	2.737	0.023
Tl	45	-0.063	0.006

Identity 1: ICSAB-I Identity 2: ICSAB 11:34 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-10.982	3.650	-133.703	-35.932	32217.391	1429.845	283.571	252608.921
S.D.	2.944	0.222	17.283	8.292	868.478	15.159	11.450	1906.295
% R.S.D.	26.808	6.075	12.926	23.078	2.696	1.060	4.038	0.715

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	27.502	991.997	494.146	-2.240	497.791	988.291	-153.494	7.565
S.D.	37.393	7.427	3.618	1.189	4.506	2.864	8.483	0.470
% R.S.D.	135.966	0.749	0.732	53.074	0.905	0.290	5.527	6.219

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	100047.738	192910.188	529.862	104.745	-132.701	-25568.078	509.750	53.187
S.D.	771.590	959.799	11.495	28.940	21.145	25.445	3.491	17.454
% R.S.D.	0.771	0.498	2.169	27.629	23.470	0.100	0.685	32.817

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	883.719	205661.158	155.857	-12.776	1.266	32.940	1056.051	807.139
S.D.	17.988	999.812	2.977	15.821	0.914	27.935	7.196	32.212
% R.S.D.	2.036	0.486	1.910	123.829	72.168	84.806	0.681	3.991

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-0.361	1024.743	-91.546	-162.276	540.936	-104.801	517.655	512.092
S.D.	1.509	5.868	3.992	44.537	3.919	46.914	4.339	4.312
% R.S.D.	417.582	0.573	4.361	27.445	0.724	44.765	0.838	0.842

	Tl (ppb)
Mean	-20.393
S.D.	41.205
% R.S.D.	202.052

Corrected Counts Statistics 11:35 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.017	0.004	
Sr	2	0.004	0.005	
Bi	3	-0.038	0.040	
Ta	5	-0.005	0.012	
Hg	6	1.550	0.012	
Sn	7	0.005	0.003	
Si	8	0.111	0.002	
Al	9	0.462	0.011	
W	10	0.017	0.024	
Zn	11	0.051	0.006	
Cu	12	0.053	0.004	
Li	14	-0.009	0.003	
Co	15	0.005	0.006	
Ni	16	-0.071	0.011	
La	17	-0.003	0.001	
Eu	18	-0.080	0.006	
Fe	19	0.023	0.009	
Ca	20	0.168	0.029	
Cr	21	-0.003	0.008	
Nd	22	0.108	0.065	
Ce	24	0.035	0.007	
	25	-0.013	0.007	
	26	0.010	0.008	

P	27	0.012	0.001
S	28	0.015	0.002
Mg	29	0.061	0.024
As	30	0.000	0.008
Na	31	0.058	0.008
Mo	32	0.006	0.009
Se	33	-0.045	0.021
Ag	34	-0.105	0.002
Pb	35	0.003	0.011
Ti	36	-0.093	0.005
Cd	37	-0.142	0.018
B	38	0.037	0.020
K	39	-0.067	0.005
Mn	40	0.002	0.005
Sb	42	0.003	0.007
V	43	0.015	0.002
Be	44	-0.011	0.001
Tl	45	-0.078	0.004

Identity 1: XXX Identity 2: Rinse 11:36 AM January 23, 1992
Table name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Mg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-12.356	-0.845	-18.153	-12.969	956.522	2.990	-6.600	-13.016
S.D.	1.608	0.199	42.360	7.838	768.902	0.625	1.374	4.681
% R.S.D.	13.015	23.490	233.251	60.439	80.385	20.888	20.817	35.966

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	2.853	-41.862	-3.558	-2.003	3.620	-3.256	4.076	-1.452
S.D.	34.458	0.497	0.938	0.333	1.518	2.523	2.353	0.392
% R.S.D.	1207.749	1.187	26.366	17.614	41.928	77.495	57.728	26.989

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Na (ppb)	P (ppb)
Mean	0.872	-21.347	-5.022	-50.480	-81.807	-92.217	-1.362	9.261
S.D.	2.780	4.920	3.357	29.011	19.860	21.129	0.499	6.936
% R.S.D.	318.740	23.047	66.842	57.469	24.276	22.912	36.651	74.890

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-5.588	8.181	-12.902	-43.288	-0.211	34.023	-2.528	13.281
S.D.	2.436	5.181	10.558	4.669	2.728	59.532	0.734	20.410
% R.S.D.	43.599	63.330	81.832	10.787	1293.390	174.975	29.021	153.680

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-2.710	-3.011	9.214	-204.570	-0.367	-23.899	-2.314	-0.560
S.D.	0.695	0.764	4.004	31.005	0.502	36.171	1.061	0.108
% R.S.D.	25.658	25.387	43.452	15.156	129.860	151.354	45.872	19.246

	Tl (ppb)

Mean	-121.189
S.D.	26.624
% R.S.D.	21.969

Corrected Counts Statistics 11:38 AM January 22, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.000	0.007	
Sr	2	-0.015	0.007	
Bi	3	-0.076	0.018	
Ta	5	-0.016	0.014	
Hg	6	1.540	0.011	
Sn	7	-0.015	0.006	
Si	8	0.092	0.002	
Al	9	0.264	0.027	
[illegible]	10	-0.019	0.029	
Zn	11	0.504	0.011	
Cu	12	0.247	0.005	
[illegible]	14	-0.023	0.008	
Co	15	0.400	0.008	
[illegible]	16	0.282	0.012	
La	17	-0.005	0.002	
[illegible]	18	-0.095	0.009	
	19	0.014	0.005	
	20	0.192	0.002	
[illegible]	21	0.036	0.007	
Nd	22	-0.070	0.078	
[illegible]	24	-0.005	0.013	
Sm	25	-0.041	0.011	
[illegible]	26	-0.025	0.006	
P	27	0.015	0.002	
[illegible]	28	0.000	0.007	
[illegible]	29	0.011	0.002	
As	30	0.012	0.011	
Na	31	0.029	0.013	
Mo	32	0.011	0.002	
Se	33	-0.034	0.008	
Ag	34	-0.061	0.005	
Pb	35	-0.005	0.004	
Tl	36	-0.127	0.004	
Cd	37	0.155	0.041	
B	38	0.007	0.011	
K	39	-0.066	0.009	
Mn	40	0.296	0.000	
Sb	42	0.011	0.011	
V	43	0.168	0.007	
Be	44	0.045	0.002	
Tl	45	-0.044	0.006	

Identity 1: CRI-1 Identity 2: CRI 11:38 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-19.836	-1.610	-57.601	-20.198	282.609	-1.731	-19.579	-95.127
S.D.	3.216	0.274	18.744	8.938	697.348	1.436	1.374	11.280
% R.S.D.	16.215	17.017	32.542	44.251	246.754	82.947	7.017	11.858

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-48.132	-1.448	41.547	-3.462	96.788	80.909	-5.433	-2.406
S.D.	41.524	0.963	1.206	0.791	1.844	2.750	7.058	0.556
% R.S.D.	86.271	66.501	2.903	22.845	1.905	3.398	129.916	23.092

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-2.070	-17.317	11.580	-139.215	-193.021	-177.590	-3.477	32.380
S.D.	1.677	0.292	2.969	34.977	36.466	33.208	0.392	10.594
% R.S.D.	81.046	1.688	25.643	26.861	18.892	18.699	11.279	32.719

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-22.943	-2.776	2.584	-61.431	1.582	62.279	11.346	-1.812
S.D.	7.862	0.438	13.591	7.953	0.731	22.129	1.456	7.319
% R.S.D.	34.267	15.790	525.908	12.946	46.187	35.531	12.833	404.033

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-7.227	9.452	3.248	-198.528	29.118	18.391	103.996	9.887
S.D.	0.513	1.719	2.089	51.387	0.000	58.982	4.930	0.285
% R.S.D.	7.099	18.132	64.310	25.884	0.001	320.703	4.740	2.882

	Tl (ppb)
Mean	113.219
S.D.	42.388
% R.S.D.	37.439

Corrected Counts Statistics 11:40 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.014	0.005	
Sr	2	0.007	0.006	
Bi	3	-0.168	0.018	
Ta	5	0.017	0.011	
Hg	6	1.544	0.005	
Sn	7	-0.008	0.014	
Si	8	0.711	0.012	

Al	9	1.492	0.004
W	10	0.025	0.028
Zn	11	5.643	0.030
Cu	12	2.158	0.005
	14	-0.012	0.003
[illegible]	15	2.092	0.027
Ni	16	1.987	0.036
La	17	-0.002	0.001
Eu	18	-0.079	0.006
Fe	19	1.498	0.021
Ca	20	2.978	0.022
Cr	21	1.285	0.005
Nd	22	0.149	0.042
Ce	24	0.033	0.008
Sm	25	-0.035	0.005
Ba	26	8.081	0.051
P	27	0.016	0.002
S	28	0.029	0.004
Mo	29	2.298	0.017
As	30	0.381	0.012
Na	31	0.850	0.016
Mg	32	1.512	0.022
Sr	33	0.137	0.013
Ag	34	1.517	0.009
Pb	35	0.268	0.014
In	36	3.526	0.031
Cd	37	11.575	0.020
[illegible]	38	2.345	0.027
K	39	0.786	0.006
Mn	40	4.895	0.026
	42	0.087	0.010
	43	0.721	0.004
Ga	44	2.545	0.015
Tl	45	-0.019	0.007

Identity 1: CCV-1 Identity 2: CCV 11:40 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-13.730	-0.725	-153.951	1.064	565.217	-0.000	389.388	414.985
S.D.	2.350	0.243	18.744	6.751	298.864	3.341	7.649	1.573
% R.S.D.	17.115	33.487	12.175	634.295	52.876	88086292.569	1.964	0.379

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	12.567	457.360	485.017	-2.342	496.296	487.511	6.792	-1.386
S.D.	39.796	2.649	1.191	0.327	6.274	8.618	4.075	0.406
% R.S.D.	316.663	0.579	0.246	13.976	1.264	1.768	59.995	29.737

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
	483.026	453.217	500.565	-35.501	-87.462	-157.736	490.924	34.692
	6.875	3.717	2.148	18.912	23.713	14.990	3.089	14.438

% R.S.D.	1.423	0.820	0.429	53.273	27.112	9.503	0.629	41.617

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	5.644	498.475	478.769	446.348	476.577	449.599	512.622	493.822
S.D.	4.085	3.616	14.876	10.169	6.834	36.271	2.702	24.722
% R.S.D.	72.376	0.725	3.107	2.278	1.434	8.067	0.527	5.006

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	487.715	489.312	468.269	4951.307	490.934	441.290	488.472	476.149
S.D.	4.172	0.857	5.273	37.733	2.620	55.801	2.505	2.868
% R.S.D.	0.855	0.175	1.126	0.762	0.534	12.645	0.513	0.602

	Tl (ppb)
Mean	293.713
S.D.	46.823
% R.S.D.	15.942

Corrected Counts Statistics 11:42 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.013	0.007	
Sr	2	0.002	0.005	
Bi	3	-0.061	0.018	
Ta	5	0.007	0.014	
Hg	6	1.554	0.010	
Sn	7	-0.056	0.017	
Si	8	0.120	0.006	
Al	9	0.328	0.017	
W	10	-0.006	0.007	
Zn	11	0.029	0.004	
Cu	12	0.044	0.004	
Li	14	-0.013	0.009	
Co	15	0.002	0.009	
Ni	16	-0.035	0.013	
La	17	-0.002	0.002	
Eu	18	-0.088	0.003	
Fe	19	0.004	0.014	
Ca	20	0.100	0.001	
Cr	21	-0.016	0.003	
Nd	22	0.042	0.017	
Ce	24	0.027	0.007	
Sm	25	-0.023	0.012	
Ba	26	-0.002	0.009	
P	27	0.018	0.002	
S	28	0.014	0.018	
Mg	29	0.006	0.001	
As	30	-0.020	0.004	
Na	31	0.050	0.018	

Mo	32	0.001	0.009
Se	33	-0.061	0.007
Ag	34	-0.119	0.003
Pb	35	-0.003	0.006
	36	-0.117	0.006
	37	-0.081	0.030
B	38	0.017	0.012
X	39	-0.059	0.004
Mn	40	0.010	0.008
Sb	42	0.008	0.014
V	43	0.021	0.004
Be	44	-0.006	0.001
Tl	45	-0.066	0.003

Identity 1: CCB-1 Identity 2: CCB 11:43 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-14.035	-0.912	-41.891	-5.314	1217.391	-11.489	-1.100	-68.680
S.D.	3.392	0.184	19.320	9.043	680.890	3.981	3.867	6.914
% R.S.D.	23.528	20.217	46.120	170.166	55.930	34.648	351.568	10.067

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-29.169	-43.796	-5.647	-2.444	2.912	5.248	6.792	-1.973
	9.272	0.314	0.815	0.924	2.063	3.175	7.058	0.164
S.D.	31.787	0.716	14.435	37.807	70.838	60.502	103.915	8.296

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-5.556	-32.902	-10.324	-79.761	-103.484	-123.984	-2.114	48.564
S.D.	4.729	0.097	1.107	7.472	18.541	35.280	0.553	16.017
% R.S.D.	85.116	0.295	10.726	9.367	17.917	28.455	26.175	32.982

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-7.027	-3.798	-39.133	-48.236	-1.688	-11.317	-7.189	3.018
S.D.	20.295	0.127	5.214	11.354	2.813	19.087	0.971	10.612
% R.S.D.	288.835	3.331	13.323	23.538	166.656	168.654	13.503	351.626

	Ti (ppb)	Cd (ppb)	B (ppb)	X (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-5.872	-0.462	5.237	-154.219	0.358	3.682	2.087	0.249
S.D.	0.817	1.259	2.288	24.168	0.780	75.833	2.779	0.215
% R.S.D.	13.910	272.417	43.685	15.671	217.857	2059.675	133.185	86.595

	Tl (ppb)
Mean	-36.892
S.D.	22.605
% R.S.D.	61.425

Corrected Counts Statistics 11:44 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	4.509	0.038	
Sr	2	48.671	0.413	
Bi	3	0.586	0.010	
Ta	5	1.172	0.027	
Hg	6	6.273	0.077	
Sn	7	4.276	0.074	
Si	8	1.871	0.013	
Al	9	3.286	0.022	
W	10	5.915	0.049	
Zn	11	22.416	0.139	
Cu	12	4.204	0.033	
Li	14	18.975	0.213	
Co	15	8.289	0.089	
Mo	16	4.091	0.047	
La	17	0.245	0.002	
Eu	18	15.377	0.139	
Fe	19	3.187	0.048	
Ca	20	12.413	0.111	
Cr	21	2.430	0.027	
Nd	22	2.393	0.118	
Ce	24	0.398	0.012	
Sm	25	0.263	0.015	
Ba	26	32.086	0.276	
P	27	0.311	0.008	
S	28	0.966	0.007	
Mg	29	4.715	0.035	
As	30	0.800	0.013	
Na	31	4.938	0.034	
Mn	32	6.295	0.029	
Se	33	0.343	0.006	
Ag	34	1.073	0.260	
Pb	35	0.562	0.007	
Ti	36	7.077	0.057	
Cd	37	45.646	0.292	
B	38	7.170	0.057	
K	39	0.120	0.007	
Mn	40	9.754	0.084	
Sb	42	0.159	0.006	
V	43	2.844	0.016	
Be	44	10.407	0.082	
Tl	45	0.086	0.011	

Identity 1: R939 Dig. STD 10-50 Identity 2: 1B48AA,2B48AB,3B48AB 11:46 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	2044.698	1958.164	635.353	737.584	308978.264	1011.201	1154.523	1159.936
S.D.	16.392	16.611	10.100	17.072	5042.026	17.567	8.409	9.189
% R.S.D.	0.802	0.848	1.590	2.315	1.632	1.737	0.728	0.792

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	8337.551	1954.909	959.897	1931.122	1959.059	989.007	1014.697	1003.758
S.D.	69.040	12.440	7.689	21.639	20.904	11.136	8.483	9.058
% R.S.D.	0.828	0.636	0.801	1.121	1.067	1.126	0.836	0.902

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	1035.132	2049.103	1013.407	961.502	944.566	728.752	1955.035	2085.352
S.D.	15.766	18.750	11.393	53.132	33.135	45.848	16.815	53.873
% R.S.D.	1.523	0.915	1.124	5.526	3.508	6.291	0.860	2.583

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	1073.504	1028.067	1019.462	2974.931	1990.168	933.342	371.655	1026.281
S.D.	7.948	7.679	16.474	21.029	9.271	20.539	82.557	12.059
% R.S.D.	0.740	0.747	1.616	0.707	0.466	2.201	22.213	1.175

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	968.880	1920.832	1427.876	929.320	977.978	838.447	1963.839	1942.839
S.D.	7.764	12.251	11.236	42.866	8.428	35.463	10.994	15.307
% R.S.D.	0.801	0.638	0.787	4.613	0.862	4.230	0.560	0.788

	Tl (ppb)
Mean	1032.098
S.D.	77.461
% R.S.D.	7.505

Corrected Counts Statistics 11:51 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.016	0.001	
Sr	2	0.017	0.002	
Bi	3	-0.034	0.016	
Ta	5	-0.026	0.016	
Hg	6	1.558	0.009	
Sn	7	-0.032	0.006	
Si	8	0.946	0.018	
Al	9	0.733	0.024	
W	10	-0.012	0.018	
Zn	11	0.211	0.006	
Cu	12	0.229	0.007	
	14	-0.012	0.003	

Co	15	-0.003	0.002
Ni	16	-0.067	0.018
La	17	-0.005	0.000
Eu	18	-0.092	0.007
Fe	19	0.156	0.004
Ca	20	1.203	0.172
Cr	21	0.000	0.007
Nd	22	0.344	0.010
Ce	24	0.029	0.003
Sm	25	-0.034	0.002
Ba	26	-0.000	0.005
P	27	0.015	0.003
S	28	0.051	0.007
Mg	29	0.993	0.002
As	30	-0.019	0.007
Na	31	1.944	0.022
Mo	32	-0.000	0.006
Se	33	-0.047	0.007
Ag	34	-0.110	0.006
Pb	35	-0.002	0.009
Tl	36	-0.091	0.008
Cd	37	-0.117	0.020
W	38	3.338	0.030
K	39	-0.964	0.006
Mn	40	0.009	0.005
Sb	42	0.008	0.014
V	43	0.026	0.002
Be	44	-0.006	0.001
Tl	45	-0.056	0.002

R940 8-4-92

Identity 1: ~~R945~~ Bio Blank Identity 2: Direct 11:51 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-12.814	-0.295	-13.964	-26.364	1456.522	-5.823	544.263	99.696
S.D.	0.264	0.061	17.145	9.902	554.667	1.423	12.098	9.842
% R.S.D.	2.063	20.830	122.780	37.560	38.082	24.437	2.223	9.872

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-37.216	-27.607	37.292	-2.342	1.731	-2.223	-5.433	-2.211
S.D.	25.918	0.492	1.580	0.256	0.491	4.200	0.000	0.455
% R.S.D.	69.642	1.781	4.237	10.942	28.385	188.956	0.000	20.588

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	44.239	153.871	-3.488	-80.220	-98.772	-154.758	-1.992	30.068
S.D.	1.425	29.159	3.085	4.188	8.162	6.199	0.275	18.350
% R.S.D.	3.221	18.950	88.458	5.221	8.264	4.006	13.804	61.028

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	34.440	15.121	-37.410	1123.179	-2.110	26.892	-4.329	4.225

S.D.	7.855	0.456	9.031	13.607	1.907	19.790	1.862	16.599
% R.S.D.	22.898	3.017	24.139	1.211	90.417	73.592	43.007	392.839

	Tl (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
	-2.349	-1.975	665.812	-186.444	0.193	1.843	5.561	0.249
S.D.	1.035	0.829	6.040	34.884	0.459	76.499	1.396	0.215
% R.S.D.	44.063	41.985	0.907	18.710	238.366	4150.516	24.990	86.595

	Tl (ppb)
Mean	33.520
S.D.	10.742
% R.S.D.	32.046

Corrected Counts Statistics 11:57 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.047	0.013	
Sr	2	0.046	0.017	
Bi	3	-0.037	0.012	
Ta	5	0.004	0.029	
Mo	6	1.573	0.009	
[illegible]	7	0.064	0.001	
	8	5.027	0.039	
Al	9	125.736	1.402	
W	10	0.326	0.039	
Zn	11	0.612	0.008	
Cu	12	0.535	0.003	
Li	14	0.222	0.016	
Co	15	0.047	0.004	
Ni	16	0.140	0.010	
La	17	-0.003	0.002	
Ce	18	-0.053	0.013	
Fe	19	0.948	0.027	
Ca	20	1.600	0.022	
Cr	21	2.434	0.023	
Nd	22	0.166	0.048	
Ce	24	0.063	0.018	
Sm	25	0.013	0.024	
Ba	26	0.053	0.020	
P	27	1.447	0.035	
S	28	27.371	0.340	
Mg	29	0.197	0.003	
As	30	0.002	0.012	
Na	31	-20.807	0.000	
Mn	32	0.267	0.008	
Se	33	0.042	0.012	
Ag	34	-0.094	0.011	
[illegible]	35	-0.015	0.003	
	36	-0.075	0.014	

Cd	37	0.532	0.064
B	38	3.655	0.034
K	39	30.384	0.442
Mn	40	0.051	0.006
Sb	42	0.013	0.019
V	43	0.033	0.004
Be	44	-0.003	0.001
Tl	45	-0.058	0.009

Identity 1: R941 Sam W3AP891-6 Identity 2: 10ml-50ml 11:58 AM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	1.382	0.872	-17.106	-7.441	2434.783	16.998	3237.416	52025.976
S.D.	6.098	0.664	12.078	18.622	562.283	0.136	25.598	582.580
% R.S.D.	441.300	76.165	70.608	250.279	23.094	0.802	0.791	1.120

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	434.633	8.194	108.315	21.486	13.456	47.052	4.076	0.303
S.D.	55.124	0.670	0.746	1.579	0.944	2.478	6.225	0.849
% R.S.D.	12.683	8.178	0.689	7.347	7.018	5.266	152.733	279.696

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	303.131	219.095	1014.941	-26.009	-0.753	-15.779	1.261	9964.324
S.D.	8.796	3.735	9.602	21.584	52.162	72.277	1.233	242.486
% R.S.D.	2.902	1.705	0.946	82.986	6931.144	458.064	97.855	2.434

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	31577.026	37.912	-9.935	-12948.031	82.594	57.603	0.967	-19.319
S.D.	392.557	0.633	15.855	0.000	2.375	34.598	3.368	5.433
% R.S.D.	1.243	1.669	159.589	0.000	2.876	60.064	348.390	28.124

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-0.181	25.322	728.721	183783.710	4.333	29.423	10.656	0.808
S.D.	1.845	2.677	6.774	2670.228	0.558	103.540	2.631	0.108
% R.S.D.	1021.029	10.573	0.930	1.453	12.873	351.895	24.686	13.323

	Tl (ppb)
Mean	19.456
S.D.	63.809
% R.S.D.	327.965

Corrected Counts Statistics 12:05 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	2R.S.D. Kpulses
7	1	0.058	0.014	
	2	0.059	0.012	
Bi	3	-0.066	0.016	
Ta	5	0.024	0.020	
Hg	6	1.558	0.007	
Sn	7	0.129	0.040	
Si	8	5.489	0.057	
Al	9	125.022	0.536	
W	10	0.355	0.046	
Zn	11	0.643	0.008	
Cu	12	0.529	0.012	
Li	14	0.252	0.012	
Co	15	0.020	0.003	
Ni	16	0.314	0.030	
La	17	-0.002	0.001	
Eu	18	-0.046	0.017	
Fe	19	0.751	0.013	
Ca	20	1.432	0.006	
Ce	21	2.241	0.031	
Nd	22	0.272	0.036	
Cr	24	0.097	0.022	
Sm	25	0.032	0.018	
Mo	26	0.080	0.013	
P	27	1.428	0.007	
S	28	27.039	0.219	
Mg	29	0.157	0.003	
Ar	30	0.003	0.007	
	31	-20.896	0.000	
Nb	32	0.271	0.005	
Se	33	0.012	0.012	
Ag	34	-0.082	0.009	
Pb	35	0.006	0.007	
Tl	36	-0.046	0.014	
Cd	37	0.528	0.059	
Ba	38	3.348	0.034	
K	39	30.213	0.125	
Cm	40	0.211	0.006	
Sb	42	0.010	0.024	
V	43	0.019	0.007	
Be	44	-0.008	0.001	
Il	45	-0.089	0.015	

Identity 1: R941 Dup #3AP891-6 Identity 2: 10ml-50ml 12:07 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	6.724	1.382	-47.826	5.742	1500.000	32.343	3542.767	31729.381
S.D.	6.184	0.464	17.027	12.779	434.239	9.491	37.926	222.486
3.D.	91.956	33.590	35.602	222.548	28.949	29.346	1.071	0.430

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	476.984	10.992	107.077	24.609	7.082	88.539	5.434	0.730
S.D.	64.439	0.731	2.690	1.193	0.625	7.109	4.706	1.128
% R.S.D.	13.510	6.649	2.512	4.849	8.819	8.029	86.594	144.584

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	238.626	190.757	934.304	21.691	93.497	39.813	2.887	9830.233
S.D.	4.353	1.009	13.156	16.151	60.928	53.716	0.794	45.481
% R.S.D.	1.824	0.529	1.408	74.462	65.186	134.922	27.492	0.463

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	31194.333	29.292	-8.676	-13003.076	83.754	-12.476	4.568	18.714
S.D.	253.199	0.551	8.464	0.000	1.675	31.545	2.883	11.876
% R.S.D.	0.812	1.883	97.560	0.000	1.999	252.849	63.120	63.461

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	3.659	25.126	667.801	182752.534	20.397	14.714	0.929	0.000
S.D.	1.899	2.471	6.786	755.384	0.580	131.810	4.521	0.108
% R.S.D.	51.896	9.833	1.016	0.413	2.845	895.815	486.765	495442.219

	Tl (ppb)
Mean	-198.543
S.D.	107.419
% R.S.D.	54.104

Corrected Counts Statistics 12:14 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.033	0.006	
Sr	2	0.052	0.006	
Bi	3	-0.061	0.026	
Ta	5	0.034	0.017	
Hg	6	1.610	0.019	
Sn	7	0.087	0.009	
Si	8	5.582	0.020	
Al	9	144.723	0.448	
W	10	0.491	0.039	
Zn	11	22.600	0.072	
Cu	12	4.759	0.003	
Li	14	0.231	0.006	
Co	15	8.299	0.055	
Ni	16	8.446	0.040	
La	17	-0.006	0.001	
Eu	18	-0.065	0.003	
Fe	19	12.581	0.012	

Ca	20	1.862	0.002
Cr	21	4.315	0.008
Nd	22	0.093	0.030
Ce	24	0.066	0.008
	25	0.013	0.014
[illegible]	26	131.839	0.178
P	27	1.358	0.020
S	28	26.907	0.218
Mg	29	0.210	0.002
As	30	6.211	0.015
Na	31	-20.642	0.000
Mo	32	0.258	0.005
Se	33	2.529	0.010
Ag	34	0.529	0.001
Pb	35	1.033	0.016
Ti	36	-0.062	0.008
Cd	37	5.209	0.095
B	38	3.794	0.038
K	39	30.653	0.153
Mn	40	19.711	0.016
Sb	42	0.368	0.005
V	43	2.900	0.011
Be	44	1.036	0.003
Tl	45	1.000	0.005

Identity 1: R941 Spk 13AP891-6 Identity 2: 10ml-50ml 12:14 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-4.724	1.087	-42.240	11.908	4869.565	22.427	3603.705	59913.181
S.D.	2.683	0.246	27.470	10.539	1207.843	2.116	13.466	186.103
% R.S.D.	56.801	22.630	65.032	88.506	24.804	9.435	0.374	0.311

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	664.918	1971.307	1088.714	22.437	1961.420	2027.524	-9.508	-0.477
S.D.	54.499	6.384	0.746	0.636	13.030	9.550	4.075	0.188
% R.S.D.	8.196	0.324	0.069	2.834	0.664	0.471	42.859	39.362

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	4105.659	262.018	1802.200	-59.282	7.730	-16.772	8039.161	9347.045
S.D.	3.817	0.265	3.510	13.276	21.409	40.543	10.847	135.261
% R.S.D.	0.093	0.101	0.195	22.395	276.969	241.739	0.135	1.447

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	31040.917	40.906	8000.225	-12845.990	79.746	7112.444	198.808	1878.698
S.D.	251.299	0.335	19.536	0.000	1.624	28.200	0.318	28.463
% R.S.D.	0.810	0.818	0.244	0.000	2.036	0.396	0.160	1.515

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)

Mean	1.581	221.806	756.496	185409.019	1979.772	1991.305	2002.749	194.701
S.D.	1.095	3.973	7.484	923.682	1.645	27.764	7.364	0.494
% R.S.D.	69.282	1.791	0.989	0.498	0.083	1.394	0.368	0.254

	Tl (ppb)
Mean	7459.560
S.D.	34.689
% R.S.D.	0.465

Corrected Counts Statistics 12:25 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.016	0.004	
Sr	2	0.011	0.008	
Bi	3	-0.084	0.024	
Ta	5	-0.004	0.012	
Hg	6	1.518	0.008	
Sn	7	0.001	0.025	
Se	8	0.962	0.009	
Al	9	21.560	0.073	
W	10	0.057	0.020	
Zn	11	0.281	0.001	
Cd	12	0.129	0.004	
Li	14	0.027	0.009	
Co	15	0.001	0.010	
Ni	16	-0.055	0.014	
La	17	-0.004	0.002	
Eu	18	-0.085	0.003	
Fe	19	0.196	0.003	
Ca	20	1.199	0.004	
Cr	21	0.401	0.011	
Mo	22	0.031	0.028	
Cu	24	0.034	0.009	
Sm	25	-0.033	0.007	
Ba	26	0.004	0.006	
P	27	0.251	0.007	
S	28	4.570	0.008	
Mg	29	0.046	0.001	
As	30	-0.005	0.003	
Na	31	350.521	2.627	
Mo	32	0.049	0.010	
Se	33	-0.019	0.008	
Ag	34	-0.114	0.006	
Pb	35	0.038	0.005	
Ti	36	-0.103	0.002	
Cd	37	-0.047	0.009	
B	38	0.598	0.002	
K	39	5.153	0.048	
Mn	40	0.015	0.006	
Sb	42	0.002	0.008	

V	43	0.017	0.002
Be	44	-0.009	0.001
Tl	45	-0.061	0.006

Identity 1: R941 Sam #3AP891-6 Identity 2: 10ml-50ml-2ml-10ml 12:25 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-12.509	-0.550	-66.328	-12.118	-1130.435	2.125	554.602	8751.238
S.D.	1.608	0.329	25.482	7.663	533.827	5.851	5.766	30.371
% R.S.D.	12.857	59.893	38.417	63.237	47.223	275.398	1.040	0.347

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	58.561	-21.328	14.082	1.663	2.597	0.638	-2.716	-1.756
S.D.	28.567	0.089	0.966	0.882	2.465	3.408	8.483	0.172
% R.S.D.	48.782	0.419	6.862	53.022	94.909	533.970	312.309	9.799

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	57.205	152.824	164.065	-86.055	-83.692	-152.772	-1.708	1669.209
S.D.	0.999	0.677	4.475	12.575	24.158	20.847	0.368	48.715
% R.S.D.	1.746	0.443	2.728	14.613	28.865	13.646	21.528	2.918

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
	5251.296	4.894	-18.857	216713.707	13.502	71.602	-5.494	77.272
S.D.	8.820	0.219	3.725	1624.672	3.019	22.865	1.933	9.116
% R.S.D.	0.168	4.478	19.752	0.750	22.358	31.934	35.179	11.797

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-3.975	0.981	120.846	31336.911	0.729	-31.253	-0.924	-0.187
S.D.	0.282	0.385	0.398	291.712	0.553	45.930	1.446	0.215
% R.S.D.	7.097	39.273	0.329	0.931	75.826	146.962	156.516	115.484

	Tl (ppb)
Mean	-1.641
S.D.	38.731
% R.S.D.	2360.626

Corrected Counts Statistics 12:31 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
1	0.017	0.010	

Sr	2	0.006	0.009
Bi	3	-0.109	0.022
Ta	5	-0.035	0.003
Hg	6	1.544	0.021
Sn	7	-0.002	0.022
Si	8	1.082	0.009
Al	9	22.076	0.098
W	10	0.042	0.011
Zn	11	0.646	0.002
Cu	12	0.132	0.007
Li	14	0.023	0.007
Co	15	0.014	0.012
Ni	16	0.003	0.003
La	17	-0.004	0.001
Eu	18	-0.083	0.011
Fe	19	0.144	0.017
Ca	20	1.171	0.003
Cr	21	0.397	0.003
Nd	22	0.094	0.072
Ce	24	0.014	0.016
Sm	25	-0.041	0.014
Ba	26	-0.004	0.013
P	27	0.250	0.005
S	28	4.702	0.035
Mg	29	0.042	0.001
As	30	-0.016	0.004
Na	31	354.609	1.756
Mo	32	0.042	0.007
Se	33	-0.022	0.007
Ag	34	-0.111	0.005
Pb	35	0.013	0.008
Ti	36	-0.086	0.019
Cd	37	-0.001	0.021
B	38	0.607	0.004
K	39	5.208	0.026
Mn	40	0.071	0.002
Sb	42	0.010	0.012
V	43	0.033	0.004
Be	44	-0.005	0.001
Tl	45	-0.050	0.008

Identity 1: R941 Dup #3AP891-6 Identity 2: 10ml-50ml-2ml-10ml 12:32 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-12.356	-0.765	-92.510	-32.105	543.478	1.259	633.800	8965.584
S.D.	4.352	0.365	23.395	2.210	1343.436	5.087	5.613	40.795
% R.S.D.	35.224	47.757	25.289	6.883	247.192	404.034	0.886	0.455

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	37.360	11.259	14.933	1.222	5.744	14.467	-2.716	-1.647
S.D.	16.080	0.179	1.545	0.663	2.716	0.688	2.353	0.689

% R.S.D.	45.041	1.586	10.349	54.220	47.274	4.758	86.619	41.836

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	40.425	148.088	162.391	-57.854	-141.184	-175.605	-2.236	1659.961
	5.394	0.505	1.279	32.232	45.970	41.729	0.763	36.700
% R.S.D.	13.344	0.341	0.787	55.713	32.560	23.763	34.100	2.211

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	5404.129	3.945	-33.908	219241.878	11.392	64.223	-4.435	30.788
S.D.	40.059	0.127	4.530	1085.986	2.107	19.101	1.433	15.080
% R.S.D.	0.741	3.207	13.361	0.495	18.495	29.741	32.306	48.981

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-1.716	2.927	122.702	31669.223	6.393	12.875	10.425	0.435
S.D.	2.539	0.868	0.753	155.340	0.174	63.455	3.029	0.108
% R.S.D.	147.908	29.636	0.614	0.491	2.722	492.843	29.053	24.742

	Tl (ppb)
Mean	75.714
S.D.	58.976
% R.S.D.	77.893

Corrected Counts Statistics 12:38 PM January 23, 1992
[illegible] name : ALL_SIM
e Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.037	0.005	
Sr	2	0.038	0.007	
[illegible]	3	-0.041	0.014	
Ta	5	0.022	0.023	
Hg	6	1.498	0.009	
Sn	7	0.002	0.010	
Si	8	1.071	0.006	
Al	9	25.463	0.064	
W	10	0.060	0.025	
Zn	11	3.996	0.023	
Cu	12	0.885	0.008	
Li	14	0.065	0.012	
Co	15	1.434	0.006	
Ni	16	1.463	0.023	
La	17	-0.002	0.002	
Eu	18	-0.057	0.009	
Fe	19	2.190	0.036	
Ca	20	1.047	0.002	
Cr	21	0.717	0.009	
Nd	22	0.131	0.081	
[illegible]	24	0.058	0.010	
	25	0.014	0.014	

Ba	26	22.579	0.045
P	27	0.243	0.001
S	28	4.714	0.013
Mg	29	0.046	0.001
As	30	1.030	0.009
Na	31	364.032	0.781
Mo	32	0.057	0.001
Se	33	0.402	0.019
Ag	34	0.023	0.008
Pb	35	0.204	0.019
Ti	36	-0.068	0.007
Cd	37	0.786	0.068
B	38	0.669	0.010
K	39	5.343	0.009
Mn	40	3.343	0.021
Sb	42	0.060	0.008
V	43	0.493	0.007
Be	44	0.168	0.002
Tl	45	0.096	0.010

Identity 1: R941 Spk #3AP891-6 Identity 2: 10ml-50ml-2ml-10ml 12:39 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-2.892	0.550	-21.644	4.041	-2434.783	2.203	626.540	10372.545
S.D.	2.259	0.268	15.116	14.353	557.218	2.388	3.978	26.590
% R.S.D.	78.105	48.719	69.841	355.191	22.886	108.386	0.635	0.256

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	62.137	310.347	189.628	5.533	340.884	362.415	8.151	0.087
S.D.	35.373	2.018	1.813	1.201	1.474	5.527	6.225	0.568
% R.S.D.	56.927	0.650	0.956	21.699	0.432	1.525	76.371	655.495

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	709.120	126.907	296.461	-41.220	-15.832	-12.801	1375.185	1613.723
S.D.	11.781	0.261	3.767	36.363	26.972	41.373	2.731	8.009
% R.S.D.	1.661	0.206	1.271	88.217	170.362	323.212	0.199	0.496

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	5418.554	4.821	1316.313	225070.298	16.139	1266.208	37.930	377.912
S.D.	14.437	0.127	11.704	482.795	0.365	54.733	2.548	34.947
% R.S.D.	0.266	2.624	0.889	0.215	2.264	4.323	6.719	9.247

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	0.723	35.966	134.965	32482.885	335.184	292.356	330.281	32.709
S.D.	0.889	2.867	2.067	52.789	2.098	42.130	5.122	0.285
% R.S.D.	122.952	7.972	1.531	0.163	0.626	14.410	1.551	0.871

	Tl

	(ppb)
Mean	1102.420
S.D.	68.301
% R.S.D.	6.196

Corrected Counts Statistics 12:46 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.013	0.002	
Sr	2	0.010	0.001	
Bi	3	-0.055	0.014	
Ta	5	0.004	0.021	
Hg	6	1.512	0.013	
Sn	7	0.010	0.004	
Si	8	0.500	0.004	
Al	9	7.700	0.068	
W	10	0.022	0.023	
[illegible]	11	1.582	0.011	
Cu	12	0.297	0.001	
Cr	14	0.012	0.001	
Co	15	0.434	0.009	
Ni	16	0.756	0.010	
[illegible]	17	-0.004	0.001	
Fe	18	-0.084	0.006	
	19	0.791	0.023	
Ca	20	0.677	0.003	
Cr	21	0.206	0.006	
Nd	22	0.144	0.055	
Ce	24	0.042	0.003	
Sm	25	-0.019	0.002	
Ba	26	6.503	0.029	
[illegible]	27	0.085	0.001	
S	28	1.360	0.025	
[illegible]	29	0.027	0.001	
As	30	0.302	0.012	
Na	31	104.879	0.599	
Mo	32	0.010	0.008	
Se	33	0.048	0.005	
Ag	34	-0.078	0.002	
Pb	35	0.078	0.010	
Tl	36	-0.098	0.002	
Cd	37	0.210	0.046	
B	38	0.254	0.007	
K	39	1.480	0.010	
Mn	40	1.188	0.006	
Sb	42	0.026	0.023	
V	43	0.146	0.005	
Be	44	0.041	0.002	
Tl	45	-0.031	0.004	

SpK 8-28-92

Identity 1: K941 S/a N3AP891-6 Identity 2: 10ml-50ml-0.5ml-10m 12:47 PM January 23, 1992

Task name : ALL_SIM

WHC-SD-WM-DP-025
ADDENDUM 10 REV 0

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-14.188	-0.604	-35.608	-7.228	-1543.478	4.171	250.132	2993.651
S.D.	0.953	0.023	15.152	13.395	825.801	0.944	2.318	28.137
% R.S.D.	6.719	3.849	42.554	185.324	53.503	22.642	0.927	0.940

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	10.424	94.825	53.152	0.170	104.893	193.845	-2.716	-1.691
S.D.	32.125	1.014	0.232	0.059	2.035	2.435	2.353	0.406
% R.S.D.	308.167	1.069	0.437	34.641	1.940	1.256	86.619	24.019

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	251.919	64.632	82.730	-34.924	-60.130	-111.079	394.679	515.568
S.D.	7.612	0.583	2.452	24.561	7.116	5.956	1.740	6.936
% R.S.D.	3.022	0.903	2.964	70.326	11.834	5.362	0.441	1.345

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	1546.588	0.657	376.273	64787.193	1.055	285.723	5.944	149.112
S.D.	29.029	0.127	15.498	370.542	2.635	13.816	0.550	17.837
% R.S.D.	1.877	19.244	4.119	0.572	249.795	4.835	9.258	11.962

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-3.388	11.765	52.369	9144.485	118.690	102.971	89.173	9.017
S.D.	0.282	1.948	1.397	58.267	0.612	129.246	3.133	0.388
% R.S.D.	8.327	16.561	2.667	0.637	0.515	125.516	3.514	4.307

	Tl (ppb)
Mean	204.638
S.D.	26.624
% R.S.D.	13.010

Corrected Counts Statistics 12:51 PM January 23, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.005	0.007	
Sr	2	0.006	0.004	
Bi	3	-0.045	0.007	
Ta	5	0.001	0.005	
Hg	6	1.500	0.011	
Sn	7	-0.011	0.008	

Si	8	0.401	0.005
Al	9	6.678	0.030
W	10	0.010	0.011
Zn	11	0.624	0.003
Cu	12	0.072	0.004
	14	0.001	0.006
Co	15	0.017	0.013
Ni	16	-0.059	0.013
La	17	-0.002	0.001
Eu	18	-0.075	0.009
Fe	19	0.057	0.007
Ca	20	1.090	0.005
Cr	21	0.123	0.008
Nd	22	0.071	0.021
Ce	24	0.016	0.009
Sm	25	-0.028	0.004
Ba	26	0.012	0.003
P	27	0.084	0.002
S	28	1.350	0.016
Hg	29	0.028	0.001
As	30	0.003	0.012
Na	31	104.088	0.375
Mg	32	0.014	0.002
Se	33	-0.041	0.007
Ag	34	-0.105	0.004
Pb	35	0.069	0.014
Tl	36	-0.999	0.004
Cd	37	-0.048	0.014
B	38	0.199	0.005
K	39	1.470	0.009
Mo	40	0.049	0.003
	42	0.002	0.009
V	43	0.022	0.002
Be	44	-0.008	0.002
Li	45	-0.056	0.005

Identity 1: R941 Sam #3AP891-6 Identity 2: 10ml-50ml-0.5ml-10m 12:52 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-17.851	-0.738	-25.484	-9.142	-2304.348	-0.787	184.794	2569.112
S.D.	3.049	0.168	7.552	3.375	734.963	1.782	3.119	12.274
% R.S.D.	17.080	22.709	29.635	36.922	31.895	226.494	1.688	0.478

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-7.309	9.325	0.852	-1.018	6.374	-0.395	6.792	-1.127
S.D.	15.583	0.273	0.879	0.614	2.958	3.154	4.075	0.553
% R.S.D.	213.195	2.925	103.118	60.277	46.407	798.691	59.995	49.065

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
	11.877	134.538	47.713	-67.944	-135.529	-137.882	-1.240	508.633

S.D.	2.357	0.873	3.169	9.223	25.656	10.738	0.211	12.013
% R.S.D.	19.846	0.649	6.642	13.574	18.930	7.788	17.037	2.362

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	1533.659	0.877	-9.012	64297.763	2.321	33.793	-2.740	132.209
S.D.	18.264	0.127	14.877	231.708	0.483	19.722	1.203	24.455
% R.S.D.	1.191	14.433	165.085	0.360	20.830	58.362	43.898	18.497

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-3.433	0.939	41.431	9082.051	4.226	-27.576	2.782	-0.124
S.D.	0.564	0.588	1.001	51.387	0.306	50.052	1.390	0.285
% R.S.D.	16.434	62.676	2.416	0.566	7.250	181.505	49.958	229.169

	Tl (ppb)
Mean	33.520
S.D.	33.233
% R.S.D.	99.142

Corrected Counts Statistics 12:56 PM January 23, 1992
Lock name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.004	0.005	
Sr	2	-0.001	0.002	
Bi	3	-0.285	0.003	
Ta	5	-0.032	0.006	
Hg	6	1.517	0.034	
Sn	7	-0.047	0.009	
Si	8	0.674	0.005	
Al	9	1.520	0.012	
W	10	0.026	0.014	
Zn	11	5.522	0.039	
Cu	12	2.129	0.015	
Li	14	-0.021	0.006	
Co	15	2.036	0.021	
Ni	16	1.942	0.020	
La	17	-0.002	0.001	
Eu	18	-0.097	0.008	
Fe	19	1.460	0.004	
Ca	20	2.940	0.024	
Cr	21	1.197	0.015	
Nd	22	0.060	0.012	
Ce	24	0.015	0.008	
Sm	25	-0.054	0.008	
Ba	26	8.013	0.059	
P	27	0.004	0.005	
S	28	0.018	0.003	
Mg	29	2.261	0.018	
As	30	0.365	0.014	

Na	31	0.831	0.007
Mo	32	1.501	0.018
Se	33	0.156	0.009
Ag	34	1.488	0.007
[illegible]	35	0.259	0.009
	36	3.488	0.042
Cd	37	11.281	0.091
B	38	2.261	0.032
K	39	0.768	0.014
Mn	40	4.800	0.052
Sb	42	0.085	0.012
V	43	0.715	0.006
Be	44	2.490	0.027
Tl	45	0.011	0.002

Identity 1: CCV-2 Identity 2: CCV 12:56 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-18.004	-1.033	-276.483	-30.191	-1195.652	-9.207	364.968	426.478
S.D.	2.065	0.081	3.200	3.551	2208.743	2.008	3.387	5.036
% R.S.D.	11.469	7.792	1.157	11.763	184.731	21.807	0.928	1.181

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	13.998	446.587	478.363	-3.191	482.997	476.781	6.792	-2.536
S.D.	19.585	3.445	3.371	0.655	4.878	4.818	4.075	0.516
% R.S.D.	139.910	0.771	0.705	20.518	1.010	1.011	59.995	20.352

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	470.495	446.905	497.217	-75.308	-136.471	-214.320	486.776	-48.536
S.D.	1.308	4.053	6.297	5.592	23.713	24.976	3.570	32.777
% R.S.D.	0.278	0.907	1.266	7.426	17.376	11.654	0.733	67.531

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-7.001	490.220	458.128	435.009	472.885	505.609	503.620	476.918
S.D.	2.884	3.848	18.606	4.559	5.575	23.939	2.067	16.599
% R.S.D.	41.193	0.785	4.061	1.048	1.179	4.735	0.410	3.480

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	482.611	476.931	451.564	4840.536	481.393	426.580	484.534	466.013
S.D.	5.693	3.829	6.453	82.476	5.238	68.527	4.012	4.993
% R.S.D.	1.180	0.803	1.429	1.704	1.088	16.064	0.828	1.071

	Tl (ppb)
Mean	502.336
S.D.	14.064
% R.S.D.	2.800

Corrected Counts Statistics 12:58 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	2R.S.D. Kpulses
Zr	1	0.008	0.001	
Sr	2	-0.008	0.003	
Ni	3	-0.055	0.031	
Ta	5	0.007	0.007	
Hg	6	1.514	0.007	
Sn	7	0.015	0.006	
Si	8	0.086	0.005	
Al	9	0.312	0.013	
W	10	-0.019	0.045	
Zn	11	0.050	0.004	
Cu	12	0.047	0.009	
Li	14	-0.015	0.008	
Co	15	-0.005	0.017	
Ni	16	-0.106	0.006	
La	17	-0.003	0.001	
Eu	18	-0.091	0.003	
Fe	19	-0.009	0.007	
Ca	20	0.203	0.001	
Cr	21	-0.019	0.001	
Nd	22	-0.010	0.076	
Ce	24	0.015	0.005	
Sm	25	-0.031	0.005	
Ba	26	-0.017	0.005	
P	27	0.020	0.002	
S	28	0.024	0.009	
Mg	29	0.007	0.000	
As	30	-0.013	0.009	
Na	31	0.052	0.010	
Mo	32	0.006	0.005	
Se	33	-0.050	0.010	
Ag	34	-0.122	0.004	
Pb	35	-0.005	0.006	
Ti	36	-0.114	0.003	
Cd	37	-0.084	0.010	
B	38	0.006	0.003	
K	39	-0.071	0.004	
Mn	40	-0.004	0.004	
Sb	42	0.019	0.009	
V	43	0.022	0.003	
Be	44	-0.008	0.001	
Tl	45	-0.058	0.004	

Identity 1: CCB-2 Identity 2: CCV 12:59 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-16.478	-1.302	-36.306	-5.527	-1413.043	5.272	-23.099	-75.187
S.D.	0.529	0.123	32.183	4.614	443.926	1.300	3.322	5.260
% R.S.D.	3.209	9.449	88.644	83.489	31.416	24.661	14.381	6.996

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-47.072	-41.751	-4.873	-2.614	1.180	-11.522	4.076	-2.168
S.D.	63.110	0.322	1.983	0.769	3.943	1.514	4.706	0.209
% R.S.D.	134.070	0.767	40.695	29.415	334.043	13.143	115.455	9.644

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-9.806	-15.468	-11.719	-103.260	-138.356	-147.809	-2.989	64.747
S.D.	2.225	0.097	0.483	34.223	12.750	14.990	0.275	13.871
% R.S.D.	22.691	0.629	4.124	33.142	9.215	10.141	9.203	21.424

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	4.751	-3.652	-29.244	-46.999	0.000	20.018	-8.142	-1.812
S.D.	10.477	0.000	10.971	6.277	1.624	28.756	1.323	9.975
% R.S.D.	220.501	0.000	37.515	13.355	7215889.785	143.649	16.247	550.604

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-5.510	-0.560	3.116	-224.710	-1.027	66.197	3.013	-0.062
S.D.	0.359	0.437	0.526	21.219	0.438	49.747	1.749	0.187
% R.S.D.	6.506	78.085	16.888	9.443	42.635	75.149	58.031	300.105

	Tl (ppb)
Mean	17.112
S.D.	28.129
% R.S.D.	164.382

Corrected Counts Statistics 1:00 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.033	0.007	
Sr	2	241.212	1.521	
Bi	3	-0.083	0.013	
Ta	5	0.005	0.005	
Hg	6	1.526	0.010	
Sn	7	20.574	0.172	
Si	8	0.074	0.003	
Al	9	0.141	0.011	
W	10	0.613	0.023	
Zn	11	108.143	0.620	
	12	20.565	0.124	

Li	14	95.976	0.482
Co	15	40.264	0.230
Ni	16	19.847	0.128
La	17	-0.006	0.001
Eu	18	-0.072	0.004
Fe	19	14.597	0.130
Ca	20	55.633	0.346
Cr	21	11.802	0.068
Nd	22	0.273	0.018
Ce	24	0.069	0.004
Sm	25	-0.345	0.003
Ba	26	160.126	1.065
P	27	0.171	0.007
S	28	0.122	0.008
Mg	29	22.309	0.137
As	30	-0.003	0.008
Na	31	15.989	0.058
Mo	32	-0.009	0.006
Se	33	0.409	0.012
Ag	34	1.063	0.005
Pb	35	0.014	0.006
Ti	36	-0.116	0.005
[illegible]	37	220.579	1.079
B	38	23.718	0.124
K	39	0.792	0.005
Mn	40	47.099	0.253
Sb	42	0.856	0.006
V	43	0.023	0.003
Be	44	-0.008	0.000
Tl	45	-0.065	0.002

Identity 1: SSTI STD 1848AC Identity 2: Direct 1:01 PM January 23, 1992
Tasknase : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-35.100	9708.517	-64.932	-6.590	-630.435	4858.878	-31.459	-146.359
S.D.	3.302	61.220	13.343	3.375	653.260	40.495	2.016	4.396
% R.S.D.	9.408	0.631	20.550	51.217	103.621	0.833	6.409	3.004

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	821.203	9608.592	4757.472	9772.276	9507.369	4745.855	-10.866	-0.889
S.D.	32.749	55.320	28.677	49.053	54.278	30.554	2.353	0.246
% R.S.D.	3.988	0.576	0.603	0.502	0.571	0.644	21.652	27.701

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	4764.765	9356.357	4935.892	-44.466	16.212	-1081.947	9764.398	1112.040
S.D.	42.465	58.534	28.439	8.005	10.705	10.317	64.984	48.550
% R.S.D.	0.891	0.626	0.576	18.003	66.028	0.954	0.666	4.366

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)

Mean	34.942	4883.575	-15.328	9748.194	-4.958	243.894	368.372	33.203
S.D.	9.107	30.107	9.683	35.585	1.743	39.800	1.433	11.016
% R.S.D.	26.062	0.616	63.172	0.365	35.155-	16.319 -	0.389	33.179

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-5.736	9270.923	4718.687	4989.574	4725.362	4683.146	3.245	-0.062
S.D.	0.626	45.319	24.701	31.005	25.337	35.332	1.749	0.000
% R.S.D.	10.911	0.489	0.523	0.621	0.536	0.748	53.889	0.000

	Tl (ppb)
Mean	-34.458
S.D.	14.639
% R.S.D.	42.483

Corrected Counts Statistics 1:03 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.132	0.006	
Sr	2	0.024	0.014	
Bi	3	4.739	0.043	
[illegible]	5	-0.019	0.003	
Ho	6	1.539	0.017	
	7	-0.049	0.023	
Si	8	0.014	0.004	
Al	9	1.160	0.022	
W	10	-0.032	0.019	
Zn	11	0.227	0.006	
Cu	12	0.103	0.003	
Li	14	-0.001	0.018	
[illegible]	15	-0.010	0.005	
Ni	16	-0.070	0.011	
[illegible]	17	1.243	0.002	
Eu	18	76.403	0.183	
Fe	19	0.020	0.006	
Ca	20	0.535	0.001	
Cr	21	-0.007	0.010	
Nd	22	11.620	0.061	
Ce	24	1.814	0.007	
Sm	25	1.751	0.010	
Ba	26	-0.406	0.011	
P	27	0.023	0.003	
S	28	0.013	0.009	
Mg	29	0.012	0.001	
As	30	0.079	0.002	
Na	31	0.081	0.006	
Mo	32	0.009	0.004	
Se	33	-0.053	0.005	
Au	34	15.903	0.068	
	35	2.600	0.028	

Ti	36	-0.134	0.002
Cd	37	-0.087	0.028
B	38	-0.003	0.011
K	39	-0.049	0.009
Mn	40	-0.007	0.002
Sb	42	-0.003	0.006
V	43	0.058	0.001
Be	44	-0.008	0.001
Tl	45	-0.047	0.004

Identity 1: SST2 STD 2R48AD Identity 2: Direct 1:04 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-80.589	-0.027	4984.378	-21.899	217.391	-9.837	-70.838	277.072
S.D.	2.604	0.545	45.122	1.914	1109.335	5.452	2.877	9.142
% R.S.D.	3.231	2029.459	0.905	8.738	510.294	55.426	4.061	3.299

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-65.950	-26.179	8.202	-1.222	-0.079	-2.938	5078.915	4972.271
S.D.	26.177	0.523	0.746	1.848	1.165	2.504	8.483	11.910
% R.S.D.	39.692	1.998	9.097	151.230	1481.415	85.239	0.167	0.240

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-0.108	40.767	-6.557	5123.614	4949.211	5161.193	-26.735	83.242
S.D.	1.800	0.174	3.993	27.453	18.541	29.831	0.679	22.295
% R.S.D.	1660.344	0.426	60.891	0.536	0.375	0.578	2.540	26.784

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-8.827	-2.484	88.576	-29.269	0.844	10.132	5083.525	4717.270
S.D.	9.866	0.127	2.980	3.517	1.141	12.818	21.569	51.364
% R.S.D.	111.772	5.094	3.365	12.016	135.295	126.506	0.424	1.089

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-8.266	-0.686	1.392	-91.785	-1.402	-58.834	27.796	-0.124
S.D.	0.282	1.163	2.182	54.824	0.153	31.847	0.695	0.108
% R.S.D.	3.413	169.526	156.710	59.731	10.942	54.131	2.500	86.618

	Tl (ppb)
Mean	94.467
S.D.	30.653
% R.S.D.	32.448

Corrected Counts Statistics 1:05 PM January 23, 1992
Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
	1	22.899	0.145	
Sr	2	0.010	0.001	
Bi	3	-1.822	0.020	
Ta	5	15.716	0.055	
Hg	6	26.689	0.097	
Sn	7	0.070	0.046	
Si	8	12.556	0.077	
Al	9	12.037	0.051	
W	10	31.069	0.171	
Zn	11	0.177	0.015	
Cu	12	0.056	0.005	
Li	14	-0.020	0.006	
Co	15	-0.061	0.017	
Hf	16	0.287	0.021	
La	17	-0.009	0.001	
Eu	18	-0.158	0.004	
Fe	19	0.015	0.011	
[illegible]	20	0.152	0.003	
Cr	21	0.015	0.003	
[illegible]	22	-0.127	0.080	
Ce	24	0.031	0.004	
[illegible]	25	-0.096	0.004	
[illegible]	26	-0.006	0.004	
P	27	1.497	0.008	
[illegible]	28	4.601	0.053	
[illegible]	29	0.012	0.000	
	30	3.958	0.014	
Na	31	0.128	0.014	
Mg	32	31.597	0.100	
Se	33	1.491	0.014	
Ag	34	-0.081	0.022	
Pb	35	-0.075	0.005	
Ti	36	36.461	0.178	
[illegible]	37	-0.230	0.069	
K	38	0.030	0.013	
[illegible]	39	-0.058	0.012	
Mn	40	0.010	0.005	
Sb	42	0.008	0.011	
V	43	14.204	0.086	
Be	44	53.137	0.301	
Tl	45	0.654	0.004	

Identity 1: SS73 STD 3B48AD Identity 2: Direct 1:06 PM January 22, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
[illegible]	10466.317	-0.604	-1886.509	10014.671	1640434.783	18.414	8206.837	4795.381
	66.292	0.023	21.258	35.385	6354.709	10.845	50.648	21.011

% R.S.D.	0.633	3.849	1.127	0.353	0.387	58.895	0.617	0.438

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	43908.553	-30.642	-2.861	-3.157	-12.118	82.102	-20.375	-6.503
S.D.	242.200	1.337	1.097	0.579	4.064	4.979	4.706	0.260
% R.S.D.	0.552	4.364	38.332	18.343	33.535	6.064	23.095	4.000

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-1.961	-24.013	2.651	-156.085	-92.174	-341.387	-2.338	10306.486
S.D.	3.645	0.491	1.256	36.054	10.195	10.459	0.220	52.056
% R.S.D.	185.892	2.043	47.365	23.099	11.060	3.064	9.406	0.505

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	5288.639	-2.557	5092.807	0.006	9996.833	4500.392	4.991	-128.587
S.D.	61.746	0.000	18.059	8.592	31.639	41.978	6.837	8.559
% R.S.D.	1.168	0.000	0.355	150984.585	0.316	0.933	136.976	6.656

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	4950.452	-6.694	7.955	-148.177	0.385	5.521	9856.937	9914.370
S.D.	24.118	2.903	2.502	73.256	0.460	60.509	59.841	56.231
% R.S.D.	0.487	43.367	31.458	49.438	119.400	1096.084	0.607	0.567

	Tl (ppb)
Mean	5024.063
S.D.	30.653
% R.S.D.	0.610

Corrected Counts Statistics 1:10 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. kpulses
Zr	1	0.009	0.006	
Sr	2	0.010	0.002	
Ni	3	-0.248	0.012	
Ta	5	-0.001	0.008	
Hg	6	1.526	0.016	
Sn	7	0.006	0.015	
Si	8	0.719	0.002	
Al	9	1.551	0.011	
W	10	0.074	0.022	
Zn	11	5.751	0.035	
Cu	12	2.218	0.015	
Li	14	-0.002	0.008	
Co	15	2.154	0.020	

Ni	16	2.022	0.009
La	17	-0.005	0.001
Eu	18	-0.085	0.007
Fe	19	1.563	0.003
[illegible]	20	3.076	0.019
[illegible]	21	1.242	0.006
Nd	22	0.023	0.031
Ce	24	0.026	0.002
Sm	25	-0.038	0.003
Ba	26	8.349	0.051
P	27	0.011	0.003
S	28	0.012	0.018
Mg	29	2.370	0.016
As	30	0.401	0.007
Na	31	0.880	0.029
Mo	32	1.560	0.007
Se	33	0.155	0.005
Ag	34	1.556	0.004
Pb	35	0.235	0.006
Tl	36	3.653	0.025
Cd	37	11.993	0.167
B	38	2.394	0.021
[illegible]	39	0.794	0.009
Mn	40	5.030	0.040
Sb	42	0.085	0.004
V	43	0.749	0.004
Be	44	2.630	0.023
[illegible]	45	0.010	0.003

[illegible]

[illegible]ty 1: CCV-3 Identity 2: CCV 1:10 PM January 23, 1992
[illegible]ask name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-15.714	-0.577	-238.083	-10.205	-630.435	3.148	394.447	439.355
S.D.	2.604	0.061	12.741	5.311	1044.157	3.504	1.143	4.569
% R.S.D.	16.570	10.657	5.351	52.048	165.625	111.327	0.290	1.040

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	81.770	467.032	499.020	-1.290	510.775	495.856	-5.433	-1.756
S.D.	31.287	3.127	3.419	0.808	4.770	2.137	4.075	0.455
% R.S.D.	38.262	0.670	0.685	62.663	0.934	0.431	75.007	25.925

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	504.273	469.829	516.330	-91.955	-106.312	-166.670	507.270	4.637
S.D.	0.823	3.219	2.691	14.125	4.897	8.597	3.083	20.022
% R.S.D.	0.163	0.685	0.521	15.360	4.607	5.158	0.608	431.741

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
[illegible]	-14.129	514.180	505.005	464.902	491.661	498.402	525.120	469.070
	20.827	3.416	8.780	17.779	2.215	13.845	1.146	11.644

% R.S.D.	147.403	0.664	1.739	3.824	0.451	2.778	0.218	2.482

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mg (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	504.968	506.847	477.947	5001.658	504.420	428.419	508.159	492.006
S.D.	3.445	7.035	4.216	51.387	4.062	19.888	2.808	4.312
% R.S.D.	0.682	1.388	0.882	1.027	0.805	4.642	0.553	0.876

	Tl (ppb)
Mean	495.304
S.D.	18.606
% R.S.D.	3.756

Corrected Counts Statistics 1:12 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.001	0.003	
Sr	2	-0.008	0.001	
Bi	3	-0.071	0.022	
Ta	5	-0.004	0.012	
Mo	6	1.526	0.023	
Sn	7	-0.028	0.038	
Si	8	0.098	0.003	
Al	9	0.412	0.015	
W	10	-0.061	0.006	
Zn	11	0.041	0.005	
Cu	12	0.052	0.005	
Li	14	-0.015	0.006	
Co	15	-0.017	0.015	
Ni	16	-0.087	0.010	
Lu	17	-0.006	0.001	
Eu	18	-0.085	0.004	
Fe	19	-0.007	0.003	
Ca	20	0.038	0.001	
Cr	21	-0.005	0.002	
Nd	22	0.125	0.055	
Ce	24	0.021	0.008	
Sm	25	-0.032	0.003	
Ba	26	-0.015	0.007	
P	27	0.016	0.002	
S	28	0.005	0.005	
Mg	29	0.001	0.001	
As	30	-0.007	0.005	
Na	31	0.040	0.022	
Mn	32	0.014	0.004	
Se	33	-0.049	0.007	
Ag	34	-0.110	0.003	
Pb	35	-0.011	0.006	
Tl	36	-0.110	0.004	
Cd	37	-0.066	0.039	

R	38	-0.009	0.020
K	39	-0.070	0.006
Mn	40	-0.007	0.007
Sb	42	-0.008	0.010
[illegible]	43	0.025	0.002
[illegible]	44	-0.007	0.001
Tl	45	-0.054	0.004

Identity 1: CCB-3 Identity 2: CCB 1:12 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-20.599	-1.315	-53.062	-12.331	-630.435	-4.879	-15.180	-33.924
S.D.	1.399	0.040	22.761	7.734	1467.512	8.947	1.905	6.249
% R.S.D.	6.792	3.061	42.895	62.718	232.778	183.382	12.551	18.422

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-106.488	-42.785	-3.635	-2.580	-1.731	-7.150	-8.150	-1.734
S.D.	7.790	0.412	1.145	0.622	3.456	2.412	2.353	0.246
% R.S.D.	7.315	0.964	31.496	24.119	199.648	33.732	28.869	14.197

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-8.934	-43.291	-5.580	-42.530	-121.391	-149.794	-2.907	39.316
[illegible]	0.823	0.097	0.871	24.523	22.679	10.317	0.406	16.017
[illegible].D.	9.208	0.223	15.613	57.661	18.682	6.887	13.969	40.740

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-17.327	-5.040	-21.502	-54.215	2.321	22.515	-4.223	-12.678
S.D.	5.290	0.127	6.364	13.611	1.198	20.868	0.953	9.975
% R.S.D.	30.533	2.510	29.596	25.106	51.626	92.685	22.571	78.676

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-4.923	0.168	0.066	-220.682	-1.309	-86.414	5.098	0.062
S.D.	0.513	1.642	4.019	33.641	0.703	54.420	1.061	0.108
% R.S.D.	10.420	975.779	6062.381	15.244	53.733	62.976	20.820	173.145

	Tl (ppb)
Mean	47.585
S.D.	28.420
% R.S.D.	59.726

Corrected Counts Statistics 1:14 PM January 23, 1992
Task name : ALL_SIM
[illegible]ple Weight : 1.0000 Solution Volume : 1.00
[illegible]ak Integrations : 3 Off-Peak Integrations : 1

alyte Channel	Mean Kpulses	S.D. Kpulses	2R.S.D. Kpulses
1	0.018	0.003	
2	0.012	0.003	
3	-0.107	0.018	
5	-0.033	0.007	
6	1.618	0.006	
7	0.097	0.053	
8	2.682	0.003	
9	270.799	1.331	
10	0.546	0.026	
11	1.213	0.004	
12	0.210	0.001	
14	0.032	0.005	
15	-0.005	0.013	
16	0.156	0.009	
17	-0.003	0.001	
18	-0.097	0.003	
19	1.654	0.010	
20	2.032	0.003	
21	3.155	0.018	
22	0.082	0.022	
24	0.003	0.004	
25	-0.050	0.005	
26	0.019	0.003	
27	1.508	0.026	
28	12.374	0.075	
29	0.204	0.001	
30	-0.010	0.008	
31	-31.466	0.000	
32	0.471	0.003	
33	0.060	0.006	
34	-0.116	0.001	
35	-0.030	0.005	
36	-0.056	0.087	
37	0.800	0.035	
38	3.790	0.041	
39	63.284	0.094	
40	0.076	0.002	
42	0.001	0.003	
43	0.030	0.004	
44	0.001	0.001	
45	-0.063	0.003	

dentity 1: R942 San N3AP891-7 Identity 2: 10ml-50ml 1:15 PM January 23, 1992
ask name : ALL_SIM
ample Weight : 1.0000 Solution Volume : 1.00
n-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Mg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
ean	-11.593	-0.510	-90.765	-30.829	5413.043	24.788	1689.986	112284.909
.D.	1.472	0.106	18.773	4.600	370.842	12.548	1.980	552.811
R.S.D.	12.698	20.888	20.684	14.920	6.851	50.623	0.117	0.492

Al	9	3.698	0.070
W	10	6.241	0.077
Zn	11	22.023	0.164
Cu	12	4.404	0.019
Li	14	20.521	0.129
	15	8.190	0.098
Ni	16	4.075	0.061
La	17	0.257	0.001
Eu	18	15.788	0.054
Fe	19	3.184	0.034
Ca	20	12.384	0.040
Cr	21	2.423	0.025
Nd	22	2.634	0.089
Ce	24	0.498	0.025
Sm	25	0.346	0.024
Ba	26	33.483	0.109
P	27	0.301	0.003
S	28	0.976	0.029
Mg	29	4.631	0.031
As	30	0.803	0.009
Na	31	5.945	0.022
Mo	32	6.266	0.052
Se	33	0.330	0.015
Ag	34	3.451	0.032
Pb	35	0.525	0.021
Ti	36	7.297	0.045
Cd	37	44.315	0.350
I	38	8.848	0.051
K	39	0.196	0.019
Mn	40	9.628	0.047
Sb	42	0.192	0.014
	43	2.832	0.024
	44	10.644	0.056
Tl	45	0.058	0.020

Identity 1: R946 Dig. STD 10-50 Identity 2: 1B48AA,2B48AB,3B48AB 1:58 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	2101.177	2028.741	718.437	1871.918	310260.870	969.887	3852.077	1331.358
S.D.	13.554	7.089	24.095	31.759	4005.608	29.682	27.443	29.008
% R.S.D.	0.645	0.349	3.354	1.697	1.291	3.060	0.712	2.179

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	8798.506	1919.822	1906.472	2088.553	1935.767	985.271	1063.598	1030.442
S.D.	109.271	14.610	8.442	13.169	23.105	14.432	4.706	3.541
% R.S.D.	1.242	0.761	0.441	0.631	1.194	1.465	0.442	0.344

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	1034.042	2044.257	1010.337	1070.158	1227.313	974.944	2040.200	2015.995
	11.186	6.799	10.399	39.795	71.605	71.867	6.632	22.295

% R.S.D.	1.082	0.333	1.029	3.719	5.834	7.371	0.325	1.106

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	1085.863	1009.586	1022.900	3597.541	1980.386	895.255	1127.117	959.270
S.D.	32.929	6.840	11.634	13.793	16.507	40.458	10.029	37.219
% R.S.D.	3.033	0.678	1.137	0.383	0.833	4.519	0.890	3.880

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	998.690	1864.921	1761.578	1388.516	965.388	1018.638	1955.037	1987.177
S.D.	6.122	14.792	10.106	111.791	4.746	78.204	16.825	10.354
% R.S.D.	0.613	0.788	0.574	8.051	0.492	7.677	0.861	0.521

	Tl (ppb)
Mean	835.195
S.D.	141.579
% R.S.D.	16.952

Corrected Counts Statistics 2:02 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.002	0.009	
Sr	2	0.000	0.002	
Bi	3	-0.227	0.022	
Ta	5	-0.040	0.012	
Hg	6	1.510	0.013	
Sn	7	-0.031	0.020	
Si	8	0.692	0.005	
Al	9	1.500	0.024	
W	10	0.007	0.037	
Zn	11	5.542	0.023	
Cu	12	2.148	0.011	
Li	14	-0.021	0.001	
Co	15	2.048	0.006	
Ni	16	1.957	0.022	
La	17	-0.006	0.001	
Eu	18	-0.088	0.003	
Fe	19	1.490	0.026	
Ca	20	2.969	0.021	
Cr	21	1.183	0.006	
Nd	22	0.054	0.051	
Ce	24	0.020	0.008	
Sm	25	-0.046	0.002	
Ba	26	8.084	0.044	
P	27	0.014	0.005	
S	28	0.031	0.007	
Mg	29	2.272	0.014	
As	30	0.388	0.004	
Na	31	0.998	0.011	

Mo	32	1.513	0.016
Se	33	0.143	0.001
Ag	34	1.507	0.009
Pb	35	0.247	0.010
Ti	36	3.510	0.025
[illegible]	37	11.188	0.085
Sb	38	2.311	0.030
V	39	0.790	0.001
Mn	40	4.821	0.029
Sb	42	0.068	0.004
V	43	0.714	0.006
Be	44	2.498	0.013
Tl	45	-0.001	0.004

Identity 1: CCV-4 Identity 2: CCV 2:03 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-19.073	-0.979	-216.090	-35.507	-1673.913	-5.430	376.408	418.170
S.D.	4.070	0.084	22.680	7.338	820.634	4.604	2.976	9.821
% R.S.D.	21.341	8.555	10.496	20.666	49.025	84.792	0.791	2.349

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-12.837	448.373	482.850	-3.225	485.752	480.358	-9.508	-1.951
S.D.	52.330	2.012	2.482	0.102	1.342	5.127	4.075	0.225
D.	407.642	0.449	0.514	3.158	0.276	1.067	42.859	11.547

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	480.193	451.711	491.357	-78.039	-124.219	-190.495	491.107	23.133
S.D.	8.413	3.475	2.691	22.918	22.854	4.549	2.663	31.783
% R.S.D.	1.752	0.769	0.548	29.368	18.398	2.388	0.542	137.396

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	7.967	492.631	488.225	537.884	476.683	468.150	509.551	454.382
S.D.	8.499	3.071	5.370	6.671	4.926	2.762	2.824	18.231
% R.S.D.	106.683	0.623	1.100	1.240	1.033	0.590	0.554	4.011

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	485.592	473.037	461.508	4973.461	483.500	534.646	483.376	467.381
S.D.	3.348	3.566	5.889	3.488	2.870	24.044	4.071	2.435
% R.S.D.	0.689	0.754	1.276	0.070	0.594	7.185	0.842	0.521

	Tl (ppb)
Mean	420.293
S.D.	28.420
% R.S.D.	6.762

Mo	32	1.313	0.018
Se	33	0.143	0.001
Ag	34	1.507	0.009
Pb	35	0.247	0.010
Ti	36	3.510	0.025
Cd	37	11.188	0.085
B	38	2.311	0.030
K	39	0.790	0.001
Mn	40	4.821	0.029
Sb	42	0.068	0.004
V	43	0.714	0.006
Be	44	2.498	0.013
Tl	45	-0.001	0.004

Identity 1: CCV-4 Identity 2: CCV 2:03 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-19.073	-0.979	-216.090	-35.507	-1673.913	-5.430	376.408	418.170
S.D.	4.070	0.084	22.680	7.338	820.634	4.604	2.976	9.821
% R.S.D.	21.341	8.555	10.496	20.666	49.025	84.792	0.791	2.349

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-12.837	448.373	482.850	-3.225	485.752	480.358	-9.508	-1.951
S.D.	52.330	2.012	2.482	0.102	1.342	5.127	4.075	0.225
% R.S.D.	407.642	0.449	0.514	3.158	0.276	1.067	42.859	11.547

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	480.193	451.711	491.357	-78.039	-124.219	-190.495	491.107	23.133
S.D.	8.413	3.475	2.691	22.918	22.854	4.549	2.663	31.783
% R.S.D.	1.752	0.769	0.548	29.368	18.398	2.388	0.542	137.396

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	7.967	492.631	488.225	537.884	476.683	468.150	509.551	454.582
S.D.	8.499	3.071	5.370	6.671	4.926	2.762	2.824	18.231
% R.S.D.	106.683	0.623	1.100	1.240	1.033	0.590	0.554	4.011

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	485.592	473.037	461.508	4973.461	483.500	334.646	483.376	467.381
S.D.	3.348	3.566	5.889	3.488	2.870	24.044	4.071	2.435
% R.S.D.	0.689	0.754	1.276	0.070	0.594	7.185	0.842	0.521

	Tl (ppb)
Mean	420.293
S.D.	28.420
% R.S.D.	6.762

Corrected Counts Statistics 2:04 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.010	0.002	
Sr	2	-0.003	0.004	
Bi	3	-0.039	0.021	
Ta	5	0.019	0.013	
Hg	6	1.517	0.010	
Sn	7	-0.045	0.022	
Si	8	0.097	0.007	
Al	9	0.393	0.012	
W	10	-0.037	0.014	
Zn	11	0.053	0.007	
Cu	12	0.051	0.004	
Li	14	-0.011	0.007	
Co	15	-0.001	0.012	
Ni	16	-0.069	0.005	
La	17	-0.005	0.002	
Eu	18	-0.088	0.001	
Fe	19	0.008	0.016	
Ce	20	0.208	0.001	
Cr	21	-0.017	0.007	
Nd	22	0.086	0.051	
Ce	24	0.019	0.007	
Sm	25	-0.024	0.005	
	26	-0.009	0.007	
	27	0.010	0.003	
S	28	0.027	0.006	
Mg	29	0.007	0.001	
As	30	-0.024	0.003	
Na	31	0.205	0.009	
Mo	32	0.004	0.014	
Se	33	-0.055	0.009	
Ag	34	-0.117	0.004	
Pb	35	-0.006	0.015	
Ti	36	-0.100	0.002	
Cd	37	-0.115	0.024	
P	38	0.011	0.015	
K	39	-0.047	0.004	
Mn	40	0.004	0.003	
Sb	42	0.001	0.005	
V	43	0.018	0.002	
Be	44	-0.007	0.002	
Ti	45	-0.062	0.005	

Identity 1: CCB-4 Identity 2: CCB 2:05 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-15.562	-1.100	-19.200	2.340	-1173.913	-8.814	-15.839	-41.540
S.D.	0.700	0.152	21.793	8.144	643.420	5.123	4.682	4.815
% R.S.D.	4.495	13.851	113.562	348.024	54.810	58.132	29.561	11.599

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-73.471	-41.683	-3.945	-2.172	2.046	-2.779	-4.075	-1.951
S.D.	19.084	0.585	0.837	0.722	2.716	1.262	9.411	0.065
% R.S.D.	25.975	1.405	21.215	33.256	132.729	45.396	230.969	3.333

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-4.249	-14.511	-10.603	-60.268	-126.104	-125.969	-2.541	-4.610
S.D.	5.375	0.190	2.940	22.736	19.792	14.891	0.433	18.350
% R.S.D.	126.491	1.313	27.726	37.724	15.695	11.821	17.027	398.036

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	8.207	-3.652	-43.863	47.629	-0.844	5.226	-6.447	-3.019
S.D.	6.359	0.219	3.414	5.497	4.389	24.346	1.271	27.347
% R.S.D.	77.484	6.000	7.783	11.542	520.080	465.869	19.713	905.829

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-3.613	-1.863	4.044	-79.701	-0.224	-33.092	0.234	0.124
S.D.	0.271	1.009	3.044	25.155	0.348	27.210	1.446	0.323
% R.S.D.	7.500	54.156	75.285	31.562	155.294	82.226	618.322	259.762

	Tl (ppb)
Mean	-13.361
S.D.	34.689
% R.S.D.	259.629

Corrected Counts Statistics 2:07 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.026	0.008	
Sr	2	0.119	0.006	
Bi	3	-0.120	0.008	
Ta	5	-0.034	0.021	
Hg	6	1.954	0.019	
Sn	7	5.829	0.088	
Si	8	0.540	0.009	
Al	9	605.033	3.257	
W	10	-0.023	0.024	
Zn	11	0.262	0.004	
Cu	12	0.059	0.005	
Li	14	-0.016	0.005	

Co	15	0.014	0.004
Ni	16	-0.076	0.008
La	17	-0.045	0.002
Eu	18	0.071	0.007
Fe	19	298.879	2.382
	20	1124.306	5.103
Cr	21	0.006	0.004
Nd	22	3.524	0.089
Ce	24	0.025	0.010
Sm	25	-8.614	0.004
Ba	26	0.044	0.006
P	27	0.021	0.001
S	28	2.191	0.033
Mg	29	918.004	5.280
As	30	0.113	0.004
Na	31	0.257	0.008
Mo	32	-0.011	0.012
Se	33	-0.062	0.009
Ag	34	-0.114	0.002
Pb	35	-0.100	0.009
Ti	36	-0.067	0.009
Cd	37	0.329	0.025
[illegible]	38	-0.478	0.005
K	39	-0.032	0.004
Mn	40	1.673	0.012
Sb	42	-0.004	0.004
[illegible]	43	0.022	0.004
Be	44	-0.000	0.002
Tl	45	-0.079	0.008

Identity 1: ICSA-F Identity 2: ICSA 2:07 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-8.082	3.811	-104.030	-31.254	27282.609	1377.987	276.531	251126.081
S.D.	3.457	0.236	8.378	13.446	1220.687	20.789	5.988	1353.020
% R.S.D.	42.778	6.190	8.054	43.020	4.474	1.509	2.166	0.539

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-52.782	-23.054	-2.165	-2.715	5.587	-4.369	-169.795	8.411
S.D.	34.406	0.361	1.047	0.539	0.829	1.790	6.225	0.423
% R.S.D.	65.185	1.565	48.338	19.843	14.839	40.963	3.666	5.031

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	97691.997	190229.105	-0.976	102.354	-109.139	-25707.058	0.691	71.683
S.D.	778.656	863.635	1.691	35.196	27.267	12.036	0.347	6.936
% R.S.D.	0.797	0.454	173.237	34.386	24.984	0.047	50.171	9.676

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
	837.571	201167.801	133.297	79.997	-5.485	-17.298	-5.494	-172.657

S.D.	30.502	1157.117	4.530	4.683	3.650	27.166	0.635	16.422
% R.S.D.	3.642	0.575	3.398	5.854	66.534	157.048	11.567	9.518

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	0.858	16.793	-93.137	10.930	32.822	-60.672	3.013	1.368
S.D.	1.242	1.046	0.911	21.219	0.695	20.883	2.893	0.285
% R.S.D.	144.713	6.232	0.978	194.140	2.117	34.420	96.003	20.830

	Tl (ppb)
Mean	-128.221
S.D.	54.623
% R.S.D.	42.600

Corrected Counts Statistics 2:09 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.013	0.009	
Sc	2	0.109	0.006	
Bi	3	-0.158	0.010	
Ta	5	-0.020	0.009	
Hg	6	1.966	0.008	
Sd	7	6.085	0.036	
Si	8	0.530	0.012	
Al	9	613.133	2.044	
W	10	0.036	0.017	
Zn	11	11.517	0.037	
Cu	12	2.213	0.011	
Li	14	-0.032	0.008	
Co	15	2.084	0.015	
Ni	16	3.978	0.023	
La	17	-0.046	0.001	
Eu	18	0.051	0.004	
Fe	19	303.954	1.124	
Ca	20	1135.921	3.144	
Cr	21	1.260	0.009	
Nd	22	3.504	0.077	
Ce	24	0.014	0.012	
Sm	25	-8.598	0.016	
Ba	26	8.492	0.020	
P	27	0.023	0.002	
S	28	2.203	0.023	
Mg	29	930.484	2.171	
As	30	0.104	0.017	
Na	31	0.192	0.035	
Mo	32	0.006	0.009	
Se	33	-0.004	0.007	
Ag	34	3.240	0.006	
Pb	35	0.455	0.013	
Ti	36	-0.061	0.022	

Co	37	[illegible]	[illegible]
B	38	-0.478	0.013
K	39	-0.047	0.011
Mn	40	6.661	0.018
Sb	42	-0.020	0.007
	43	0.750	0.004
Be	44	2.699	0.006
Tl	45	-0.054	0.005

Identity 1: ICSAB-F Identity 2: ICSAB 2:10 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-14.035	3.381	-144.176	-22.749	28065.217	1438.423	269.931	254490.546
S.D.	4.070	0.246	10.900	5.753	531.165	8.581	7.984	849.088
% R.S.D.	29.000	7.274	7.561	25.287	1.893	0.597	2.958	0.334

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	28.003	981.849	497.937	-4.345	494.329	962.144	-171.153	7.067
S.D.	24.177	3.276	2.567	0.834	3.494	5.499	2.353	0.271
% R.S.D.	86.337	0.334	0.516	19.184	0.707	0.572	1.375	3.831

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	99350.931	192193.801	523.863	79.088	-139.299	-25661.393	515.992	87.866
S.D.	367.421	532.009	3.560	33.539	32.526	46.169	1.196	10.594
% R.S.D.	0.370	0.277	0.679	42.408	23.350	0.180	0.232	12.058

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	834.966	203902.691	121.456	39.383	0.000	34.290	1060.182	831.287
S.D.	21.756	475.762	21.702	21.659	2.836	20.138	1.984	23.287
% R.S.D.	2.606	0.233	17.868	54.996	12603531.134	58.729	0.187	2.801

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	1.716	1000.808	-93.137	-81.715	532.668	-148.929	508.853	504.941
S.D.	3.031	1.421	2.631	68.624	1.544	39.134	2.893	1.165
% R.S.D.	176.591	0.142	2.825	83.980	0.290	26.277	0.568	0.231

	Tl (ppb)
Mean	45.241
S.D.	36.541
% R.S.D.	80.769

Corrected Counts Statistics 2:11 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.025	0.003	
Sr	2	0.012	0.003	
Bi	3	-0.042	0.041	
Ta	5	-0.020	0.014	
Hg	6	1.498	0.006	
Sn	7	0.004	0.038	
Si	8	0.109	0.002	
Al	9	0.467	0.016	
W	10	-0.008	0.016	
Zn	11	0.057	0.008	
Cu	12	0.055	0.003	
Li	14	-0.015	0.007	
Co	15	-0.006	0.008	
Ni	16	-0.088	0.014	
La	17	-0.005	0.001	
Eu	18	-0.069	0.006	
Fe	19	0.016	0.006	
Ca	20	0.260	0.015	
Cr	21	-0.002	0.001	
Nd	22	0.161	0.033	
Ce	24	0.041	0.002	
Sm	25	-0.008	0.004	
Ba	26	0.005	0.000	
P	27	0.013	0.004	
S	28	0.024	0.010	
Mg	29	0.042	0.012	
As	30	-0.002	0.007	
Na	31	0.146	0.009	
Mo	32	-0.003	0.007	
Se	33	-0.039	0.007	
Ag	34	-0.106	0.003	
Pb	35	-0.015	0.009	
Ti	36	-0.092	0.003	
Cd	37	-0.058	0.017	
B	38	0.013	0.019	
K	39	-0.049	0.003	
Mn	40	0.010	0.002	
Sb	42	-0.010	0.007	
V	43	0.024	0.002	
Be	44	-0.006	0.001	
Tl	45	-0.052	0.003	

Identity 1: xxx Identity 2: Rinse 2:12 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-8.540	-0.496	-22.691	-29.128	-2434.783	2.676	-8.360	-10.800
S.D.	1.212	0.116	43.045	9.207	407.282	9.074	1.524	6.677
% R.S.D.	14.187	23.406	189.699	31.608	16.728	339.142	18.232	61.818

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-32.026	-41.326	-3.016	-2.614	1.023	-7.230	-6.791	-0.694
S.D.	23.277	0.674	0.804	0.668	1.834	3.307	2.353	0.381
% R.S.D.	72.683	1.631	26.657	25.548	179.234	45.736	34.644	54.930

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-1.525	-5.722	-4.604	-26.772	-62.957	-77.327	-1.667	18.509
S.D.	2.041	2.478	0.242	14.827	5.886	12.399	0.000	28.030
% R.S.D.	133.868	43.312	5.249	55.383	9.349	16.034	0.000	151.443

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	4.666	4.018	-15.051	10.932	-2.954	52.348	-2.846	-18.715
S.D.	11.083	2.657	9.060	5.747	2.282	19.404	0.917	16.433
% R.S.D.	237.541	66.133	60.196	52.566	77.262	37.068	32.226	87.808

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-2.575	0.532	4.508	-91.785	0.406	-97.446	4.403	0.373
S.D.	0.341	0.708	3.715	18.459	0.152	37.547	1.061	0.108
% R.S.D.	13.245	133.083	82.419	20.111	37.375	38.531	24.106	28.866

	Tl (ppb)
Mean	56.961
S.D.	22.605
% R.S.D.	39.686

Corrected Counts Statistics 2:14 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.012	0.006	
Sr	2	0.001	0.001	
Bi	3	-0.044	0.014	
Ta	5	-0.008	0.010	
Hg	6	1.505	0.001	
Sn	7	-0.029	0.021	
Si	8	0.113	0.005	
Al	9	0.353	0.011	
W	10	-0.027	0.027	
Zn	11	0.499	0.009	
Cu	12	0.258	0.001	
Li	14	-0.028	0.007	
Co	15	0.407	0.006	
Ni	16	0.249	0.020	
La	17	-0.004	0.001	
Eu	18	-0.092	0.005	
F	19	0.006	0.003	

Ca	20	0.208	0.001
Cr	21	0.046	0.002
Nd	22	0.025	0.020
Ce	24	0.025	0.007
Sm	25	-0.024	0.005
Ba	26	-0.007	0.001
P	27	0.011	0.002
S	28	0.005	0.005
Mg	29	0.009	0.001
As	30	-0.005	0.012
Na	31	0.107	0.020
Mo	32	-0.000	0.005
Se	33	-0.046	0.013
Ag	34	-0.052	0.004
Pb	35	-0.002	0.008
Ti	36	-0.099	0.004
Cd	37	0.114	0.029
B	38	-0.006	0.008
K	39	-0.047	0.003
Mn	40	0.306	0.003
Sb	42	0.033	0.008
V	43	0.163	0.003
Be	44	0.046	0.001
Tl	45	-0.064	0.005

Identity 1: CRI-F Identity 2: CRI 2:14 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-14.341	-0.966	-24.088	-14.882	-2000.000	-5.036	-5.720	-58.156
S.D.	2.522	0.023	15.044	6.379	37.653	4.878	2.976	4.557
% R.S.D.	17.587	2.406	62.454	42.860	1.883	96.862	52.030	7.835

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-59.463	-1.835	44.178	-3.971	98.441	73.121	-1.358	-2.189
S.D.	38.260	0.770	0.134	0.737	1.416	4.818	4.075	0.334
% R.S.D.	64.342	41.950	0.303	18.549	1.439	6.589	300.114	15.242

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-4.794	-14.673	15.625	-87.685	-110.082	-126.962	-2.379	4.637
S.D.	1.132	0.098	0.837	8.842	20.842	13.755	0.070	14.438
% R.S.D.	23.621	0.666	5.357	10.084	18.933	10.834	2.961	311.333

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-17.963	-3.287	-19.344	-12.776	-2.004	25.500	14.100	3.622
S.D.	5.457	0.253	14.876	12.125	1.675	38.908	1.116	14.068
% R.S.D.	30.381	7.698	76.906	94.902	83.551	152.577	7.914	388.427

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)

Mean	-3.523	7.745	0.663	-83.729	30.155	139.745	100.753	9.950
S.D.	0.513	1.198	1.607	18.459	0.253	41.767	1.838	0.108
% R.S.D.	14.561	15.468	242.488	22.046	0.839	29.888	1.825	1.083

	Tl (ppb)
Mean	-25.081
S.D.	32.226
% R.S.D.	128.484

Corrected Counts Statistics 2:16 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	2R.S.D. Kpulses
Zr	1	0.016	0.004	
Sr	2	0.012	0.004	
Bi	3	-0.181	0.020	
Ta	5	0.016	0.011	
Mg	6	1.504	0.028	
Sn	7	0.025	0.026	
Si	8	0.707	0.005	
Al	9	1.548	0.022	
W	10	0.017	0.022	
Fe	11	5.642	0.025	
Cr	12	2.192	0.010	
	14	-0.005	0.003	
Lu	15	2.095	0.008	
Ni	16	1.961	0.020	
La	17	-0.005	0.001	
Eu	18	-0.086	0.002	
Fe	19	1.522	0.005	
Ca	20	3.025	0.012	
Sr	21	1.200	0.003	
Nd	22	0.029	0.057	
Cr	24	0.021	0.007	
Se	25	-0.036	0.014	
Ba	26	8.230	0.025	
P	27	0.021	0.002	
S	28	0.014	0.008	
Mg	29	2.312	0.008	
As	30	0.388	0.014	
Na	31	0.942	0.013	
Mo	32	1.533	0.009	
Se	33	0.178	0.013	
Ag	34	1.536	0.004	
Pb	35	0.264	0.006	
Ti	36	3.581	0.003	
Cd	37	11.508	0.047	
B	38	2.326	0.020	
K	39	0.805	0.005	
Mn	40	4.907	0.022	
	42	0.095	0.003	

V	43	0.727	0.001
Re	44	2.556	0.016
Tl	45	0.011	0.004

Identity 1: CCV-4 Identity 2: CCV 2:16 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume :, 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-12.662	-0.496	-167.915	0.426	-2021.739	7.791	386.528	438.109
S.D.	1.832	0.168	20.919	7.245	1845.011	6.071	3.024	9.139
% R.S.D.	14.467	33.757	12.458	1699.084	91.259	77.929	0.782	2.086

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	0.323	457.301	492.986	-1.595	497.004	481.232	-6.791	-1.821
S.D.	31.789	2.192	2.238	0.269	1.772	4.690	2.353	0.130
% R.S.D.	9842.729	0.479	0.454	16.888	0.357	0.975	34.644	7.143

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	490.871	461.231	498.612	-89.495	-119.506	-161.707	499.971	69.371
S.D.	1.645	2.079	1.256	25.737	19.860	40.942	1.499	10.594
% R.S.D.	0.335	0.451	0.252	28.758	16.618	25.319	0.300	15.272

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-11.745	501.396	487.798	503.455	483.117	570.247	518.871	485.974
S.D.	9.278	1.838	18.604	7.896	2.848	37.352	1.284	11.310
% R.S.D.	78.998	0.367	3.814	1.568	0.590	6.550	0.247	2.327

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	495.122	486.468	464.424	5066.106	492.067	483.580	492.409	478.263
S.D.	0.414	1.966	4.004	31.395	2.210	14.594	0.802	2.932
% R.S.D.	0.084	0.404	0.862	0.620	0.449	3.018	0.163	0.613

	Tl (ppb)
Mean	499.992
S.D.	26.624
% R.S.D.	5.325

Corrected Counts Statistics 2:18 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.012	0.006	

Sr	2	-0.001	0.004
Bi	3	-0.062	0.012
Ta	5	-0.021	0.004
Hg	6	1.503	0.025
Sn	7	-0.009	0.017
	8	0.085	0.003
[illegible]	9	0.342	0.014
W	10	0.024	0.011
Zn	11	0.033	0.007
Cu	12	0.042	0.002
Li	14	-0.031	0.011
Co	15	-0.017	0.011
Ni	16	-0.059	0.011
La	17	-0.002	0.002
Eu	18	-0.079	0.004
Fe	19	-0.005	0.010
Ca	20	0.037	0.001
Cr	21	-0.010	0.003
Nd	22	0.099	0.055
Ce	24	0.022	0.008
Sm	25	-0.023	0.004
Ba	26	-0.003	0.002
P	27	0.012	0.003
S	28	0.013	0.005
Mg	29	0.002	0.001
As	30	-0.007	0.003
Na	31	0.119	0.012
Mo	32	-0.013	0.007
Se	33	-0.058	0.008
Ag	34	-0.127	0.004
Pb	35	-0.020	0.009
	36	-0.108	0.004
[illegible]	37	-0.138	0.020
W	38	-0.019	0.014
K	39	-0.058	0.005
Mn	40	0.006	0.001
Sb	42	-0.007	0.011
V	43	0.022	0.002
Be	44	-0.006	0.001
Tl	45	-0.060	0.008

Identity 1: CCB-4 Identity 2: CCB 2:18 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-14.341	-1.020	-43.637	-23.387	-2130.435	-0.236	-23.979	-63.002
S.D.	2.944	0.163	12.273	2.240	1609.870	3.981	2.286	5.670
% R.S.D.	20.530	15.953	28.125	9.578	75.565	1686.192	9.534	9.000

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	12.765	-43.499	-6.034	-4.277	-1.652	-0.315	6.792	-1.344
	14.856	0.594	0.402	1.117	2.660	2.712	8.150	0.271

% R.S.D.	116.384	1.367	6.663	26.118	161.000	859.617	119.991	20.145

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-8.498	-43.456	-7.812	-54.365	-116.679	-122.991	-2.155	11.573
S.D.	3.274	0.096	1.107	24.767	21.222	11.912	0.106	20.022
% R.S.D.	38.528	0.222	14.174	45.557	18.188	9.686	4.902	173.001

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-8.473	-4.675	-22.362	-5.355	-6.118	-4.127	-9.519	-28.374
S.D.	5.925	0.253	4.147	7.558	2.075	21.792	1.203	16.599
% R.S.D.	69.921	5.413	18.545	141.152	33.918	528.079	12.638	58.500

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-4.743	-2.829	-1.790	-150.191	0.031	-77.221	3.013	0.249
S.D.	0.548	0.819	2.787	31.005	0.058	60.760	1.605	0.108
% R.S.D.	11.547	28.965	155.688	20.644	188.738	78.684	53.253	43.297

	Tl (ppb)
Mean	0.703
S.D.	56.404
% R.S.D.	8018.914

Corrected Counts Statistics 2:20 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.037	0.006	
Sr	2	246.646	0.335	
Bi	3	-0.089	0.027	
Ta	5	-0.034	0.011	
Hg	6	1.538	0.008	
Sb	7	20.974	0.130	
Si	8	0.077	0.008	
Al	9	0.078	0.016	
W	10	0.612	0.060	
Zn	11	110.026	0.070	
Cu	12	21.043	0.032	
Li	14	98.497	0.455	
Co	15	40.920	0.037	
Ni	16	20.251	0.026	
La	17	-0.004	0.000	
Eu	18	-0.067	0.006	
Fe	19	14.917	0.064	
Ca	20	56.872	0.081	
Cr	21	12.006	0.024	
Nd	22	0.324	0.033	
Ce	24	0.069	0.005	
Sm	25	-0.357	0.006	

Ba	26	163.949	0.269
P	27	0.175	0.007
S	28	0.128	0.006
Mg	29	22.722	0.012
As	30	-0.002	0.013
	31	16.313	0.052
[illegible]	32	0.006	0.004
Se	33	0.421	0.008
Ag	34	1.079	0.003
Pb	35	-0.009	0.009
Ti	36	-0.112	0.003
Cd	37	224.303	0.408
B	38	24.378	0.087
K	39	0.843	0.001
Mn	40	48.026	0.018
Sb	42	0.896	0.010
V	43	0.017	0.002
Be	44	-0.008	0.000
Tl	45	-0.063	0.005

Identity 1: SST1 STD 1B4BAc Identity 2: Direct 2:20 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-36.780	9927.279	-71.914	-31.679	195.652	4953.309	-29.479	-172.530
S.D.	2.522	13.472	28.341	7.254	523.096	30.687	5.335	6.594
[illegible].D.	6.857	0.136	39.410	22.898	267.360	0.620	18.096	3.822

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	819.361	9776.646	4868.261	10028.924	9662.387	4842.021	-1.358	-0.585
S.D.	84.977	6.245	7.508	46.381	8.617	6.127	0.000	0.396
% R.S.D.	10.371	0.064	0.154	0.462	0.089	0.127	0.000	67.583

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	4869.259	9565.887	5021.133	-22.766	16.212	-1118.677	9997.570	1142.095
S.D.	20.770	13.676	9.925	14.911	13.060	16.934	16.415	50.174
% R.S.D.	0.427	0.143	0.198	65.495	80.553	1.514	0.164	4.393

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	40.417	4974.154	-13.576	10010.020	0.000	257.680	373.667	-9.056
S.D.	7.237	2.657	16.473	31.913	1.317	22.493	1.021	15.403
% R.S.D.	17.905	0.053	121.338	0.319	5854315.791	8.729	0.273	170.089

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-5.285	9427.393	4850.007	5293.690	4818.293	4903.789	-0.461	-0.062
S.D.	0.414	17.156	17.399	3.488	1.794	54.420	1.446	0.000
% R.S.D.	7.833	0.182	0.359	0.066	0.037	1.110	313.818	0.000

Tl

	(ppb)
Mean	-20.393
S.D.	32.480
% R.S.D.	159.270

Corrected Counts Statistics 2:23 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.144	0.004	
Sr	2	-0.011	0.005	
Bi	3	4.886	0.041	
Ta	5	-0.024	0.012	
Hg	6	1.541	0.014	
Sn	7	-0.083	0.035	
Si	8	0.024	0.009	
Al	9	1.194	0.041	
W	10	-0.012	0.016	
Zn	11	0.229	0.011	
Cu	12	0.094	0.004	
Li	14	-0.019	0.002	
Co	15	-0.026	0.003	
Ni	16	-0.071	0.008	
La	17	1.278	0.004	
Eu	18	78.579	0.227	
Fe	19	0.036	0.007	
Ca	20	0.407	0.004	
Cr	21	-0.013	0.009	
Nd	22	11.847	0.049	
Ce	24	1.865	0.006	
Sm	25	1.802	0.004	
Ba	26	-0.438	0.006	
P	27	0.021	0.004	
S	28	0.016	0.008	
Mg	29	0.009	0.001	
As	30	0.085	0.006	
Na	31	0.237	0.024	
Mo	32	0.012	0.003	
Se	33	-0.044	0.017	
Ag	34	16.431	0.052	
Pb	35	2.675	0.045	
Tl	36	-0.135	0.010	
Cd	37	-0.160	0.025	
B	38	-0.007	0.020	
K	39	-0.047	0.008	
Mn	40	-0.013	0.002	
Sb	42	-0.021	0.004	
V	43	0.060	0.004	
Be	44	-0.008	0.002	
Tl	45	-0.036	0.004	

Identity 1: SST2 STD 2B48AD Identity 2: Direct 2:24 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-86.084	-1.436	5138.329	-25.088	369.565	-17.706	-64.458	291.196
S.D.	1.851	0.209	42.738	7.967	920.005	8.213	5.915	17.179
% R.S.D.	2.150	14.569	0.832	31.756	248.942	46.386	9.177	5.900

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-37.188	-26.000	6.113	-3.021	-3.777	-3.336	5222.901	5113.733
S.D.	22.563	0.955	0.815	0.204	0.818	1.805	14.693	14.739
% R.S.D.	60.673	3.672	13.334	6.742	21.651	54.125	0.281	0.288

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	5.122	19.165	-9.068	5225.650	5092.469	5313.077	-28.707	69.371
S.D.	2.176	0.600	3.720	22.020	17.043	10.459	0.336	28.030
% R.S.D.	42.496	3.130	41.023	0.421	0.335	0.197	1.170	40.407

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-5.559	-3.214	96.314	67.421	1.688	37.841	5251.394	4853.101
S.D.	9.330	0.219	7.447	14.998	0.796	49.632	16.659	81.122
% R.S.D.	167.843	6.818	7.732	22.245	47.186	131.159	0.317	1.672

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
	-8.356	-3.767	0.597	-81.715	-1.956	-156.284	28.954	-0.062
S.D.	1.293	1.032	3.929	48.336	0.174	24.044	2.631	0.323
% R.S.D.	15.469	27.387	658.564	59.152	8.915	15.385	9.086	519.797

	Tl (ppb)
Mean	174.165
S.D.	24.696
% R.S.D.	14.180

Corrected Counts Statistics 2:25 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	23.354	0.039	
Sr	2	0.008	0.008	
Bi	3	-1.845	0.030	
Ta	5	15.857	0.063	
Hg	6	26.881	0.054	
	7	0.068	0.042	

Si	8	12.673	0.028
Al	9	12.183	0.024
W	10	31.781	0.062
Zn	11	0.143	0.003
Cu	12	0.056	0.005
Li	14	-0.025	0.008
Co	15	-0.080	0.019
Ni	16	0.301	0.023
La	17	-0.006	0.001
Eu	18	-0.155	0.007
Fe	19	0.002	0.009
Ca	20	0.137	0.001
Cr	21	0.019	0.001
Nd	22	-0.099	0.051
Ce	24	0.021	0.013
Sm	25	-0.100	0.007
Ba	26	-0.016	0.008
P	27	1.476	0.014
S	28	4.572	0.027
Mg	29	0.011	0.001
As	30	3.973	0.015
Na	31	0.190	0.003
Mo	32	32.008	0.017
Se	33	1.493	0.015
Ag	34	-0.120	0.011
Pb	35	-0.067	0.007
Ti	36	37.068	0.072
Cd	37	-0.277	0.025
B	38	0.018	0.013
K	39	-0.353	0.005
Mn	40	0.017	0.002
Sb	42	0.020	0.003
V	43	14.488	0.023
Be	44	54.202	0.093
Tl	45	0.656	0.004

Identity 1: SST3 STD 3848AD Identity 2: Direct 2:26 PM January 23, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	10674.526	-0.671	-1910.248	10104.822	1652978.261	17.863	8283.835	4855.891
S.D.	17.655	0.314	31.073	40.246	3512.669	10.024	18.585	9.821
% R.S.D.	0.165	46.862	1.627	0.398	0.213	56.117	0.224	0.202

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	44915.732	-33.618	-2.707	-3.632	-16.603	85.360	-10.866	-6.330
S.D.	87.528	0.273	1.097	0.808	4.506	5.511	2.353	0.479
% R.S.D.	0.195	0.811	40.524	22.254	27.139	6.457	21.652	7.573

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-5.992	-26.555	4.325	-143.332	-121.391	-351.314	-2.928	10165.460

% R.S.D.	46.893	0.368	9.677	16.003	30.310	5.954	16.710	0.926

	S (ppb)	Mo (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
	5255.562	-2.949	5111.728	38.352	10126.895	4505.332	-7.294	-112.891
	30.814	0.127	19.364	2.143	5.308	44.624	3.397	12.326
% R.S.D.	0.583	4.441	0.379	5.586	0.052	0.990	46.575	10.920

	Ti (ppb)	Cd (ppb)	Ba (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	5032.746	-8.683	5.436	-119.981	1.124	69.875	10054.502	10112.112
S.D.	9.588	1.055	2.648	31.005	0.154	16.548	16.107	17.437
% R.S.D.	0.193	12.155	48.719	25.842	13.656	23.683	0.160	0.172

	Tl (ppb)
Mean	5038.127
S.D.	30.653
% R.S.D.	0.608

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