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WHC-SD-WM-DP-025
Addendum 5 Rev 0

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

222-S Analytical Laboratory

Project: 242-A EVAPORATOR FEED CHARACTERIZATION

Tank: 103AP

Customer Id. Number: 3AP1191-1

Report Revision: 0

Date Printed: May 18, 1992

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Hanford Operations and Engineering Contractor for the US Department of Energy

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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

8/20/92
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of Highly Radioactive Samples in Support of Environmental Activities on the Hanford Site" - WHC-SD-CP-QAPP-002, unless superseded by the Statement of Work or Waste Characterization Plan.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.

L. P. Markel
Laboratory Q.A. Officer

9/12/92
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

9-14-92
Date

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NARRATIVE

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Westinghouse
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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

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

P.O. Box 1970 Richland, WA 99352

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:

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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 R935.

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

The gamma 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.

Westinghouse
Hanford Company

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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.

3AP1191-1 (R935)

The percent recovery values for Iron and Sodium standards by Inductively Coupled Plasma were outside of the control limits of ±25%. The percent recovery for Iron was 126% and the percent recovery value for Sodium was 177.5%.

9/11/92

John Tillman, Manager
Inorganic Chemistry PAL

5.4

Westinghouse
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 JEB 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

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.

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.

16500-90-090

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

Rachel 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

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

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

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	534-57-1	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 caltulated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

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.

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.

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

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.

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.

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

9 3 1 2 3 3 1 2 4 4

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 12 — No. B 06110

AFR/ORG: ANK FARMS OPERATIONS	ITEM/MATERIAL NAME: 3 samples from TK-103-AP	PART NO.: N/A	
200E / AP Farm	DRAWING/SPEC. NO.: N/A	REV.: N/A	
	PROGRAM/PROJECT: Evaporator Restart	P.O./W.O. NO.: 1WIT6C0E	
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 vironmental samples.

6. CORRECTIVE ACTION TO ELIMINATE CAUSE

~~Operations personnel that retrieve samples shall be reminded of the importance of proper custody seal placement.~~ T.W. 11/26/91

See page 2.

INITIATION DATE _____ SERIAL NO. _____

Engineer 03 DEC 91
RESPONSIBLE ORG. REP. — 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 — 05 NOV 91
COGNIZANT ENGINEER 76420 — DATE

J. J. Verderber — 11/21/91
COGNIZANT QA ENGINEER 32200 — DATE

AUTHORIZED INSPECTOR REVIEW — DATE

11. ADDITIONAL APPROVALS

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

12. DISPOSITION ACTION COMPLETE

5.20

QTY. ACCEPT _____ QTY. REJ. _____ → FOLLOW ON NCR

NAME — DATE

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

9312316

WHC-SD-WM-DP-025
Addendum 5 Rev 0

COPY

R0119 R933 LABORATORY ID	Date Sampled 9-19-91	Time Sampled 0500
Sample Site or Sampling ID 3AP591-1 103-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 Abeita	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 Bajenin 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)

9312533127

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 Haugh was notified and an NCR generated by Debbie Bessinger

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

11-5-91 - telephone mess.: Paul Haugh: VJ Shipp accept sample for analysis

5.23

9 3 1 2 3 1 2 4 8

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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 40001

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

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	B.C. Wyer	Date	11/25/91	Time	1925
Sample Locations	103-AP Riser # 1			Custody Seal #	3100
Remarks	Seal # 3099 is attached to shipping container.				
Ice Chest or Sample Pig No.	TF-5	Field Logbook and Page No.	N/A		

SUPERVISION REVIEW: [signature] DATE: 11/26/91

SAMPLE IDENTIFICATION

Sample Number: 3AP1191-1

Sample Schedule Number: 242-A STATEMENT OF WORK WHC-SOW-91-0002

R-661 (935)

CHAIN OF POSSESSION

Relinquished by:	Received by:	Date/Time:
[signature]	[signature]	11-30 91/1320
[signature]	Raymond Akita [signature]	11-30-91 / 1355

SAMPLE CHECK IN LIST

Date/Time Received 11-30-91 / 1355 Sample ID ~~R661~~ UJ 3AP1191-1

Project 103 AP Client 241 Hanford Farm

Shipping Container ID# TF-5 Shipping # R661

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 # 3099, 3100
5. Condition of Samples: _____ in good condition
   _____ broken
   _____ leaking
6. Samples have: N/A custody seals
   N/A 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 [ ] No [X]
9. Memos have been initiated for all anomalies identified? Yes [ ]

Printed Name Vida Johansen VIDA JOHANSEN

Signature Vida Johansen

Date/Time 12-2-91 1100

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

SAMPLE IN/OUT LOG

DATE	TIME OUT	TIME IN	UNIT #	SAMPLE ID.	TECHNOLOGIST SIGNATURE	PAYROLL NUMBER
1-6-91	0800	11:20	18	R941-945	[illegible]	65731
1-6-91	0800	1430	25	B 6481	Sandra L Hood	82372
1-6-91	0800	1400	Cold	R994-999	Mary Tracy	6C269
1-6-92	0800	1030	5	R-902-906	Ed Cobra	80028
1/6/92	0850	1300	24 & 18	C 933 → 937	Paul M Schlich	81805
1/6/92	10:00	11:00	20	R551	Sue Lai	6C916
1/6/92	11:46	12:00	18	R941-945	David R. Jackson	6C775
1/6/92	1415	1450	18	R949	S A Catlow	64965
01-06-92	1630	1700	5	R960,961	S L Cobb	82583
01-06-92	1830	20:30	5	R1015	S L Cobb	82583
1-6-92	2000	20:10	25	B 6481	Valerie L Massie	82016
01-06-92	18:00	22:45	FRIDGE 5	R-959-967	[illegible]	82580
01-07-92	0100	0415	FRIDGE #2	R-941-5	[illegible]	82577
1-7-92	0820	1030	47	R-929	S. B. Kunkler	60368
1-7-92	0830	1430 ~~1700~~	24/48	R933 → R937	Paul M Schlich	81805
1-7-92	1030	1400	40	54.-786 to 55 651	S. B. Kunkler	60368
1-7-92	14:30	14:50	20	R551	Sue Lai	6C916
1-8-92	0008	0032	18	R919	[illegible]	81808
1-8-92	0015	0030	7	R 783	Jerry M. Kunkel	80518
1-8-92	0015	0030	28	T8526, T8579	Jerry M. Kunkel	80518
1-8-92	0015	0030	Refrig 5	R 1015	Jerry M Kunkel	80518
1-8-92	0030	0230	18	R-941	Jeff Solbrack	82020
1-8-92	0730	0930	5	R-1021	Ed Cobra	80027
1-8-92	0730	1020	5	R959,60,61	[illegible]	65731
1-8-92	0830	0900	24/48	R933 → 37	Melanie Meyer	6C823
1-8-92	0845	0850	18	R-949	Paul M Schlich	81805
1-8-92	0900	11:00	24/18	R933 → 37	Sue Lai	6C916
1-8-92	0900	0915	28	R941 → 47	Melanie Meyer	6C823
1-8-92	1100	1210	18	R943 → 44	Melanie Meyer	6C823
~~1-8-92~~	~~0900~~	~~11:00~~	~~24/18~~	~~R933 → 937~~	~~[illegible]~~	
1-8-92	1315	1510	40	786-651	S. B. Kunkler	60368

SAMPLE LOG IN/OUT Refrigerator
storage unit #___ WHC-SD-WM-DP-025 Sample Group
date_____to_____ Addendum 5 Rev 0 _____ COPY

SAMPLE IN/OUT	SAMPLE DATE	SAMPLE TIME	SAMPLE ID	TECHNICIAN SIGNATURE	PAYROLL NUMBER	CUSTODIAN SIGNATURE
✓	12/16/91	1050	CEL-5.1a-E-80	E.V. Allerson	82712	Vida Johansen
✓	12/16/91	1052	CEL-5.1a-F-20	E.V. Allerson	82712	Vida Johansen
✓	12/16/91	1053	CEL-6.5a-F-60	E.V. Allerson	82712	Vida Johansen
✓	12/16/91	1055	CEL-6.5a-E-4	E.V. Allerson	82712	Vida Johansen
✓	12/16/91	1059	[illegible] R927	E.V. Allerson	82712	Vida Johansen
✓	12/6/91	11:30	~~[illegible]~~	Sue C Lai	6C916	Sue Vida Johansen
✓	12/6/91	14:05	R933, R941	Sue C Lai	6C916	Vida Johansen
✓	12/26/91	10:50	L991	Todd McCulloch	81805	Vida Johansen
✓	12/26/91	1310	L991	Todd McCulloch	81805	Vida Johansen
✓	12-30-91	1340	R974, 975, 976, 977, 978, 979	S. Cobb	82583	Wrong book
✓	12-31-91	1550	902, 3, 4, 6 ~~[illegible]~~	J. Sollinck	82020	
✓	1-2-92	8:20	933, 934, 935, 936, 937	David R. Jackson	6C275	Vida Johansen
✓	1-2-92	8:20	941, 942, 943, 944, 945	David R. Jackson	6C275	Vida Johansen
✓	1-2-92	10:55	933	DE Nelson	62059	V Johansen
✓	1-2-92	14:20	R933	DE Nelson	62059	V. Johansen
✓	1-2-92	14:25	R934 R935	DE Nelson	62059	V Johansen
✓	1-2-92	1917	R934 R935	DE Nelson	62059	V Johansen
	~~1-3-92~~	0745	~~R902-6 R939-941 R965-967~~	~~Liliana Meyer~~	~~6C023~~	
✓	1-7-92	1005	R936 R937	DE Nelson	62059	V Johansen
✓	1-7-92	1433	R936 R937	E.V. Allerson	82712	V Johansen
✓	1-7-92	1434	R941 R942	E.V. Allerson	82712	V Johansen
✓	1-7-92	1710	R941	E.V. Allerson	82712	V Johansen
✓	1-7-92	1712	R943	E.V. Allerson	82712	V Johansen
✓	1-7-92	1901	R943 R942	E.V. Allerson	82712	V Johansen
	~~1-8-92~~	~~0730~~	~~R959, 960, 961~~	~~[illegible]~~	~~6C931~~	
✓	1-8-92	1311	R944 R945	E.V. Allerson	82712	Vida Johansen
✓	1-8-92	1601	R944 R945	E.V. Allerson	82712	Vida Johansen
✓	1-29-92	1036	R1121 R1122 R1125	RE Skoda	81524	Vida Johansen
✓	1-29-92	1055	R1121 1125 1122	RE Skoda	81524	Vida Johansen
✓	1/30/92	0715	R1121 1125 1122	S.J. Ottman	82768	Vida Johansen
	1/30/92	0910	R1121 1125 1122	S.J. Ottman	82768	Vida Johansen

WHC-SD-WM-DP-025
Addendum 5 Rev 0

SAMPLE LOG IN/OUT
storage unit #
date 3/9/92 to 4-1-92

Sample Group
Refrigerator 60 Within 3

SAMPLE IN/OUT		DATE	TIME	SAMPLE ID	TECHNICIAN SIGNATURE	PAYROLL NUMBER	CUSTODIAN SIGNATURE
✓	✓	3/09/92	1330	R9593	R. J. Ray	82627	[illegible]
	✓	3/09/92	1330	R9591	R. J. Ray	82627	[illegible]
✓		3/09/92	1630	R9591	R. J. Ray	82627	[illegible]
✓		3/09/92	1630	R9597	R. J. Ray	82627	[illegible]
✓		3-10-92	16:50	MB-87-A	Mark A. Beck	82628	[illegible]
✓		3-10-92	16:50	MB-87-B MB-87-C	Mark A. Beck	82628	[illegible]
	✓	3-23-92	1031	R1226 - R1227 R330	R. J. RAY	82627	[illegible]
✓		3/23/92	1440	R330 R1226, R1227	R. J. Ray	82627	Vida Johansen
	✓	3/24/92	820	R933 - 937 R941 - 945	T. H. Bellus	82703	[illegible]
✓		3/24/92	1025	R933 - 937 R941 - 945	T. H. Bellus	82703	[illegible]
	✓	3/26/92	855	R1344 R1349 R1346 R1350	Keith Fuller	67528	Vida Johansen
	✓	3/26/92	855	R1351 R1352	RKF	67528	Vida Johansen
	✓	3/26/92	0855	R1355 R1356	RKF	67528	Vida Johansen
	✓	3/26/92	0855	R1360-61 R1365-66	RKF	67528	Vida Johansen
	✓	3/26/92	0855	R1370-71 R1375-76	RKF	67528	Vida Johansen
	✓	3/26/92	0855	R1380-81	RKF	67528	Vida Johansen
✓		3/26/92	1430	R1344 R1349 R1346 R1350	Keith Fuller	67528	[illegible]
✓		3/26/92	1430	R1351-52 R1355-56	Keith Fuller	67528	[illegible]
✓		3/26/92	1430	R1360-61 R1365-66 R1370-71	Keith Fuller	67528	[illegible]
✓		3/26/92	1430	R1375-76 R1380-81	Keith Fuller	67528	[illegible]
	✓	3/26/92	1300	R933-937 R941-945	T. H. Bellus	82703	[illegible]
✓		3/26	1435	R933-937 R941-945	T. H. Bellus	82703	Vida Johansen
	✓	3-31-92	0945	R1344 R1349 R1346 R1350	Keith Fuller	67528	Vida Johansen
	✓	3-31-92	0945	R1351-52 R1355-56	Keith Fuller	67528	Vida Johansen
	✓	3-31-92	0945	R1360-61 R1365-66 R1370-71	Keith Fuller	67528	Vida Johansen
	✓	3-31-92	0945	R1375-76 R1380-81	Keith Fuller	67528	Vida Johansen
✓		3-31-92	1125	R1344 R1349 R1346 R1350	Keith Fuller	67528	Vida Johansen
✓		3-31-92	1125	R1351-52 R1355-56	Keith Fuller	67528	Vida Johansen
✓		3-31-92	1125	R1360-61 R1365-66 R1370-71	Keith Fuller	67528	Vida Johansen
✓		3-31-92	1125	R1375-76 R1380-81	Keith Fuller	67528	Vida Johansen
	✓	4-1-92	1003	R1380-81	Keith Fuller	67528	[illegible]
✓		4-1-92	1427	R1380 81	Keith Fuller	67528	Vida Johansen

SAMPLE LOG IN/OUT
storage unit #___ WHC-SD-WM-DP-025 Addendum 5 Rev 0 Sample Group
date 4-1-92 to 4.2.92 Ref. 1 3

SAMPLE IN/OUT	SAMPLE DATE	SAMPLE TIME	SAMPLE ID	TECHNICIAN SIGNATURE	PAYROLL NUMBER	CUSTODIAN SIGNATURE
✓	4/1/92	1325	R 943	Robert Ray	82627	[redacted]
✓	4/1/92	1325	R 944	Robert Ray	82627	[redacted]
✓	4/1/92	1325	R 945	Robert Ray	82627	[redacted]
✓	4/1/92	1325	R933	Robert Ray	82627	[redacted]
✓	4/1/92	1325	R934	Robert Ray	82627	[redacted]
✓	4/1/92	1325	R935	Robert Ray	82627	[redacted]
✓	4/1/92	1325	R936	Robert Ray	82627	[redacted]
✓	4/1/92	1325	R937	Robert Ray	82627	[redacted]
✓	4/1/92	1325	R941	Robert Ray	82627	[redacted]
✓	4/1/92	1325	R942	Robert Ray	82627	[redacted]
✓	4/1/92	1655	R943 R944	Robert Ray	82627	R Ikeda
✓	4/1/92	1655	R945 R933	Robert Ray	82627	R Ikeda
✓	4/1/92	1655	R934 R935	Robert Ray	82627	R Ikeda
✓	4/1/92	1655	R936 R937	Robert Ray	82627	R Ikeda
✓	4/1/92	1655	R941 R942	Robert Ray	82627	R Ikeda
✓	4/2/92	0900	R1291 R1292	Robert Ray	82627	Vida Johansen
✓	4/2/92	0900	R1293 R1294	Robert Ray	82627	Vida Johansen
✓	4/2/92	0900	R1295 R1296	Robert Ray	82627	Vida Johansen
✓	4/2/92	0900	R1287 R1288	Robert Ray	82627	Vida Johansen
✓	4/2/92	0900	R1285 R1286	Robert Ray	82627	Vida Johansen
✓	4/2/92	0900	R1289 R1290	Robert Ray	82627	Vida Johansen
✓	4/2/92	1020	R1380-81	Keith Fuller	67528	REJ
✓	4/2/92	1040	R1291 R1292	Robert Ray	82627	REJ
✓	4/2/92	1040	R1293 R1294	Robert Ray	82627	REJ
✓	4/2/92	1040	R1295 R1296	Robert Ray	82627	REJ
✓	4/2/92	1040	R1287 R1288	Robert Ray	82627	REJ
✓	4/2/92	1040	R1285 R1286	Robert Ray	82627	REJ
✓	4/2/92	1040	R1289 R1290	Robert Ray	82627	REJ
✓	4-2-92	1250	R1380-81	Keith Fuller	67528	REJ
✓	4-2-92	1327	R1375-76 R1380-81	R E Sluda	81524	REJ
✓	4-2-92	1337	R1375-76 R1381-81	R E Sluda	81524	REJ

COPY

SAMPLE IN/OUT LOG

DATE	TIME OUT	TIME IN	UNIT #	SAMPLE ID.	TECHNOLOGIST SIGNATURE	PAYROLL NUMBER
1-2-92	08:10	11:00	# 44	J213 ~ J215	Sue Lee	6C916
1-2-92	08:15	1415	Frig 5	R904-906 R965-7 967	Melanie Meyer	6C823
1-2-92	0840	1415	"	R959-7961	Melanie Meyer	6C823
~~1-2-92~~	~~08:45~~			~~R994 ~ R999~~		
1-2-92	08:45	15:00	shelf	R994 ~ R999	Sue Lee	6C916
1-2-92	10:55	11:05	shelf	S-988	Sandra L Hood	82372
1-2-92	13:30	15:05	Shelf	U4552 U4553	Teresa L Frazier	67768
1-2-92	1330	1505	Shelf	B1002-7	Teresa L Frazier	67768
1-2-92	13:30	15:05	25	B6444, B6408	Teresa L Frazier	67768
1-3-92	0745	0900	Frig 5	R902 thru 906 959 thru 961 965 & 967	Melanie Meyer	6C823
1-3-92	0744	0830	COLD	R-1010-1012	Ed Cobb	80028
1-3-92	0800	0830	18	R949	S L Cobb	64565
1-3-96	0900	1500	Frig 5	R959-7 61	Melanie Meyer	6C823
1-3-96	0915	0940	14	R551	Melanie Meyer	6C823
1-3-92	15:30	22:10	Frig of 5	R 861, 863, 870, 857	A. Lee	82580
01-03-92	1800	1815	18	R949	SL Cobb	82583
1-3-92	18 30	22:10	18	R 949	A. LEE	82580
1-4-92	0010	0030	18	R949	Jerry M Kunkel	80518
1-4-92	0030	0615	shelf	R994-999	Jerry M. Kunkel	80518
1-4-92	0030	0130	19	R941-945	[illegible]	81808
1-4-92	0245	0310	18	R 949	Jeff Sollnick	82020
1-4-92	1800	1830	18	R949	SL Cobb	82583
01-04-92	1930	2045	24	R935, 936, 937	SL Cobb	82583
01-04-92	1930	2045	18	R934	SL Cobb	82583
1-5-92	0015	0645	Refrig 5	R 902-906	Jerry M. Kunkel	80518
1-05-92	0020	0125	REFRIG 5	R965-967	[illegible]	52577
01-05-92	0035	0335	35	S-213, 14, 15	Jeff Sollnick	82020
1-5-92	16:30	18:40	Refrig #5	R959	Valerie L Massie	82016
1-5-92	18:40	19:15	Refrig #5	R-960, 961	Valerie L Massie	82016
1-6-92	0012	0020	REFRIG #5	R 1015	[illegible]	82577
1-6-92	~~0012~~ 0215	0600	Refrig 5	R965-967	Jerry M. Kunkel	80518

SAMPLE IN/OUT LOG

DATE	TIME OUT	TIME IN	UNIT #	SAMPLE ID.	TECHNOLOGIST SIGNATURE	PAYROLL NUMBER
1-14-92		17:50	28	T-8760	[illegible]	82370
1-15-92	02:10	02:40	20	R-1067	Valerie L Massey	82016
1-15-92	0730	1230	COLD	R-607-610 R-994	[illegible]	80028
[illegible]						
1/15/92	08:00	13:10	32	51XCOLD 51XCOLD	[illegible]	68090
1/15/92	0800	0825	20	R1067, R1076 R1080	[illegible]	6C823
1/15/92	10:30	13:25	20	R 1067	Sue Lai	6C916
1-15-92	1115	1135	30	T 8852	Jerry M. Kunkel	80518
1-15-92	1140	1305	28	T-8760	[illegible]	82577
1-15-92	1230	1430	20	R 1023, 1068, 1083	Mary Frame	6C269
1-15-92	11:00	13:10	22	R 1086	Sue Lai	6C916
1-15-92	13:10	13:20	16	R 1070	Sue Lai	6C916
1-15-92	13:20	13:25	28	T-8760	[illegible]	82020
1/15/92	1400	1500	20	T 1076	[illegible]	6C559
1-15-92	1700	1900	shelf	P 303	Sandra L Hood	82372
1-15-92	1700	1900	shelf	B6508-15	Sandra L Hood	82372
1-15-92	17:35	17:40	shelf	B6502	Sandra L Hood	82372
1-16-92	00:10		28	T 8852	Valerie L Massey	82016
1-16-92	10:15	13:30	22	R 1085, 1086, 1089	Sue Lai	6C916
1-16-92	1000	ALL SAMPLE USE O	COLD	R-994	[illegible]	80028
1-16-92	10:30	11:45	Frig	R959-961 R965-967	[illegible]	6C275
1-16-92	10:45	11:00	24	R933-934	[illegible]	6C275
1-16-92	10:45	11:00	18	R935-937	[illegible]	6C275
1/16/92	1045	1115	20	R-1080	[illegible]	6C559
1-16-92	1100	1105	28	R8852 Fusion	[illegible]	64965
1-16-92	11:00	11:50	18	R941-945	[illegible]	6C275
1-16-92	11:10	11:25	29	5676	[illegible]	6C275
1-16-92	11:10	11:25	25	B6126, B6157 B6219, B6233	[illegible]	6C275
1-16-92	11:10	11:25	25	B6408, B6444 B6481	[illegible]	6C275
1-16-92	11:15	11:35	28	B8852	[illegible]	82577
1-16-92	1315	1370	30	B8852	Jerry M. Kunkel	80518

12-V 2-4-92 COPY

SAMPLE IN/OUT LOG

2B

DATE	TIME OUT	TIME IN	UNIT #	SAMPLE ID.	TECHNOLOGIST SIGNATURE	PAYROLL NUMBER
12-28-91	10:00	1120	7	R753, 754	Valerie L Massai	82016
1-28-92	1000	1030	24	R-985	Ed Cole	80027
1-28-92	1030	1230	COLD	R-785	Ed Cole	80028
~~1-28-92~~	~~1300~~			~~12-13~~	~~[illegible]~~	~~[illegible]~~
1/28/92	1620	2000	35	J183-89 Direct	Teresa L. Frazier	67768
1-28-92	1640	2000	18	R941, R942, R943 R944, R945	Linda Conklin	6C949
1-28-92	1640	2315	17	N-8, N-9, N-10	[illegible]	82577
1-28-92	1640	2000	18	R-941, R-942, R-943 R-944 R-945	Jeff Sobrado	82020
1-29-92	1635	2245	17	N-16, N-17, N-18	[illegible]	82577
1-30-92	0730	0830	24	R-933-934	Ed Cole	80028
1-30-92	0730	0830	18	R-935-937	Ed Cole	80028
1-30-92	13:30	13:50	Ref. #5	R1141	[illegible]	6C275
1-30-92	1:30	10:20 2-1-92	54	R-1152	[illegible]	64483
1-30-92	1425		35	J230-242	Teresa L. Frazier	67768
1-30-92	1425		35	J223-229	Teresa L. Frazier	67768
1-30-92	08:15	14:10	18	R944, R945	Sue Li	6C916
2-1-92	0045	0230	Frig 5	R1141	Jerry M. Kunkel	80518
2-1-92	18:35	22:30	28	T8895	Valerie L Massai	82016
2-3-92	0730	0800	18	R-941-945	Ed Cole	80028
2-3-92	0745	0750	28	T8852 Fr 5 2 T8869 Fr 5	[illegible]	64865
2-3-92	0745	1400	Frig 5	R1141	[illegible]	68823
2-3-92	08:05	15:00	2237	R423, 424, 425	Sue Li	6C916
2/3/92	1310	1335	40	J84, J245	Teresa L. Frazier	67768
2/3/92	1350	1430	46	R1141	Teresa L. Frazier	67768
2-3-92	17:15	18:50	17	N-61	Valerie L Massai	82016
2-3-92	18:50	21:15	17	N-62	Valerie L Massai	82016
2-3-92	21:15	23:00	17	N-63	Valerie L Massai	82016
2-4-92	0800	1308	17	N-28+29	[illegible]	68823
2-4-92	08:40	14:30	17	N 35, 42, 43, 44	Sue Li	6C916
2-4-92	10 00	10 40	40	T163-T158	S. B. Kunkler	60368
2/04/92	10:15	13:05	32	31XC010 31XC0310	[illegible]	6B090

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		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: RPT		3AP1191-1		(11) Volume of Sample: 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	103 APR
Sr-90		1.5E-3 µCi/L	3APRCOMP
Am-241		1E-3 µCi/L	R949
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

(19) 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	(2) Date/Time Issued	(3) Date/Time Required	(4) Charge Code
FD-A54 Set No.2		11-26-91	(5) Work Package IN1A16ØLØ1
(6) Number of Samples: 10 — Dose Rate mRad/Hr	(7) Customer I.D. 3AP891H, 3AP891-2, ~~3AP891-3~~, 3AP891-4, 3AP891-5, 3AP891-6, 3AP891-7, 3AP891-8, 3AP891-9, 3AP891-10	(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

(19) Sample Chain of Custody

Relinquished by	Received by	From	Date	Time

(20) Samples Received

(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)

Sample Point: CD-A 54 Set No. 2	(2) Date/Time Issued:	(3) Date/Time Required: 11-26-91	(4) Charge Code: [redacted]
			(5) Work Package: INIA16ØLØ1
(6) Number of Samples: 10 — Dose Rate mRad/Hr: 3AP891-1	(7) Customer I.D.: 3AP891-1, 3AP891-2, ~~3AP891-3~~, 3AP891-4, 3AP891-5, 3AP891-6, 3AP891-7, 3AP891-8, 3AP891-9, 3AP891-10	(8) Laboratory I.D.: [redacted]	(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	[redacted]
Aluminum (Al)		50 mg/L	[redacted]
Barium (Ba)		2 mg/L	[redacted]
Cadmium (Cd)		1 mg/L	[redacted]
Chromium (Cr)		5 mg/L	[redacted]
Iron (Fe)		10 mg/L	[redacted]
Magnesium (Mg)		1 mg/L	[redacted]
Manganese (Mn)		2 mg/L	[redacted]
Sodium (Na)		60 mg/L	[redacted]
Lead (Pb)		5 mg/L	[redacted]
Zinc (Zn)		2 mg/L	[redacted]
Total Inorganic Carbon		5000 mg/L	[redacted]

(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: samples disposal.

REQUEST FOR SPECIAL ANALYSIS (RSA)

Sample Point	(2) Date/Time Issued	(3) Date/Time Required	(4) Charge Code
TD-A 54 Set No. 2	9/11/91 0900	11/20/91	(5) Work Package: IWIT6CØE

(6) Number of Samples	Dose Rate mRad/Hr	(7) Customer I.D.	(8) Laboratory ID	(9) Requester Name/Phone
10		6AW791-1A, 6AW791-2A, 6AW791-3A, 6AW791-4A, 6AW791-5A, 6AW791-6A, 6AW791-7A, 6AW791-8A, 6AW791-9A, 6AW791-10A	Radio R346 STO 347 (B) 348 (B) R361 STO	P.G. Haigh 3-4655

(10) Release: ____ RPT

(11) Volume of Sample: 100mL

(12) Determination	(13) Expected Range	(14) Minimum Detection Level	(15) Method
Cyanide (CN^-)		0.01 mg/L	
Selenium (Se)		1 mg/L	
Mercury (Hg)		0.2 mg/L	
Differential Scanning Calorimetry (DSC)		Exotherm	
Specific Gravity		0.1 pH units	
Tritium (H-3)		1.5 pCi/mL	
Total Uranium		100 mg/L	
Sr-90		1.5 pCi/mL	
Am-241		1 pCi/mL	
Pu-239/240		0.5 pCi/mL	
I-129		9 pCi/mL	
Cs-134/137		5 pCi/mL	

(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% Accuracy and Precision
Radiochemical Analyses to be performed on a composite from 10 samples.

(19) 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

SAMPLE DATA SUMMARY

SUMMARY DATA REPORT

Project: 242–A EVAPORATOR FEED CHARACTERIZATION
Tank: 103AP
Customer ID: 3AP891–1

Undigested Sample Results

	Sample R935		Sample Duplicate NA
SpG	1.02E+0		NA
DSC	NO EXOTHERM		NA
TOC	1.30E+2	ppm	NA
TIC	5.22E+2	ppm	NA
NH4	3.50E+1	ppm	NA
OH	1.89E+3	ppm	NA
CN	5.84E–1	ppm	NA
Atomic Absorption			
As	5.50E–2	ppm	NA
Hg	<1.70E–3	ppm	NA
Se	<5.00E–3	ppm	NA
Ion Chromatographic			
Cl	4.98E+1	ppm	NA
F	1.78E+2	ppm	NA
NO3	3.50E+3	ppm	NA
NO2	1.38E+3	ppm	NA
PO4	1.51E+2	ppm	NA
SO4	3.18E+2	ppm	NA
GEA			
Cs 137	5.80E+3	uCi/L	NA
Cs 134	<9.69E+0	uCi/L	NA
Eu 155	<4.83E+1	uCi/L	NA

SUMMARY DATA REPORT

Project: 242-A EVAPORATOR FEED CHARACTERIZATION
Tank: 103AP
Customer ID: 3AP1191-1

Acid Digestion Sample Results

	Sample R935		Sample Duplicate NA
Acid Digestion	Complete		NA
ICP			
Al	3.07E+5	ug/L	NA
Ba	<6.50E+1	ug/L	NA
Cd	1.33E+2	ug/L	NA
Cr	4.87E+3	ug/L	NA
Pb	<4.00E+2	ug/L	NA
Fe	9.90E+2	ug/L	NA
Mg	1.53E+3	ug/L	NA
Mn	5.15E+1	ug/L	NA
Ag	<4.00E+1	ug/L	NA
Na	2.46E+6	ug/L	NA
Zn	1.21E+3	ug/L	NA

9 3 1 2 3 _ 3 1 2 7 0

UNDIGESTED SAMPLE ANALYSIS RESULTS

UNDIGESTED SAMPLE RESULTS

Tank: 103AP
Core: NA
Sample No.: R935
Customer ID: 3AP891-1

	Check Standard		Blank		Sample		Duplicate Sample		Spike of Sample		Check Standard	
Lab ID:	R931		R932		R935		NA		NA		R938	
Specific Gravity (01-21-92)	99.9	%	.995		1.018		NA		NA		98.92	%
DSC (01-07-92)	Exotherm		NA		No Exotherm		NA		NA		Exotherm	
Total Organic Carbon (01-14-92)	99	%	2.80E+0	ug	1.30E+2	ppm	NA		NA		100.3	%
Total Inorganic Carbon (01-30-92)	99.9	%	2.70E+0	ug	5.22E+2	ppm	NA		NA		102.4	%
Ammonia (01-28-92)	100.45	%	<2.25E-1	ppm	3.50E+1	ppm	NA		NA		99.2	%
OH (01-04-92)	102.8	%	Complete		1.89E-1	ppm	NA		NA		102.3	%
Cyanide (01-31-92)	96.2	%	<2.00E-2	ppm	5.84E-1	ppm	NA		NA		98.7	%
ATOMIC ABSORPTION												
Arsenic (01-07-92)	97.4	%	<5.00E-4	ppm	5.50E-2	ppm	NA		NA		103	%
Mercury (01-21-92)	100.2	%	<5.00E-4	ppm	<1.70E-3	ppm	NA		NA		105.17	%
Selenium (01-29-92)	113.5	%	<5.00E-4	ppm	<5.00E+3	ppm	NA		NA		111.34	%
ION CHROMATOGRAPHIC (01-08-92)												
Chloride	97.5	%	<1.00E-1	ppm	4.98E+1	ppm	NA		NA		93.1	%
Fluoride	94.3	%	<1.00E-1	ppm	1.78E+2	ppm	NA		NA		90.2	%
Nitrate	106	%	<1.00E+0	ppm	3.50E+3	ppm	NA		NA		101.4	%
Nitrite	103	%	<1.00E+0	ppm	1.38E+3	ppm	NA		NA		102	%
Phosphate	104	%	<1.00E-1	ppm	1.51E+2	ppm	NA		NA		101	%
Sulfate	98.9	%	<1.00E+0	ppm	3.18E+2	ppm	NA		NA		99.3	%
GEA (01-08-92)												
Cs137	102	%	<2.80E+0	uCi/L	5.80E+3	uCi/L	NA		NA		103.3	%
Cs134	NA		NA		<9.69E+0	uCi/L	NA		NA		NA	
Eu155	NA		NA		<4.83E+1	uCi/L	NA		NA		NA	

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: SPECIFIC GRAVITY	Sample Prep: UNDIGESTED

Instrument: WA90787	Procedure/Rev: LA-510-112/C-2
Technologist: S. LAI	Date: 01-21-92
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	R931-5506	11		
2	REAGENT BLANK	R932-5606	12		
3	SAMPLE 3AP1191-1	R935-5706	13		
4	FINAL LMCS CHECK STD	R938-5506	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	15C11-BJ/.250 mL			N/A

A-6000-881 (03/92)

SPECIFIC GRAVITY ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 5 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5506	103AP	12-16-91	15:43	25

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

Sample Size: 0.250 mL
Customer ID: STD

Remarks, Calculations, Results
S332 ZNCL2
STDN 15C11-8J RESULT 1.4384 g/mL
STD VAL 1.4386 g/mL %REC 99.912

	A	B
W_1:	1.8278	1.8297
W_2:	2.1991	2.1876
	0.3613	0.3579

0.3596 g / 0.250 mL = 1.4384 g/mL

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li		Leslie Day		RK Mills 1-21-92
Pos	Pos	Pos	Pos	Pos
6C916		Leslie Day		

Date	Time Completed	Lab Unit Mgr
1-21-92		

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5506	103AP	12-16-91	[illegible]	[illegible]

Determination	Method/Standard	Result Units	Charge Code	Reruns
SPG	LA-510-112 JK 5-20-92		[illegible]	

Sample Size: 0.250 mL
Customer ID: [illegible]

Remarks, Calculations, Results
REAGENT BLANK

	A	B
W_1:	1.8748	1.8438
W_2:	2.1232	2.0928
	0.2484 g	0.2440

0.2487 g / 0.250 mL = 0.9948 g/mL

0.2487 g AVG

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li				RK Mills 1-21-92
Pos	Pos	Pos	Pos	Pos
6C916			Leslie Day	

Date	Time Completed	Lab Unit Mgr
1-21-92		

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5706	103AP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SPG	LA-510-112 JK 5-20-92		N124W	0

Sample Size: 2 ml
Customer ID: 3AP119-1 JK 12-9-92

Remarks, Calculations, Results

	A	B
W_1:	1.8925	1.8843
W_2:	2.1470	2.1389
	0.2545	0.2546

0.2546 g / 0.250 mL = 1.0184 g/mL

0.2546 g AVG.

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li				RK Mills 1-21-92
Pos	Pos	Pos		Pos
6C916			Leslie Day	

Date	Time Completed	Lab Unit Mgr
1-21-92		

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5506	103AP	12-16-91	15:56	25

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

Sample Size: 0.250 mL
Customer ID: STD

Remarks, Calculations, Results
S332 ZNCL2
STDN 15C11-8J RESULT 1.4220 g/mL
STD VAL 1.4386 g/mL %REC 98.92%

	A	B
W_1:	1.8931	1.9003
W_2:	2.2488	2.2561
	0.3557	0.3558

0.3558 g / 0.250 mL = 1.4220 g/mL

98.92%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li		Leslie Day		RK Mills 1-21-92
Pos	Pos	Pos	Pos	Pos
6C916			Leslie Day	

Date	Time Completed	Lab Unit Mgr
1-21-92		

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: DIFFERENTIAL THERMAL	Sample Prep: UNDIGESTED

Instrument: WC16134, WC16129	Procedure/Rev: LA-514-113/A-0
Technologist: T. McCOLLOCH	Date: 01-07-92
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	R931-5511	11		
2	SAMPLE 3AP1191-1	R935-5711	12		
3	FINAL LMCS CHECK STD	R938-5511	13		
4			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/.500 mL			N/A

A-6000-881 (03/92)

9 3 1 2 8 3 1 2 7 4

DIFFERENTIAL THERMAL ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 5 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5511	103AP	12-16-91	15:45	25

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

Sample Size: ? ~~10 %~~ 0.010 mg
Customer ID: STD

Remarks, Calculations, Results:
11.046 mg
Exotherm OK

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Pos 81805	Pos	Pos	Pos	Pos

Date: 1/7/92
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5711	103AP	12-16-91	15:52	25

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

Sample Size: ? ~~10 %~~ 0.010 mg
Customer ID: ~~Time 1971~~ ~~31 Dec 91~~ ~~3APR91-1~~ 3AP1191-1

Remarks, Calculations, Results:
10.139 mg
NO exotherm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Pos 81805	Pos	Pos	Pos	Pos

Date: 1/7/92
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 930.-5511	103AP	12-16-91	15:56	25

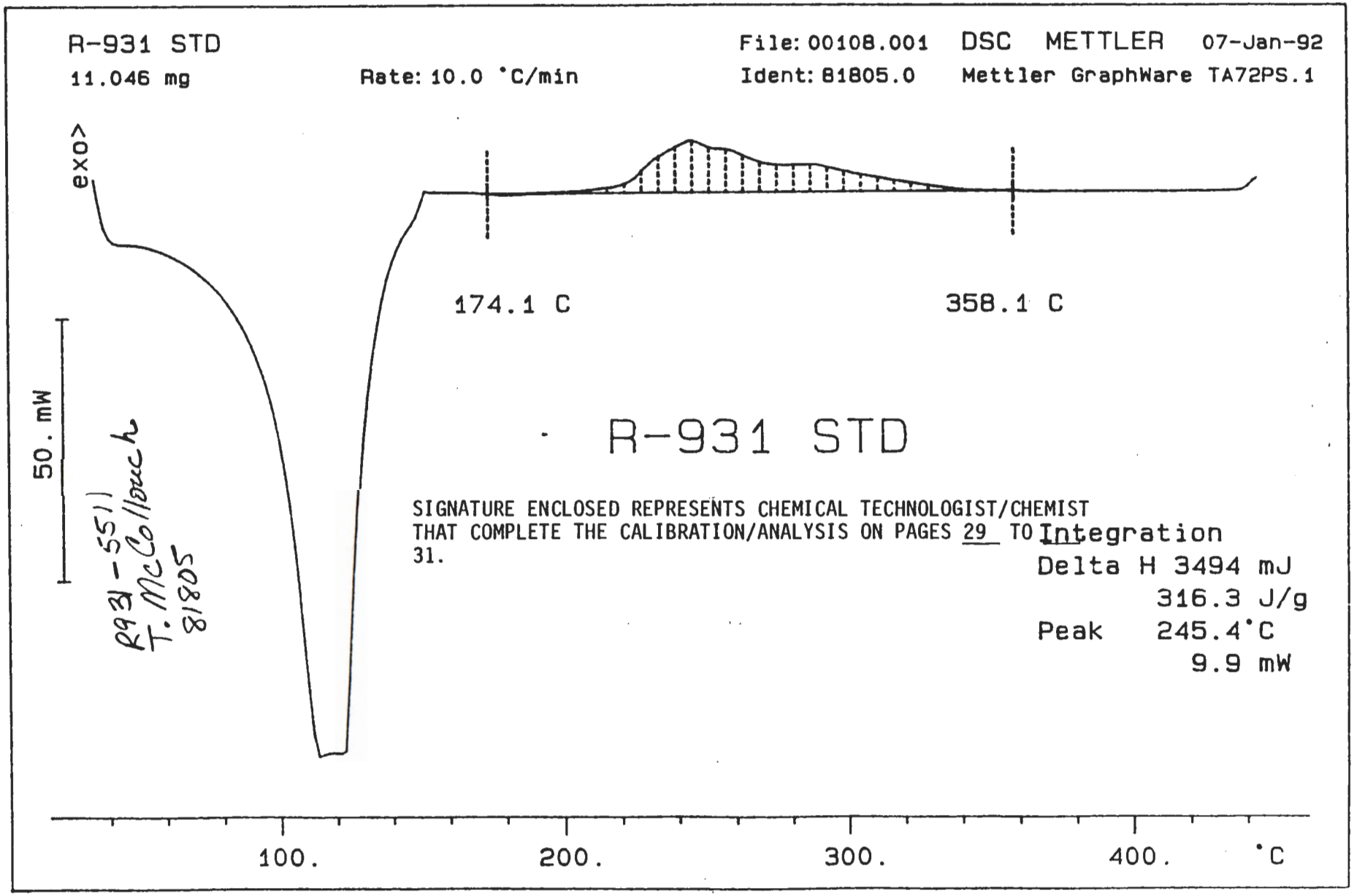
Determination	Method/Standard	Result Units	Charge Code	Rerun
DSC	LA-514-113	% RECOVERY	N124W	0

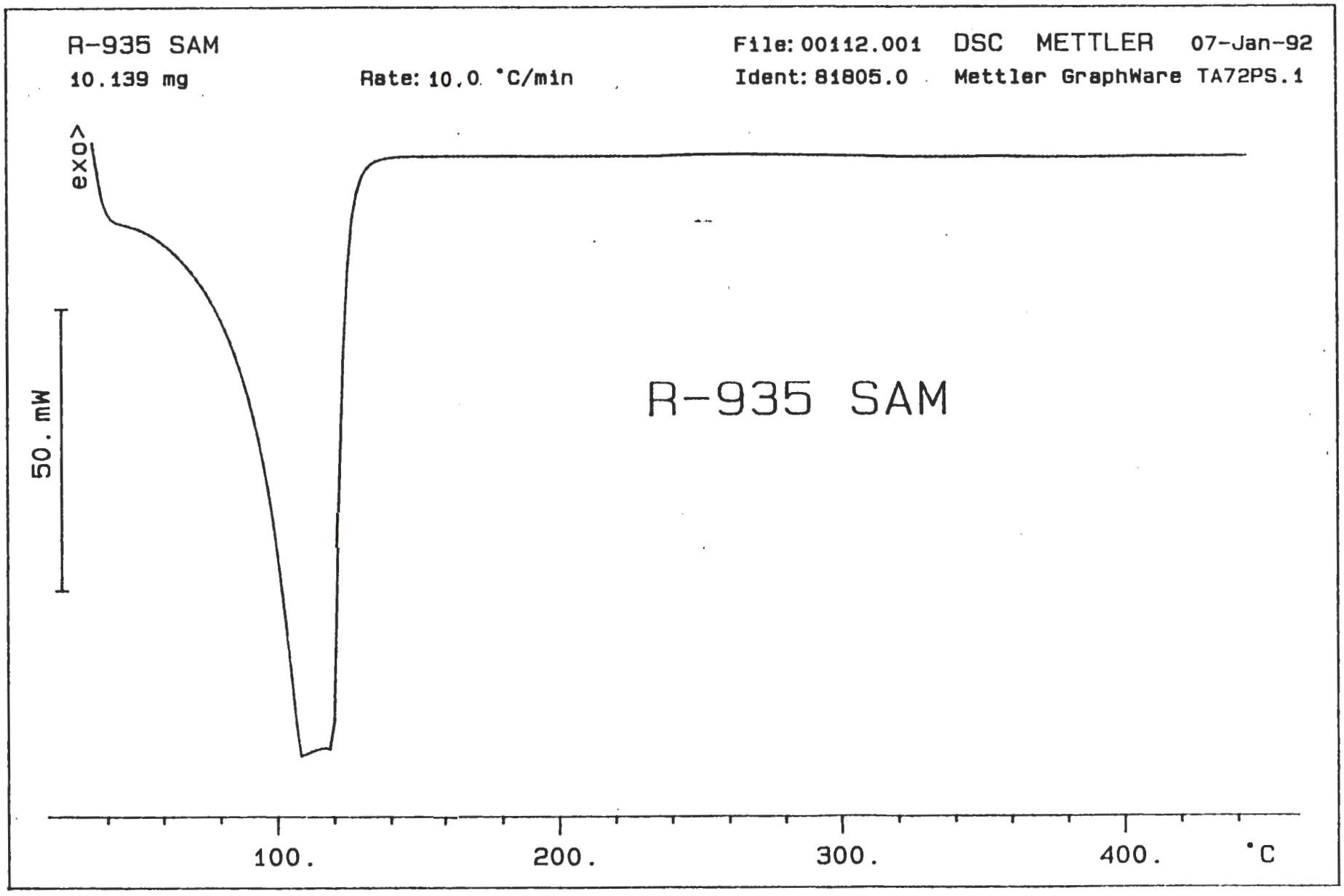
Sample Size: ? ~~10 %~~ 0.010 mg
Customer ID: STD

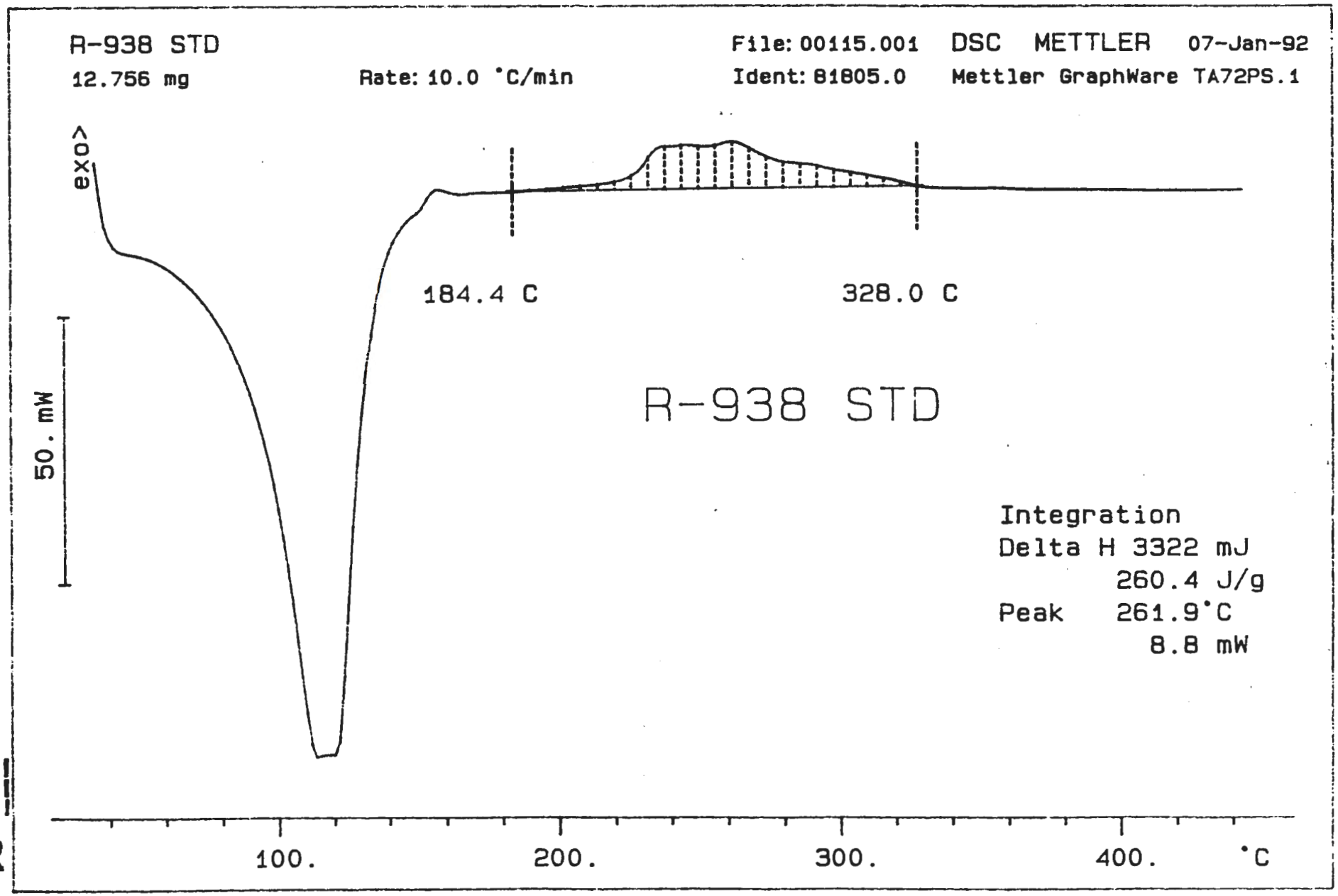
Remarks, Calculations, Results:
12.756 mg
Exotherm OK

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Pos 81805	Pos	Pos	Pos	Pos

Date: 1/7/92
Time Completed:
Lab Unit Mgr:


R-931 STD
11.046 mg
Rate: 10.0 °C/min
File: 00108.001
Ident: 81805.0
DSC METTLER 07-Jan-92
Mettler GraphWare TA72PS.1
exo>
50. mW
174.1 C
358.1 C
R-931 STD
SIGNATURE ENCLOSED REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETE THE CALIBRATION/ANALYSIS ON PAGES 29 TO 31.
Integration
Delta H 3494 mJ
316.3 J/g
Peak 245.4°C
9.9 mW
R931-5511
T. McCollbuch
81805
100.
200.
300.
400.
°C


R-935 SAM
10.139 mg
Rate: 10.0 °C/min
File: 00112.001
Ident: 81805.0
DSC METTLER 07-Jan-92
Mettler GraphWare TA72PS.1
exo>
50. mW
R-935 SAM
100.
200.
300.
400.
°C


R-938 STD
12.756 mg
Rate: 10.0 °C/min
File: 00115.001
Ident: 81805.0
DSC METTLER 07-Jan-92
Mettler GraphWare TA72PS.1
exo>
50. mW
184.4 C
328.0 C
R-938 STD
Integration
Delta H 3322 mJ
260.4 J/g
Peak 261.9°C
8.8 mW
100.
200.
300.
400.
°C

26.NOV.91
Dennis J Libert

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.
N. 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 *********

9 3 1 2 3 _ 3 1 2 3 0

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DSC

Configuration used from 8-8-91 to Nov 25, 1991

Denise Hebert

Heat flow calibration began July 20, 1991. Used until Nov 25, 1991

CONFIGURATION

NOV-91 8:14

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
MAX. TEMP.	600.
MIN. TEMP.	-50.
A PT100	.21610
B PT100	.74150
C PT100	-.10116
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 *********

DSC

CONFIGURATION

20-JUL-91 19:16

E INDIUM	250.8
DSC SIGN ICTA	1
TAU LAG	9
TAU SIGNAL	0
E DIMIN. FACT.	1
S	2400
TAU LAG 2	13
TAU SIGNAL 2	0
E DIMIN. F. 2	0.88
S 2	2200
MAX. TEMP.	600.
MIN. TEMP.	-50.
A PT100	.21409
B PT100	.74787
C PT100	-.10809
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.: R935	Customer ID: 3AP1191-1
Analysis: TOTAL ORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: MODEL 5011 WC16130	Procedure/Rev: LA-344-105/B-1
Technologist: T. LEE	Date: 01-14-92
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	R931-5526	11		
2	REAGENT BLANK	R932-5626	12		
3	SAMPLE 3AP1191-1	R935-5726	13		
4	FINAL LMCS CHECK STD	R938-5526	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	70C11-J/.200 mL			N/A

A-6000-881 (03/92)

9 3 1 2 3 5 3 1 2 8 3

TOTAL ORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5526	103AP	12-16-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	LA-344-105	% RECOVERY	N124W	0

Sample Size: .200 - 2mL - .200 (H_2SO_4)
Customer ID: STD

Remarks, Calculations, Results:
S356 CO3TOC
STDN 70C11-J RESULT 2.97 g/L
STD VAL 3.000 g/L %REC 99%
$\% Rec = \frac{2.97}{3.00} \times 100 = 99\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
T. LEE				
Hrs	Hrs	Hrs	Hrs	Hrs
82580				
Date	Time Completed	Lab Unit Mgr		
01-14-92		D Y Bisenius		

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5626	103AP	12-16-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	LA-344-105	ug Carbon	N124W	0

Sample Size: .200 mL H_2SO_4
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK

2.8 ug C

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
T. LEE				
Hrs	Hrs	Hrs	Hrs	Hrs
82580				
Date	Time Completed	Lab Unit Mgr		
01-14-92		D Y Bisenius		

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5726	103AP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
TOC	LA-344-105	G/L	N124W	0

Sample Size: .200 - 2mL - .200
Customer ID: 3AP1194

T.L. 3-15-92

Remarks, Calculations, Results:

1.3E-1 g/L C

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
T. LEE				
Hrs	Hrs	Hrs	Hrs	Hrs
82580				
Date	Time Completed	Lab Unit Mgr		
01-14-92		D Y Bisenius		

Serial No.	Sample Point	Date	Time Issued	Priority
R 938.-5526	103AP	12-16-91	15:56	25

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

Sample Size: .200 - 2ml - .200ml
Customer ID: STD

Remarks, Calculations, Results:
S356 CO3TOC
STDN 70C11-J RESULT 3.01
STD VAL 3.0000 %REC/100.33%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
T. LEE				
Hrs	Hrs	Hrs	Hrs	Hrs
82580				
Date	Time Completed	Lab Unit Mgr		
01-14-92		D Y Bisenius		

T.L. 6-4-92

9 3 1 2 3 3 1 2 3 4

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD R931-5526 Date: 01/14/92 Time: 02:47:43

Sample Size = 200 uL
Dil Factor = 11
Blank ID # = BLK
Blank Value = .3997813 ug/minute C

Analyst : TB LEE
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	19.60	100.00
4	2.01	38.40	48.96
5	2.51	45.20	15.04
6	3.01	49.30	8.32
7	3.51	51.50	4.27
8	4.00	53.40	3.56
9	4.50	54.60	2.20
10	5.00	55.00	0.73
11	5.50	55.60	1.08
12	6.00	56.10	0.89
13	6.50	56.40	0.53
14	7.00	56.80	0.70

BEST AVAILABLE COPY

SIGNATURE BELOW REPRESENTS THE CHEMICAL TECHNOLOGIST/
CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 38 TO 41

BLANK VALUE = 2.8 micrograms carbon
BLANK FACTOR = 2.8 / 7.00383 = +4.0E-01 ug/min Carbon

SAMPLE RESULTS:
(56.8 - 2.799664)(11)/(200) = +2.97E+00 g/L Carbon
(56.8 - 2.799664)(11)/(200)(12) = +2.48E-01 Molar Carbon

Sample Run By: Jamie Lee 82580 08/27/92
TB LEE 82580

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

Sample: BLK R932-5626 Date: 01/14/92 Time: 02:36:31

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

Analyst : TB LEE
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.40	100.00
4	2.01	1.00	60.00
5	2.51	1.00	0.00
6	3.01	1.30	23.08
7	3.51	1.60	18.75
8	4.01	1.80	11.11
9	4.51	2.10	14.29
10	5.00	2.30	8.70
11	5.50	2.30	0.00
12	6.00	2.60	11.54
13	6.50	2.70	3.70
14	7.00	2.80	3.57

9 3 1 2 3 3 1 2 3 6

BEST AVAILABLE COPY

BLANK VALUE = 2.8 micrograms carbon
BLANK FACTOR = 2.8 / 7.00383 = +4.0E-01 ug/min Carbon

Sample Run By: _____
TB LEE 82580

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD R938-5526 Date: 01/14/92 Time: 06:12:24

Sample Size = 200 uL
Dil Factor = 11
Blank ID # = BLK
Blank Value = .3997813 ug/minute C

Analyst : TB LEE
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	7.40	100.00
3	1.51	37.20	80.11
4	2.01	47.60	21.85
5	2.51	51.60	7.75
6	3.00	53.60	3.73
7	3.50	54.90	2.37
8	4.00	55.50	1.08
9	4.50	55.80	0.54
10	5.00	56.30	0.89
11	5.50	56.50	0.35
12	6.00	56.90	0.70
13	6.50	57.10	0.35
14	7.00	57.50	0.70

9 3 1 2 3 6 3 1 2 3 7

BEST AVAILABLE COPY

BLANK VALUE = 2.8 micrograms carbon
BLANK FACTOR = 2.8 / 7.00383 = +4.0E-01 ug/min Carbon

SAMPLE RESULTS:
(57.5 - 2.800006)(11)/(200) = +3.01E+00 g/L Carbon
(57.5 - 2.800006)(11)/(200)(12) = +2.51E-01 Molar Carbon

Sample Run By: Tonia Lee 82580
TB LEE 82580

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 935 Date: 01/14/92 Time: 05:36:56

Sample Size = 200 uL
Dil Factor = 11
Blank ID # = BLK
Blank Value = .3997813 ug/minute C

Analyst : TB LEE
Min Readings = 14
Max Readings = 14
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.70	100.00
3	1.51	2.40	70.83
4	2.01	2.70	11.11
5	2.51	3.00	10.00
6	3.00	3.30	9.09
7	3.50	3.50	5.71
8	4.00	3.70	5.41
9	4.50	4.10	9.76
10	5.00	4.10	0.00
11	5.50	4.60	10.87
12	6.00	4.60	0.00
13	6.50	4.90	6.12
14	7.00	5.10	3.92

9 3 1 2 3 3

BEST AVAILABLE COPY

BLANK VALUE = 2.8 micrograms carbon
BLANK FACTOR = 2.8 / 7.00383 = +4.0E-01 ug/min Carbon

SAMPLE RESULTS:
(5.1 - 2.799664)(11)/(200) = +1.3E-01 g/L Carbon
(5.1 - 2.799664)(11)/(200)(12) = +1.1E-02 Molar Carbon

Sample Run By: _____
TB LEE 82580

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: TOTAL INORGANIC CARBON	Sample Prep: UNDIGESTED

Instrument: WB39927	Procedure/Rev: LA-622-102/B-1
Technologist: E. COLVIN	Date: 01-30-92
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	R931-5527	11		
2	REAGENT BLANK	R932-5627	12		
3	SAMPLE 3AP1191-1	R935-5727	13		
4	FINAL LMCS CHECK STD	R938-5527	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	69C11-L/.050 mL			N/A

A-6000-881 (03/92)

TOTAL INORGANIC CARBON ANALYSIS - UNDIGESTED SAMPLE

Addendum 5

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5527	103AP	12-16-91	15:43	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-622-102	% RECOVERY	N124W	0

Sample Size: ? ~~200 mL - 2 mL 200 mL 50 mL 0.050~~ RC 01/14/92

Customer ID: STD

Remarks, Calculations, Results:
S223 CO3
STD# ~~70C11-J~~ 69C11-L RESULT 1.998E-1 M
STD VAL 2.000E-1 M % REC 99.9%

$$\%Rec = \frac{1.998E\text{-}1\,M}{2.000E\text{-}1\,M} \times 100 = 99.9\%$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
8				

Date: 1-30-92 | Time Completed: | Lab Unit Mgr: D4 Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5627	103AP	12-16-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-622-102	ug Carbon	N124W	0

Sample Size: ? ~~200 mL 50 mL 0.050~~ RC 01/14/92

Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK

2.70 µgC

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
8				

Date: 1-30-92 | Time Completed: | Lab Unit Mgr: D4 Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5727	103AP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-622-102	G/L	N124W	

Sample Size: ? ~~50 mL 0.050~~

Customer ID: ~~3AP119-1~~ 3AP 1191-1

Remarks, Calculations, Results:

5.22E-1 g/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
8				

Date: 1-30-92 | Time Completed: | Lab Unit Mgr: D4 Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5527	10.AP	12-16-91	15:02	25

Determination	Method/Standard	Result Units	Charge Code	Remarks
TIC	LA-622-102	% RECOVERY	N124W	

Sample Size: ? ~~50 mL 0.050~~

Customer ID: STD

Remarks, Calculations, Results:
S223 CO3
STD# 69C11-L RESULT 2.048 E-1 M
STD VAL 2.000E-1 M % REC 102.4%

$$\%Rec = \frac{2.048\,E\text{-}1\,M}{2.000\,E\text{-}1\,M} \times 100 = 102.4\%$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Hrs	Hrs	Hrs	Hrs	Hrs
8				

Date: 1-30-92 | Time Completed: | Lab Unit Mgr: D4 Bisenius

9 3 1 2 3 1 2 9 0

WHC-SD-WM-DP-025
Addendum 5 REV 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R-931 SID - 5527 Date: 01/30/92 Time: 09:46:06

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = R-932 BLANK
Blank Value = .3854488 ug/minute C

Analyst : EH COLVIN
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	14.40	98.61
3	1.51	48.40	70.25
4	2.00	81.20	40.39
5	2.50	100.10	18.88
6	3.00	110.70	9.58
7	3.50	116.00	4.57
8	4.00	118.80	2.36
9	4.50	120.20	1.16
10	5.00	120.70	0.41
11	5.50	121.20	0.41
12	6.00	121.60	0.33
13	6.50	122.00	0.33
14	7.00	122.60	0.49

BEST AVAILABLE COPY

BLANK VALUE = 2.7 micrograms carbon
BLANK FACTOR = 2.7 / 7.004822 = +3.9E-01 ug/min Carbon

SAMPLE RESULTS:
(122.6 - 2.6996)(1)/(50) = +2.398E+00 g/L Carbon
(122.6 - 2.6996)(1)/(50)(12) = +1.998E-01 Molar Carbon

Sample Run By: Ed Colvin 1-30-1992
EH COLVIN 80028
SIGNATURE ABOVE REPRESENTS CHEMICAL/TECHNOLOGIST
THAT COMPLETED THE ANALYSIS RUN ON PAGES 44 TO 47.

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

Sample: R-932 BLANK-5627 Date: 01/30/92 Time: 09:36:55

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = R-932 BLANK
Blank Value = N/A

Analyst : EH COLVIN
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	0.40	75.00
4	2.01	0.70	42.86
5	2.51	1.00	30.00
6	3.01	1.10	9.09
7	3.51	1.60	31.25
8	4.01	1.60	0.00
9	4.51	1.70	5.88
10	5.01	2.10	19.05
11	5.51	2.10	0.00
12	6.01	2.40	12.50
13	6.51	2.40	0.00
14	7.00	2.70	11.11

9 3 1 2 2 7 2

BEST AVAILABLE COPY

BLANK VALUE = 2.7 micrograms carbon
BLANK FACTOR = 2.7 / 7.004822 = +3.9E-01 ug/min Carbon

Sample Run By: _____
EH COLVIN 80028

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R-935-5727 Date: 01/30/92 Time: 10:35:03

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = R-932 BLANK
Blank Value = .3854488 ug/minute C

Analyst : EH COLVIN
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	3.50	94.29
3	1.51	10.60	66.96
4	2.00	17.20	38.37
5	2.50	21.50	20.00
6	3.00	24.40	11.89
7	3.50	25.70	5.06
8	4.00	26.40	2.65
9	4.50	26.90	1.86
10	5.00	27.50	2.18
11	5.50	27.90	1.43
12	6.00	27.90	0.00
13	6.50	28.40	1.76
14	7.00	28.80	1.39

BEST AVAILABLE COPY

BLANK VALUE = 2.7 micrograms carbon
BLANK FACTOR = 2.7 / 7.004822 = +3.9E-01 ug/min Carbon

SAMPLE RESULTS:
(28.8 - 2.698918)(1)/(50) = +5.22E-01 g/L Carbon
(28.8 - 2.698918)(1)/(50)(12) = +4.35E-02 Molar Carbon

Sample Run By: _____
EH COLVIN 80028

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R-938 STD -5527 Date: 01/30/92 Time: 12:37:51

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = R-932 BLANK
Blank Value = .3854488 ug/minute C

Analyst : EH COLVIN
Min Readings = 14
Max Readings = 14
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	16.30	98.77
3	1.51	52.40	68.89
4	2.01	83.90	37.54
5	2.51	102.80	18.39
6	3.01	113.50	9.43
7	3.50	118.80	4.46
8	4.00	121.80	2.46
9	4.50	123.30	1.22
10	5.00	124.20	0.72
11	5.50	124.60	0.32
12	6.00	125.00	0.32
13	6.50	125.30	0.24
14	7.00	125.60	0.24

9 3 1 2 3 _ 3 1 2 9 4

BEST AVAILABLE COPY

BLANK VALUE = 2.7 micrograms carbon
BLANK FACTOR = 2.7 / 7.004822 = +3.9E-01 ug/min Carbon

SAMPLE RESULTS:
(125.6 - 2.699294)(1)/(50) = +2.458E+00 g/L Carbon
(125.6 - 2.699294)(1)/(50)(12) = +2.048E-01 Molar Carbon

Sample Run By: Ed Colvin 1-30-1992
EH COLVIN 80028

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: AMMONIA	Sample Prep: UNDIGESTED

Instrument: AL10665, AL10696	Procedure/Rev: LA-634-102/D-0
Technologist: S. LAI	Date: 01-28-92
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	R931-5528*	11		
2	REAGENT BLANK	R932-5628*	12		
3	SAMPLE 3AP1191-1	R935-5728*	13		
4	FINAL LMCS CHECK STD	R938-5528	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	4C11-QY/0.250 mL			N/A
*SAMPLES RERUN.				

A-6000-881 (03/92)

AMMONIA ANALYSIS - UNDIGESTED SAMPLE

Addendum 5

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5528	103AP	12-16-91	15:43	25

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

Sample Size: ? ~~250 [illegible]~~ 0.250 mL 0.0205 M HCl
Customer ID: STD

Remarks, Calculations, Results:
S235 NH4CL
STDN 4C11-QY RESULT 0.0522
STD VAL 5.2×10^{-2} [M] %REC 100.45%
$\frac{(722-85)(0.0205)}{250} = 0.0522$ [M]

RERUN
blank : 85 ^
STD : 722 ^

Analyst-1: Sue Lai
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: RK Fuller 1-29-92
Hrs: 6c916
Date: 1-28-92
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5628	103AP	12-16-91	15:45	25

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

Sample Size: ? 1 ml 0.0205 M HCl
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
$< \frac{22.5\,\mu g}{1\,ml} = < 225$ ppm

RERUN
blank : 85 ^
mg blank : 85 ^

Analyst-1: Sue Lai
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: RK Fuller 1-29-92
Hrs: 6c916
Date: 1-28-92
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5728	103AP	12-16-91	15:52	25

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

Sample Size: ? ~~[illegible]~~ 1 mL 0.0205 M HCl
Customer ID: ~~[illegible]~~ 3AP1171-1

Remarks, Calculations, Results:
$\frac{(180-85)(0.0205)}{1000} = 0.0019$ [M]
0.0019 [M] $\times \frac{18\,g}{mole} = \frac{35.05\,mg}{g} = 35.05$ ppm

RERUN
blank : 85 ^
sample : 180 ^

Analyst-1: Sue Lai
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5:
Hrs: 6c916
Date: 1-28-92
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5528	103AP	12-16-91	15:56	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
NH4	LA-634-102	% RECOVERY	N124W	0

Sample Size: ? ~~250 [illegible]~~ 0.250 mL 0.0205 M HCl
Customer ID: STD

Remarks, Calculations, Results:
S235 NH4CL
STDN 4C11-QY RESULT 0.0516 [M]
STD VAL 5.2×10^{-2} [M] %REC 99.2%
$\frac{(714-85)(0.0205)}{250} = 0.0516$ [M]

blank : 85 ^
STD : 714 ^

Analyst-1: Sue Lai
Analyst-2:
Analyst-3:
Analyst-4:
Analyst-5: RK Fuller 1-29-92
Hrs: 6c916
Date: 1-28-92
Time Completed:
Lab Unit Mgr:

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: DETERMINATION OF HYDROXIDE IONS IN SOLUTION	Sample Prep: UNDIGESTED

Instrument: FISHER WA77509	Procedure/Rev: LA-661-102/F-1
Technologist: V. MASSIE	Date: 01-04-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: S. ISAACSON

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R931-5529	11		
2	REAGENT BLANK	R932-5629	12		
3	SAMPLE 3AP1191-1	R935-5729	13		
4	FINAL LMCS CHECK STD	R938-5529	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	9C11AG/.100 mL			N/A

A-6000-881 (03/92)

DETERMINATION OF HYDROXIDE ION IN SOLUTION - UNDIGESTED SAMPLE

WHC-SD-WM-DP-025
Addendum 5 Rev 0

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5529	103AP	12-16-91	15:43	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
UH	LA-661-102	% RECOVERY	H124W	0

Sample Size: 100ml + 1ml 1M BaCl
Customer ID: STD

Remarks, Calculations, Results: 5273 115-UH titrant .1899M KNO3
STDH9C11AG RESULT 8.81E-1 450+474/2 = 477
STD VAL 8.57E-1 %REC 102.8%

$$\frac{(477-13)(.1899)}{100} = 8.81E^{-1}$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
82016				
Pos	Pos	Pos	Pos	Pos

Date	Time Completed	Lab Unit Mgr
1-4-92		Stacie Isaacson

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5529	103AP	12-16-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
UH	LA-661-102	M	H124W	0

Sample Size: 3ml 9 H_2O titrant .1899M HNO3
Customer ID: BLK

Remarks, Calculations, Results: REAGENT BLANK

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
82016				
Pos	Pos	Pos	Pos	Pos

Date	Time Completed	Lab Unit Mgr
1-4-92		Stacie Isaacson

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5529	103AP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
UH	LA-661-102	M	H124W	0

Sample Size: 1ml + 1ml 1M BaCl
Customer ID: 3290119-1 4-3-92

Remarks, Calculations, Results: titrant .1899M HNO_3

$$\frac{(586)(.1899)}{1000} = 1.11E^{-1}$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
82016				
Pos	Pos	Pos	Pos	Pos

Date	Time Completed	Lab Unit Mgr
1-4-92		Stacie Isaacson

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5529	103AP	12-16-91	15:55	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
UH	LA-661-102	% RECOVERY	H124W	0

Sample Size: 100ml + 1ml 1M BaCl
Customer ID: STD

Remarks, Calculations, Results: 5273 115-UH titrant .1899M KNO_3
STDH9C11AG RESULT 8.77E-1
STD VAL 8.57E-1 %REC 102.3%

$$\frac{(475-13)(.1899)}{100} = 8.77E^{-1}$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
82016				
Pos	Pos	Pos	Pos	Pos

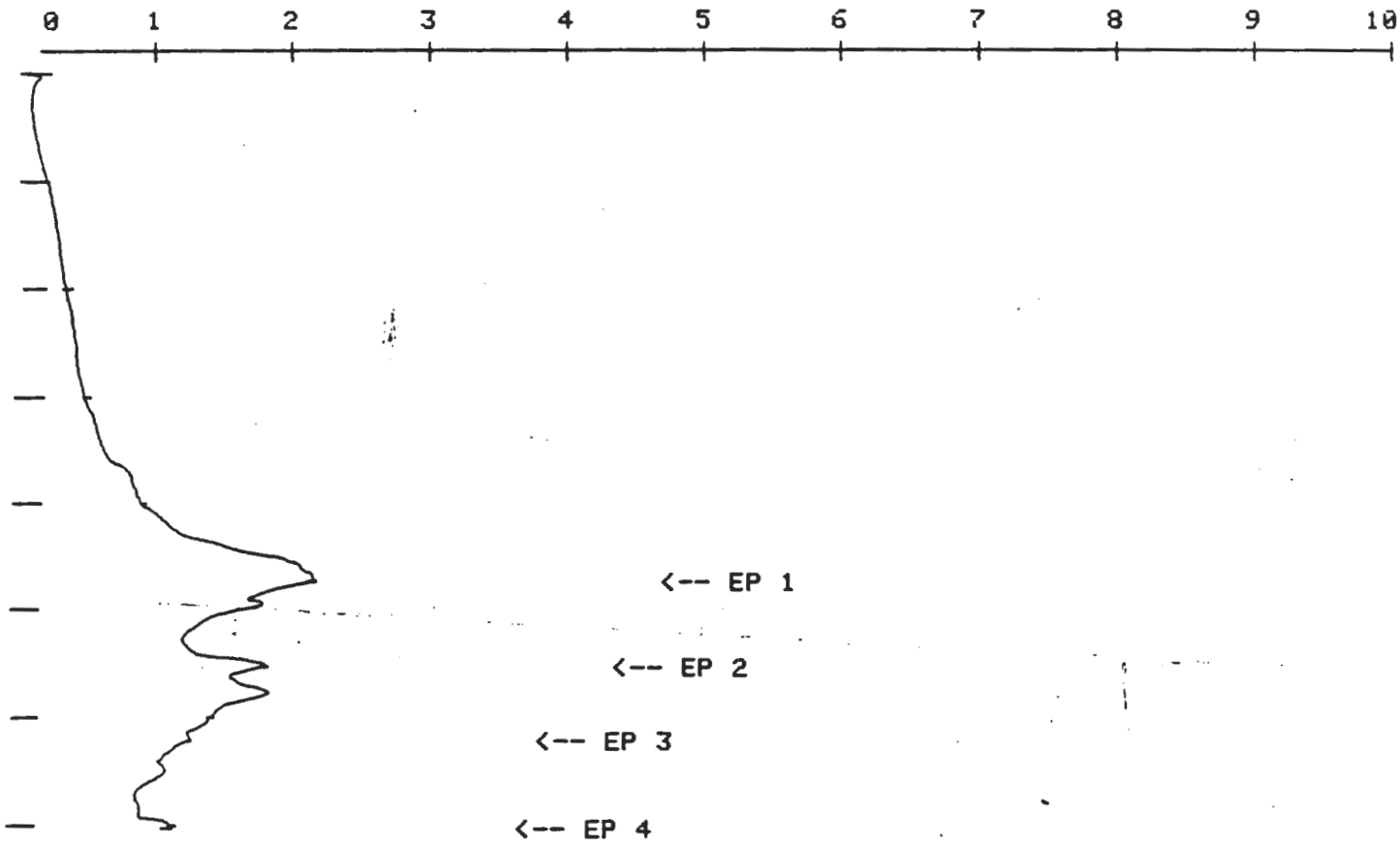
Date	Time Completed	Lab Unit Mgr
1-4-92		Stacie Isaacson

SAMPLE NUMBER: 29
SAMPLE DATA: 580.
DIRECT READ PH: 11.823

WHC-SD-WM-DP-025
Addendum 5 Rev 0

R-935 #1
1-15-92

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.40	0.591	0.0000
8.14	0.690	0.0000
7.14	0.774	0.0000
6.62	0.875	0.0000

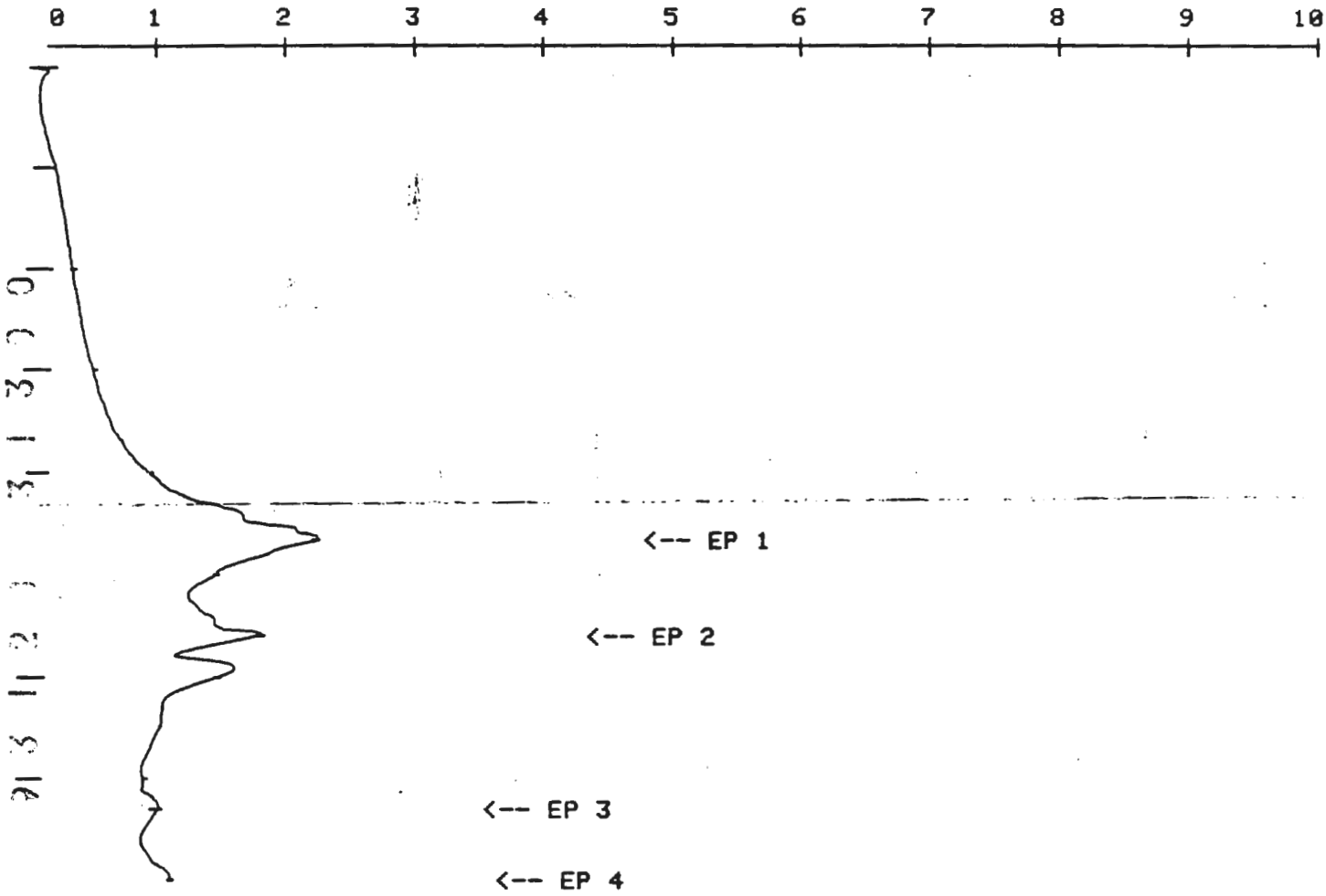
TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

JAN 4 1992 10:23 PM

R-935 #2
DK 4-15-92

AMPLE NUMBER: 30
SAMPLE DATA: 821.
DIRECT READ PH: 11.842

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.60	0.581	0.0000
8.12	0.698	0.0000
6.71	0.911	0.0000
6.20	0.998	0.0000

TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

4 1992 10:32 PM

WHC-SD-WM-DP-025

WHC-SD-WM-DP-025
Addendum 5 Rev 0

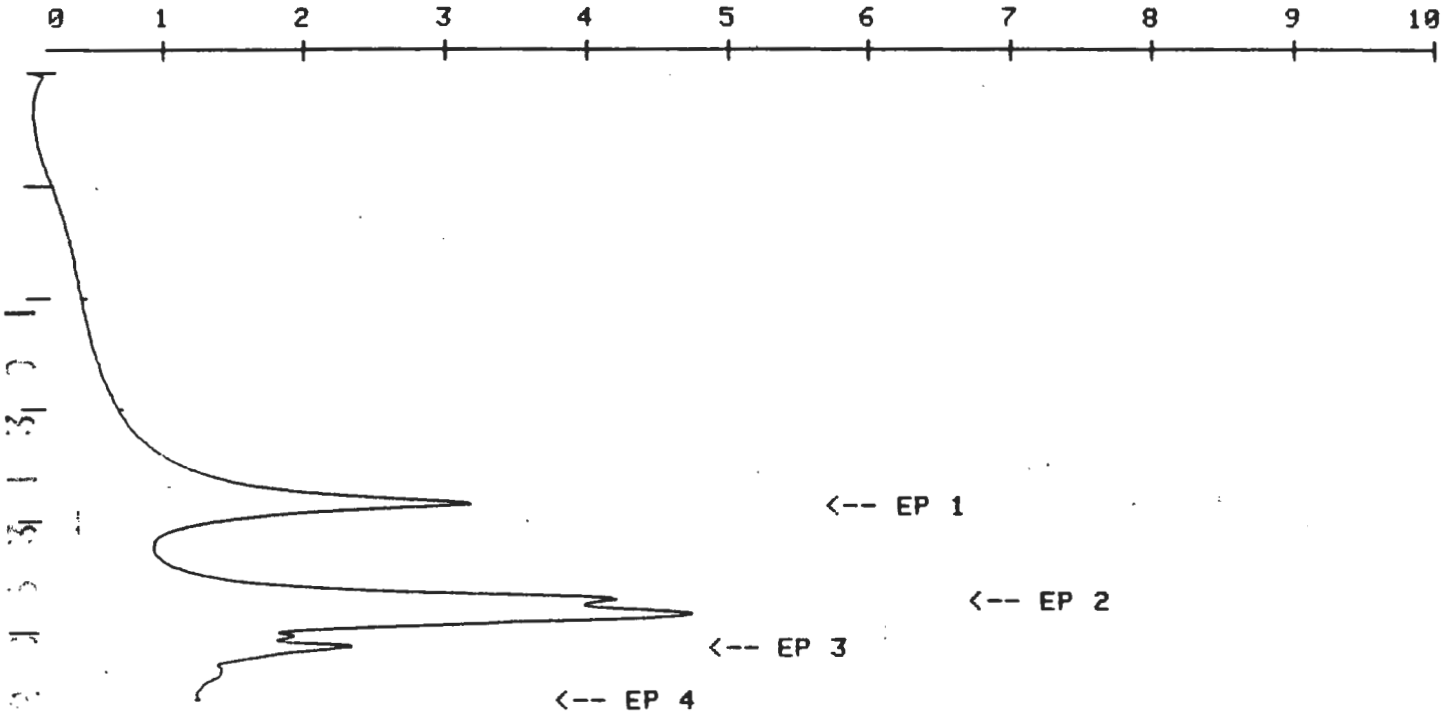
R931-5529 4-15-92

Std #1

V. Messie 82016

AMPLE NUMBER: 4
SAMPLE DATA: 522.
DIRECT READ PH: 11.996

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.72	0.480	0.0000
7.47	0.586	0.0000
4.25	0.638	0.0000
3.58	0.696	0.0000

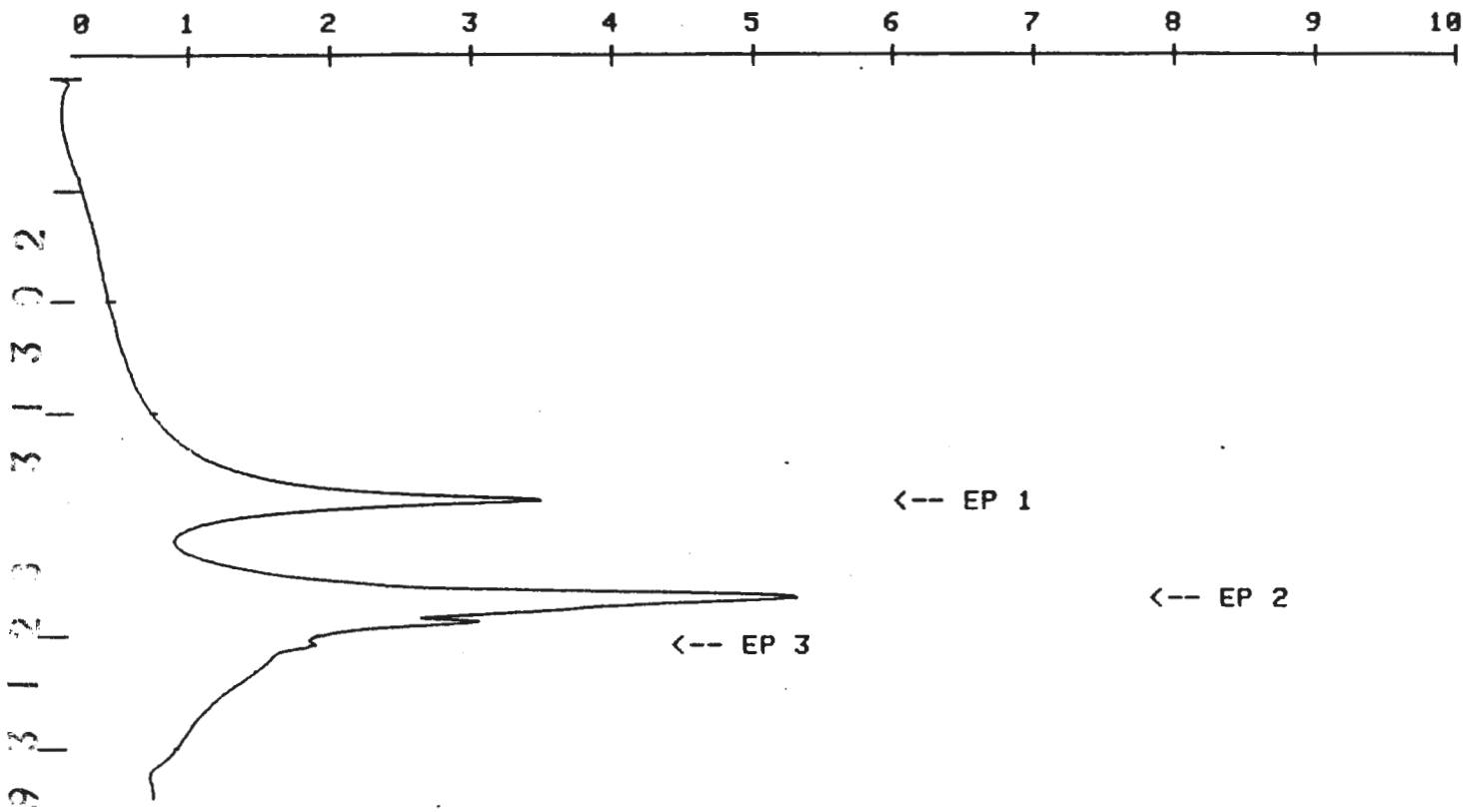
TITRATION TERMINATED BY LIMIT ON NUMBER OF EQUIVALENCES PERMISSIBLE.

JAN 4 1992 5:12 PM

Std #2
4-15-92

SAMPLE NUMBER: 5
SAMPLE DATA: 897.
DIRECT READ PH: 12.022

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.62	0.474	0.0000
6.76	0.583	0.0000
4.18	0.634	0.0000

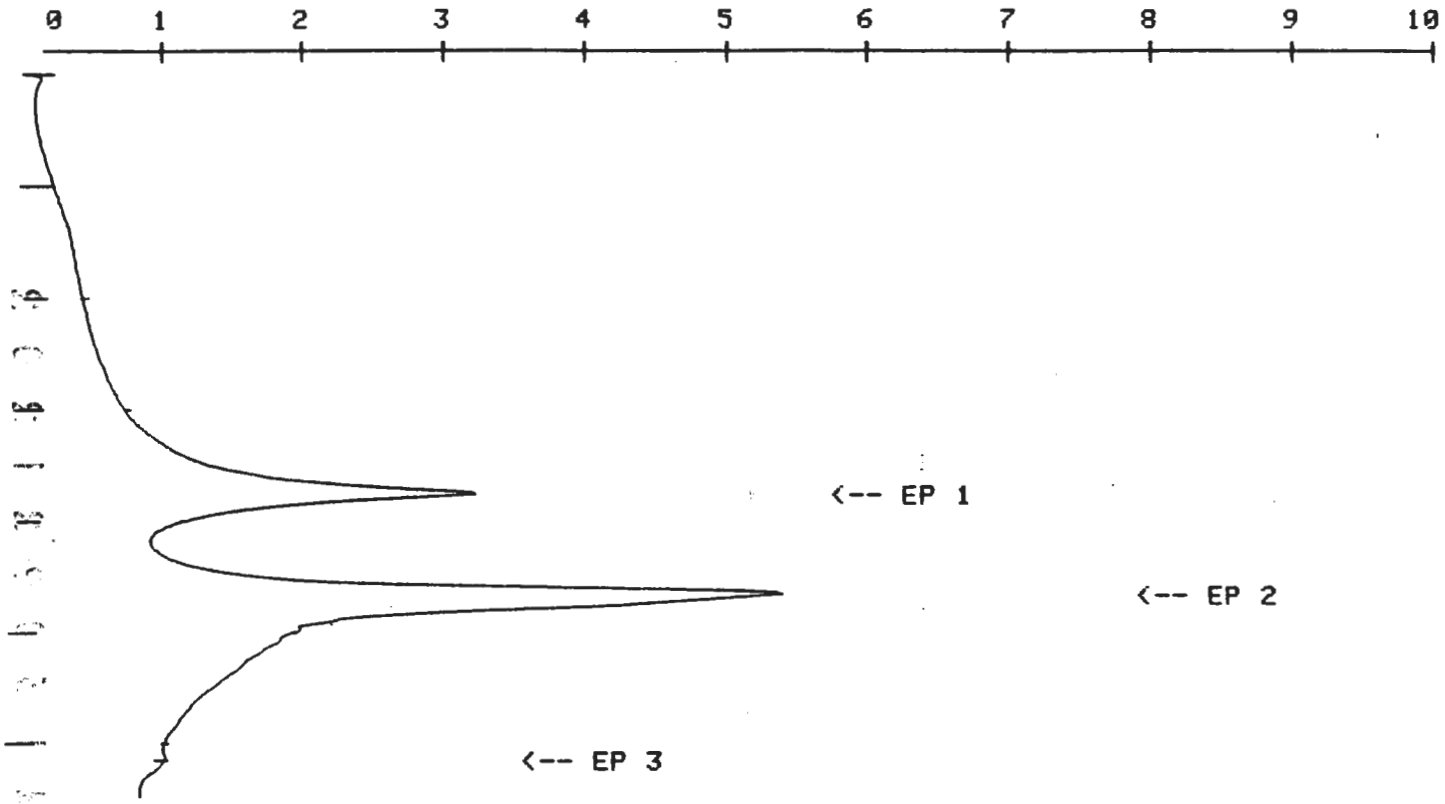
TITRATION TERMINATED BY PH LIMIT.

JAN 4 1992 6:25 PM

SAMPLE NUMBER: 36
SAMPLE DATA: 522.
DIRECT READ PH: 12.016

R-938 Std #1
4-15-92

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.75	0.469	0.0000
7.07	0.581	0.0000
3.22	0.767	0.0000

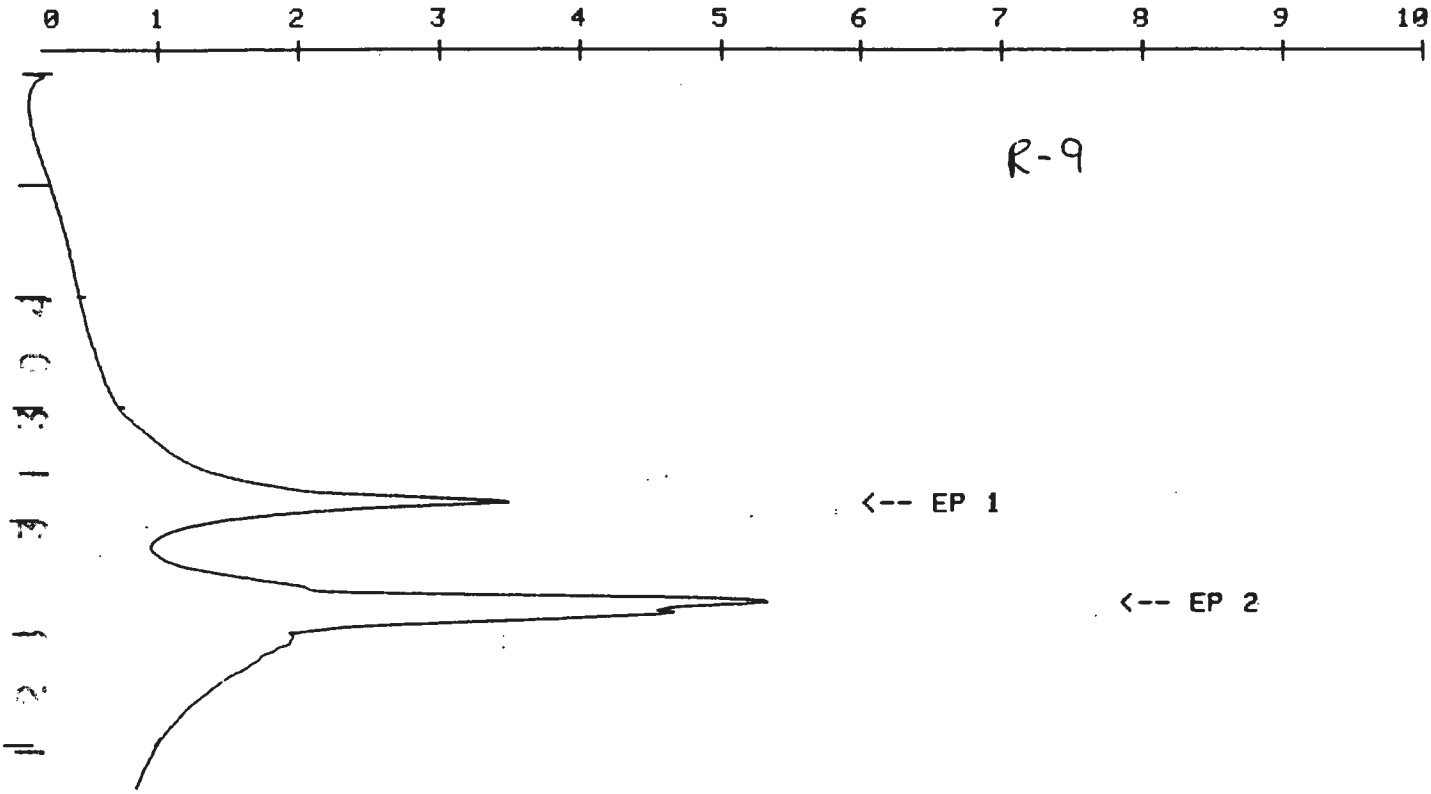
TITRATION TERMINATED BY PH LIMIT.

JAN 4 1992 11:26 PM

1PLE NUMBER: 37
SAMPLE DATA: 897.
DIRECT READ PH: 12.022

R-938 Std #2
6-15-92

DERIVATIVE OUTPUT, dE/dV



DRV TITRATION:

EQUIVALENCE PH	TITRANT VOLUME	COMPUTATION
9.64	0.481	0.0000
6.87	0.591	0.0000

TITRATION TERMINATED BY PH LIMIT.

JAN 4 1992 11:35 PM

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: CYANIDE	Sample Prep: UNDIGESTED

Instrument: MILTON ROY SPEC 301 AL10724	Procedure/Rev: LA-695-102/B-0
Technologist: E. COLVIN	Date: 01-31-92
Starting Time: NA	Temperature: NA
Ending Time: NA	Chemist: D. BISENIUS

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R931-5578	11		
2	REAGENT BLANK	R932-5678	12		
3	SAMPLE 3AP1191-1	R935-5778	13		
4	FINAL LMCS CHECK STD	R938-5578	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	75C11-X/0.100 mL			N/A

A-6000-881 (03/92)

CYANIDE ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-557B	103AP	12-16-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	% RECOVERY	N124W	

Sample Size: 100uL-10mL-500uL
Customer ID: STD

Remarks, Calculations, Results:
S244 KCN
STD# 75C11-X RESULT 864E2ppm
STD VAL 8.9862ppm %REC 96.2%
%Rec = 8.6462ppm / 8.9862ppm x100 = 96.2%
(.703-.004)-(-.004303) / .162726 = 4.322 ug CN-
4.322 ug CN- x 100 / 0.5 mL = 864 ug/mL = 864 ppm
ABS .703
Blank = .004
DF = 10mL / 0.1mL = 100

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cole				

Date: 1-31-92
Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-557B	103AP	12-16-91	15:46	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	PPM	N124W	0

Sample Size: ?
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
<0.1ug CN- / 5mL = <2E-2 ppm
ABS .004
.004-(-.004303) / .162726 = .05 ug CN = <0.1 ug CN-

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cole				

Date: 1-31-92
Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 933.-557B	103AP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	PPM	N124W	0

Sample Size: 750uL
Customer ID: 3AC11541

Remarks, Calculations, Results:
4.38E-1 ug CN- / 0.75 mL = 5.84E-1 ppm
ABS .071
Blank = .004
(.071-.004)-(-.004303) / .162726 = 4.38E-1 ug CN-

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cole				

Date: 1-31-92
Lab Unit Mgr: D Y Bisenius

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-557B	103AP	12-16-91	15:56	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	% RECOVERY	N124W	0

Sample Size: ?
Customer ID: STD

Remarks, Calculations, Results:
S244 KCN
STD# 75C11-X RESULT 8.86E2ppm
STD VAL 8.98E2ppm %REC 98.7%
(.721-.004)-(-.004303) / .162726 = 4.43 ug CN-
4.43 ug CN- x 100 / 0.5 mL = 886 ug/mL = 886E2 ppm
%Rec = 8.86E2ppm / 8.98E2ppm x100 = 98.7%
ABS .721
Blank = .004
DF = 10mL / 0.1mL = 100

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
80028				
Ed Cole				

Date: 1-31-92
Lab Unit Mgr: D Y Bisenius

TODAYS DATE: 1-31-1992

P...COLL NO.: 80028

Y-INTERCEPT= -.004303
SLOPE= .16726

SAMPLE ID#: R-932 BLANK
SAMPLE SIZE: 0
WVL AND ABS= 580NM 0.004 A

SAMPLE ID#: R-931 75C11-X STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.703 A

SAMPLE ID#: R-933
SAMPLE SIZE: 100UL
WVL AND ABS= 580NM 0.015 A

SAMPLE ID#: R-934
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.060 A

SAMPLE ID#: R-934 DUPLICATE
SAMPLE SIZE: 750UL
WV AND ABS= 580NM 0.062 A

SAMPLE ID#: R-934 + SPIKE
SAMPLE SIZE: 750UL + 100UL-10ML-500UL 75C11-X SPIKE
WVL AND ABS= 580NM 0.752 A

SAMPLE ID#: R-935
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.071 A

SAMPLE ID#: R-936
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.057 A

SAMPLE ID#: R-936
SAMPLE SIZE: 750UL
WVL AND ABS= 580NM 0.064 A

SAMPLE ID#: R-938 75C11-X STD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.721 A

TECHNOLOGIST SIGNATURE: Ed Cohen

DA SIGNED: 1-31-1992

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.: R935	Customer ID: 3AP1191-1
Analysis: ARSENIC	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-355-131/B-0
Technologist: D. R. JACKSON	Date: 01-07-92
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	R931-5595	11		
2	REAGENT BLANK	R932-5695	12		
3	SAMPLE 3AP1191-1	R935-5795	13		
4	FINAL LMCS CHECK STD	R938-5595	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	129B38C/.500 mL			N/A

A-6000-881 (03/92)

ARSENIC ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5595	103AP	12-16-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Range
As	LA-355-131	% RECOVERY	M124W	0

Sample Size: 0.500 ml
Customer ID: STD

Remarks, Calculations, Results: EDF R741 AS/HYDRD
STDW129B38C RESULT 0.0974 ppm
STD VAL 0.10 ppm %REC 97.40%
DRS 1-7-92
~~0.700~~ PKHT .256
1-7-92
~~47.8444 mg / 500 mg x100 = 9566~~
48.7 / 500 λ = 0.0974 ppm
0.974 ppm / 0.100 ppm x 100 = 97.40%

Analyst-1: bc275 | Analyst-2: | Analyst-3: Leslie Dion | Analyst-4: | Analyst-5: RK Miller 1-7-92
Date: 1-7-92 | Time Completed: | Lab Unit Mgr:

54-0000-051 (R-10-03)

R931 - 5595

ng	PKHT
0 ng	0.000
20 ng	0.344
40 ng	0.662
100 ng	1.501

$r^2 = 0.9977$
Intercept = 0.0326
slope = 0.0149

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5595	103AP	12-16-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Range
As	LA-355-131	PPM	M124W	0

Sample Size: 10.0 ml
Customer ID: BLK

Remarks, Calculations, Results: REAGENT BLANK
~~0.025~~ DRS 1-7-92
0.066 PKHT = 2.3 ngs
<5 ng / 10.0 ml = <0.0005 ppm

Analyst-1: bc275 | Analyst-2: | Analyst-3: | Analyst-4: Leslie Dion | Analyst-5: RK Miller 1-7-92
Date: ~~1-6-92~~ 1-7-92 | Time Completed: | Lab Unit Mgr:

54-0000-051 (R-10-03)

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5595	103AP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Range
As	LA-355-131	PPM	M124W	

Sample Size: 1.0 ml
Customer ID: ~~[illegible]~~ 3AP191-1

Remarks, Calculations, Results: DRS ~~0.442~~ 1-7-92
0.844 = PKHT
(0.844 - 0.0326) / 0.0149 = 54.46 ngs
54.46 mg / 1000 λ = 0.055 ppm

Analyst-1: bc275 | Analyst-2: | Analyst-3: | Analyst-4: Leslie Dion | Analyst-5: RK Miller 1-7-92
Date: ~~1-6-92~~ 1-7-92 | Time Completed: | Lab Unit Mgr:

54-0000-051 (R-10-03)

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5595	103AP	12-16-91	15:56	25

Determination	Method/Standard	Result Units	Charge Code	Range
As	LA-355-131	% RECOVERY	M124W	

Sample Size: 0.500 ml
Customer ID: STD

Remarks, Calculations, Results: EDF R741 AS/HYDRD
STDW129B38C RESULT 0.103 ppm
STD VAL 0.10 ppm %REC 103.0%
0.799 = PKHT
(0.799 - 0.0326) / 0.0149 = 51.44 ngs
51.44 ngs / 500 λ = 0.103 ppm
0.103 ppm / 0.100 ppm x 100 = 103.0%

Analyst-1: bc275 | Analyst-2: | Analyst-3: Leslie Dion | Analyst-4: | Analyst-5: RK Miller 1-7-92
Date: ~~1-6-92~~ 1-7-92 | Time Completed: | Lab Unit Mgr:

54-0000-051 (R-10-03)

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: 01-07-92

Calibration Standard: 128B38C

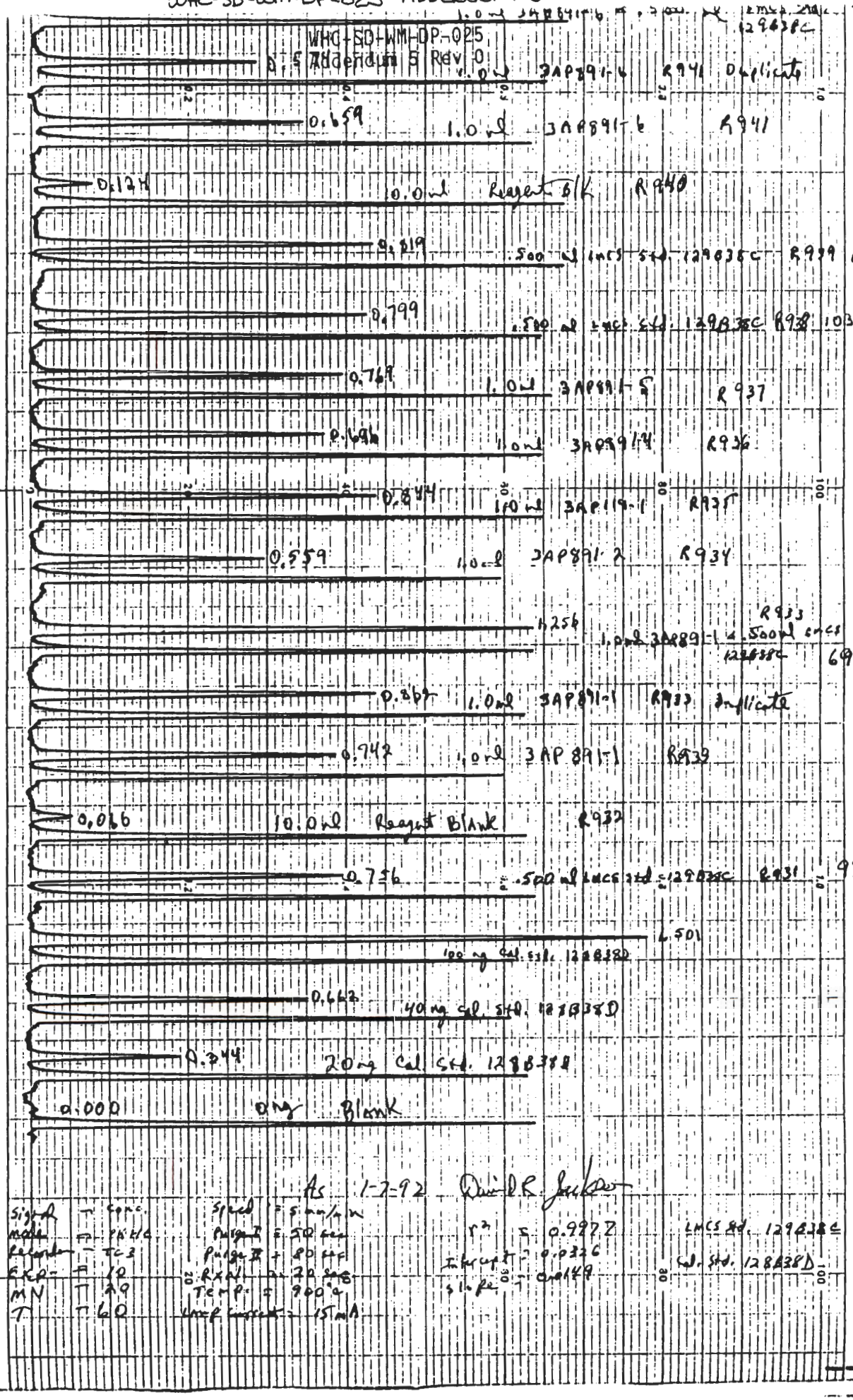
Analyte Concentration: 0.100 ppm

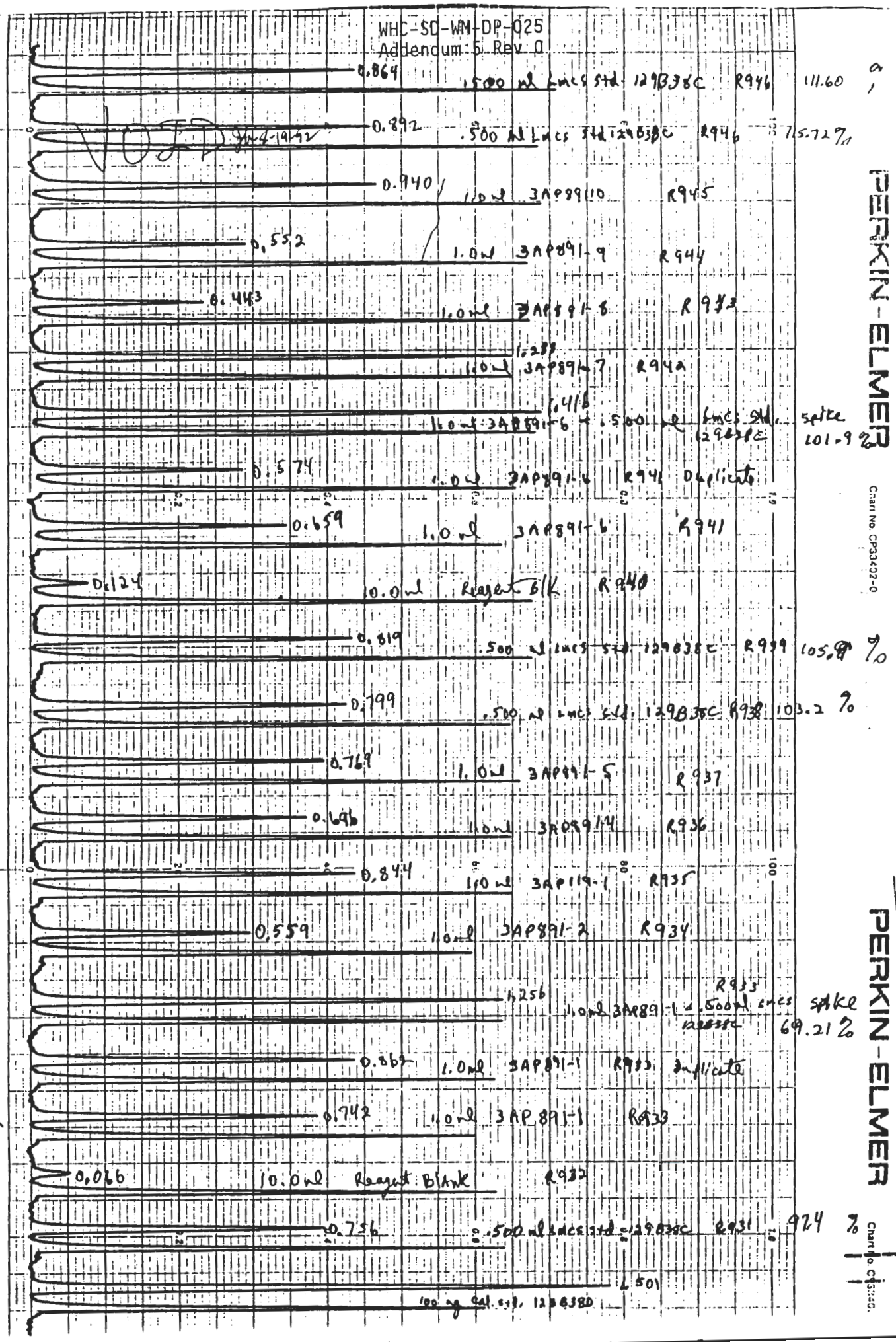
Type of Calibration: LINEAR

	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			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/


WHC-SD-WM-DP-025
Addendum 5 Rev 0
0.659 1.0 ml 3AP891-6 R941
0.124 10.0 ml Reagent Blk R940
0.819 .500 ml LMCS Std. 129B38C R939 105.8 %
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
0.256 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 R932
0.066 10.0 ml Reagent Blank R932
0.756 .500 ml LMCS Std. 129B38C R931 92.4 %
1.501 100 ng Cal. Std. 128B38D
0.662 40 ng Cal. Std. 128B38D
0.344 20 ng Cal. Std. 128B38D
0.000 0 ng Blank
As 1-7-92
Signal = Conc.
mode = PeakC
recorder = TC3
Exp = 10
MN = 40
T = 60
Speed = 5 mm/min
Purge I = 50 cc
Purge II = 80 cc
20 RxN = 20 sec
Temp = 900°C
Lmp Current = 15mA
r² = 0.9977
Intercept = 0.0326
Slope = 0.0149
LMCS Std. 129B38C
Cal. Std. 128B38D
Chart No. CP33402-3
PERKIN-ELMER



David R. Parker 1-7-92

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: MERCURY	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-325-102/B-0
Technologist: D. R. JACKSON	Date: 01-21-92
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	R931-5597	11		
2	REAGENT BLANK	R932-5697	12		
3	SAMPLE 3AP1191-1	R935-5797	13		
4	FINAL LMCS CHECK STD	R938-5597	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	129B38D/.300 mL			N/A

A-6000-881 (03/92)

MERCURY ANALYSIS - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 931-5597	10SAP	12-16-91	15:44	25

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

Sample Size: 300 ml
Customer ID: STD

Remarks, Calculations, Results: EDP R/15 HG/HYDRD
STD# 1292310 RESULT 0.1002 ppm
STD VAL. 0.1000 ppm %REC 100.2 %
PKHT = 0.181
0.181 − −0.0036 / 0.0057 = 34.14 ng
34.14 ng / 300 λ = 0.1138 ppm
0.1138 ppm / 0.1000 ppm × 100 = 113.8 %
OVER
DRJ 1-21-92

Analyst-1: 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5: RK Fuller 1-22-92
Date: 1-21-92 | Time Completed | Lab Unit Mgr

ng	PKHT
0	0.0000
15.2	0.0830
38.0	0.2040
76.0	0.4310

R931-5597
DRJ
r^2 = 0.9992
Intercept = −0.0036
1-21-92 Slope = 0.0057

ng	PKHT
0.000	0.000
15.2	0.090
38.0	0.236
76.0	0.458

r^2 = 0.8896
Intercept = 0.0007
Slope = 0.0060
PKHT = 0.181
0.181 − 0.0007 / 0.0060 = 30.05 ng
30.05 ng / 300 λ = 0.1002 ppm
0.1002 ppm / 0.1000 ppm × 100 = 100.2 %

Serial No	Sample Point	Date	Time Issued	Priority
R 932-5647	10SAP	12-16-91	15:45	25

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

Sample Size: 10.0 ml
Customer ID: BLK

Remarks, Calculations, Results: REAGENT BLANK
0.018 − −0.0036 / 0.0057 = 3.79 ng < 5 ng
DRJ 1-21-92
PKHT = 0.007
< 5 ng / 10000 = < 0.0005 ppm
over

Analyst-1: 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5: RK Fuller 1-22-92
Date: 1-21-92 | Time Completed | Lab Unit Mgr

R932-5647
0.007 − 0.0007 / 0.0060 = 1.05 ng = < 5 ng
< 5 ng / 10000 = < 0.0005 ppm
PKHT = 0.007

Serial No	Sample Point	Date	Time Issued	Priority
R 935-5797	10SAP	12-16-91	15:02	25

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

Sample Size: 1.5 ml 30 ml
Customer ID: 3AP119-1

Remarks, Calculations, Results: PKHT = 0.002
0.002 − −0.0036 / 0.0057 = 0.98 ng = < 5 ng
DRJ 1-21-92
PKHT = 0.002
< 5 ng / 1000 λ = < 0.005 ppm
over

Analyst-1: 6C275 | Analyst-2 | Analyst-3 | Analyst-4 | Analyst-5: RK Fuller 1-22-92
Date: 1-21-92 | Time Completed | Lab Unit Mgr

R935-5797
PKHT = 0.002
0.002 − 0.0007 / 0.0060 = 0.22 ng = < 5 ng
< 5 ng / 3000 λ = < 0.0017 ppm

MERCURY ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
R938-5597	10.NF	12-16-91		

Determination	Method/Standard	Result Units	Charge Code	Reruns
Hg	LA-325-102	% RECOVERY	N124W	0

Sample Size	Customer ID
? 0.300	STD

Remarks, Calculations, Results

EDP R/15 HG/HYDRD
STD# 129638D RESULT 0.1052 ppm
STD VAL 0.100 ppm %REC 105.17 %
~~PK HT = 0.176~~ DRJ 1-21-92

$\frac{0.176 - 0.0076}{0.0057} = 30.1$ ng

$\frac{30.1 \text{ ng}}{300 \text{ g}} = 0.1003$ ppm

31.51 ng

$\frac{31.51 \text{ ng}}{300 \text{ g}} = 0.1051$ ppm

$\frac{0.1051 \text{ ppm}}{0.1000 \text{ ppm}} \times 100 = 105.1\%$

PK Ht = 0.190 over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
DC275				RK 1-22-92
Hrs	Hrs	Hrs	Hrs	Hrs
Date 1-21-92	Time Completed	Lab Unit Mgr		

PK Ht = 0.190 R938-5597

$\frac{0.190 - 0.0007}{0.0060} = 31.55$ ng

$\frac{31.55 \text{ ng}}{300 \text{ g}} = 0.1052$ ppm

$\frac{0.1052 \text{ ppm}}{0.1000 \text{ ppm}} \times 100 = 105.1\%$

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:	01-21-92

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
5			
6			
7			
8			
9			
10			
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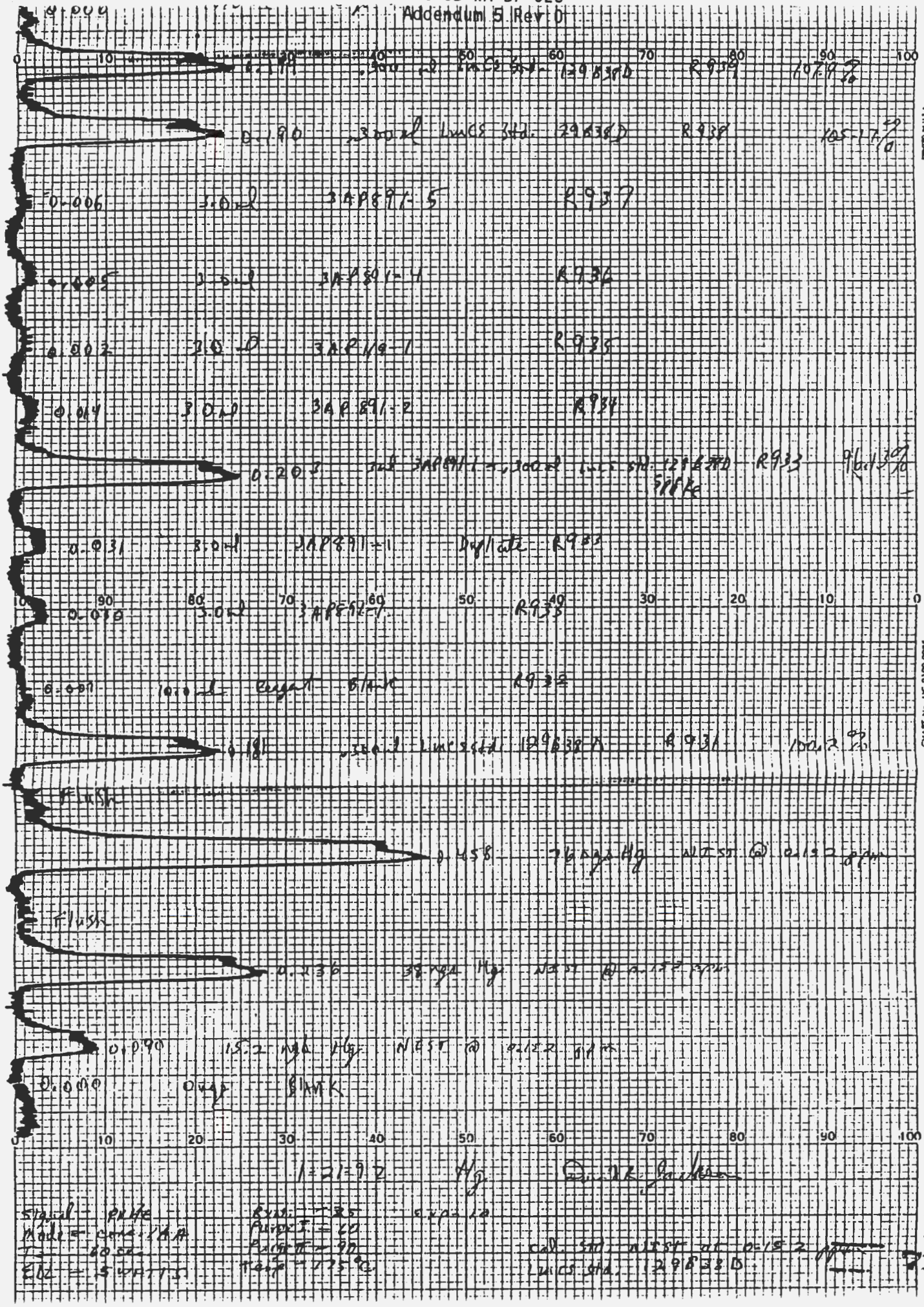
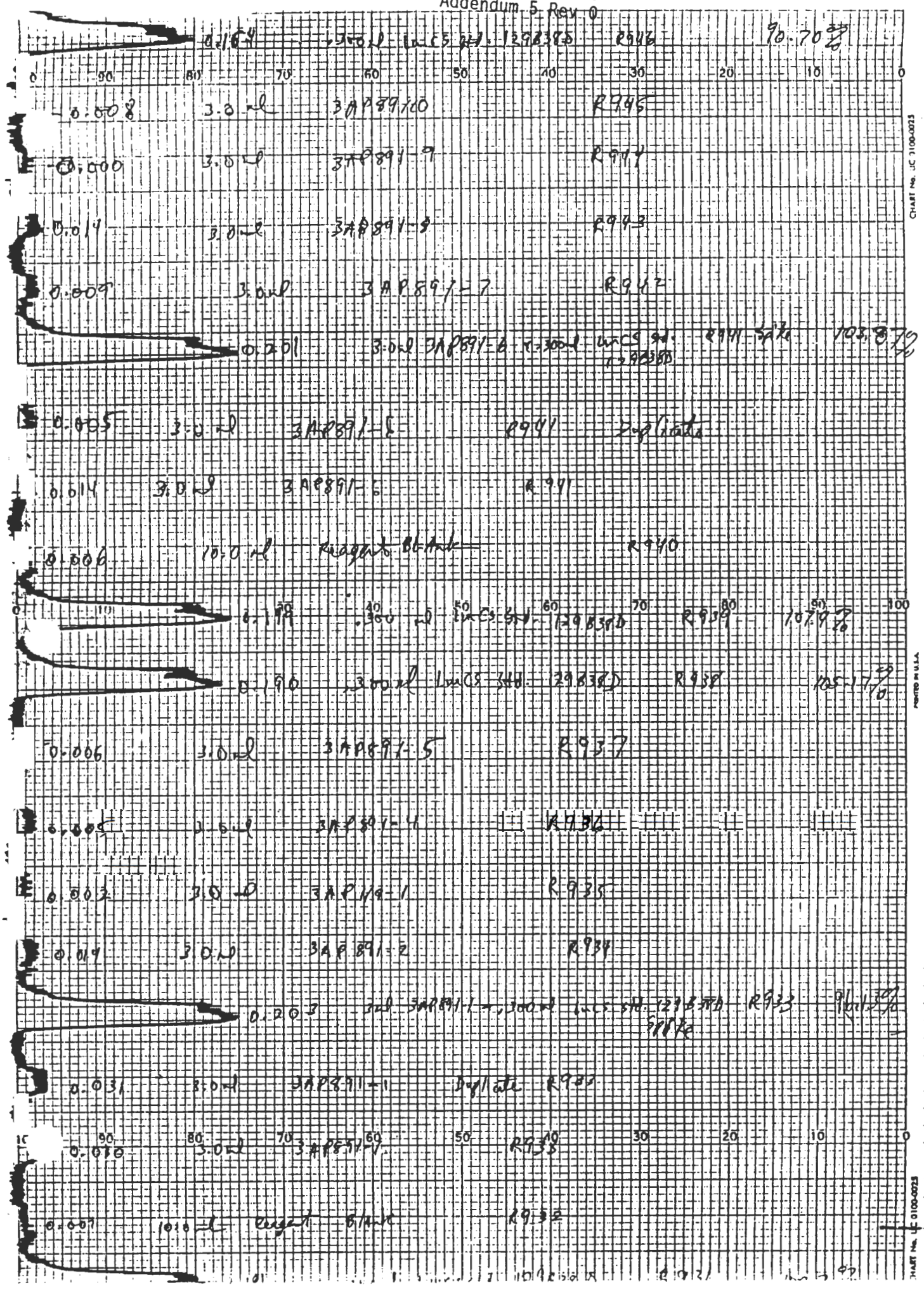
16			
17			
18			
19			
20			
21			

Comments:

A-6000-882 (03/


0.000
0.194
.300 ml LUCS STD 129638D
R939
107.9 %
0.190
.300 ml LUCS 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
3AP891-1
R935
0.014
3.0 ml
3AP891-2
R934
0.203
.3 ml 3AP891-1 + .300 ml LUCS STD. 129638D
Spike
R933
96.13 %
0.031
3.0 ml
3AP891-1
Dilute
R933
0.030
3.0 ml
3AP892-1
R933
0.000
10.0 ml
Carrier
Blank
R932
0.191
.300 ml LUCS STD. 129638D
R931
100.2 %
Flush
0.458
76 ng/g Hg
NIST @ 0.152 ppm
Flush
0.236
38 ng/g Hg
NIST @ 0.152 ppm
0.090
15.2 ng/g Hg
NIST @ 0.152 ppm
0.000
Carrier
Blank
1-21-92
Hg
Dr. R. Gaither
Signal Pulse
Mode = Conc. 1 & A
60 sec
EDL = 5 WATTS
Rise Time = 25
Pulse T = 60
Pulse H = 90
Temp = 775 °C
Exp = 10
CAL STD NIST at 0.152 ppm
LUCS STD. 129638D



J. P. Jackson 1-21-92 Hg

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: SELENIUM	Sample Prep: UNDIGESTED

Instrument: PERKIN ELMER WA77479	Procedure/Rev: LA-365-131/B-1
Technologist: D. R. JACKSON	Date: 01-29-92
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	R931-5596	11		
2	REAGENT BLANK	R932-5696	12		
3	SAMPLE 3AP1191-1	R935-5796	13		
4	FINAL LMCS CHECK STD	R938-5596	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	133B38A/0.500 mL			N/A

A-6000-881 (03/92)

SELENIUM ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
K 931.-5596	103AP	12-16-91	15:44	25

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

Sample Size	Customer ID
0.500 ml	STD

Remarks, Calculations, Results
EDP R743 SE/HYDRD
STDW133638A RESULT 0.1135
STD VAL 0.100 ppm %REC 113.5%
PKHt = 0.658

$\frac{0.658 - 0.0225}{0.0112} = 56.74$ ng

$\frac{56.74 \text{ ng}}{500 \lambda} = 0.1135$ ppm

$\frac{0.1135 \text{ ppm}}{0.100 \text{ ppm}} \times 100 = 113.5\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
bc225				RK Pulley 1-31-92
Hrs	Hrs	Hrs	Hrs	Hrs
Date 1-29-92	Time Completed	Lab Unit Mgr		

ng	PK Ht
0.00	0.000
20 ng	0.274
40 ng	0.468
100 ng	1.132

R931 - .5596
$r^2 = 0.9981$
Intercept = 0.0225
Slope = 0.0112

Serial No.	Sample Point	Date	Time Issued	Priority
K 932.-5696	103AP	12-16-91	15:45	25

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

Sample Size	Customer ID
10.0 ml	BLK

Remarks, Calculations, Results
REAGENT BLANK
PK HT = -0.008

-0.008 = < 5 ng

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

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
bc225				RK Pulley 1-30-92
Hrs	Hrs	Hrs	Hrs	Hrs
Date 1-29-92	Time Completed	Lab Unit Mgr		

Serial No.	Sample Point	Date	Time Issued	Priority
K 935.-5796	103AP	12-16-91	15:52	25

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

Sample Size	Customer ID
1.0 ml	3NP1171-1

Remarks, Calculations, Results
PK HT = 0.046

$\frac{0.046 - 0.0225}{0.0112} = 2.10$ ng = < 5 ng

$\frac{< 5 \text{ ng}}{1000 \lambda} = < 0.005$ ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
bc225				RK Pulley 1-30-92
Hrs	Hrs	Hrs	Hrs	Hrs
Date 1-29-92	Time Completed	Lab Unit Mgr		

Serial No.	Sample Point	Date	Time Issued	Priority
K 938.-5596	103AP	12-16-91	15:53	25

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

Sample Size	Customer ID
0.500 ml	STD

Remarks, Calculations, Results
EDP R743 SE/HYDRD
STDW133838A RESULT 0.1113 ppm
STD VAL 0.100 ppm %REC 111.34%
PK HT = 0.646

$\frac{0.646 - 0.0225}{0.0112} = 55.67$ ng

$\frac{55.67 \text{ ng}}{500 \lambda} = 0.1113$ ppm

$\frac{0.1113 \text{ ppm}}{0.1000 \text{ ppm}} \times 100 = 111.34\%$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
bc225				RK Pulley 1-30-92
Hrs	Hrs	Hrs	Hrs	Hrs
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:	01-29-92

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			
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21			

Comments:

A-6000-882 (03/92)

0.107	1.0 ml	3AP891-6			R942	
0.110	0.250 ml 3AP891-6		.500 ml LMCS std 133B38A		R941	Spike 122.76%
0.018	0.250 ml ~~1.0 ml~~ DKJ 1-29-92	3AP891-6	Duplicate		R941	
0.003	0.250 ml ~~1.0 ml~~ DKJ 1-29-92	3AP891-6			R941	
-0.021	10.0 ml	Reagent Blank			R940	
0.663	.500 ml LMCS std 133B38A				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	3AP1197			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	114.3%
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 ngp Se cal std. 132B38A					
0.461	40 ngp Se cal				Cal. 132B38A	
0.274	20 ngp cal. std. 132B38A					
0.000	0 ngp Blank					

Se 1-29-92 David K. Jackson

Signal - conc. Exp = 8 Purge I = 50 λ - 196.3 nm
Mode - PKHT NV = 20 Purge II = 85 Slit width - 2.0 nm Temp. = 975 °C
Recorder - TC3 T = 50 Rx11 - 30 Bkgd corr - AA Lamp current = 6
Speed = 5 mm/min Lamp # 9

LMCS std. # 133 B38A Cal. std # 132 B38A

r = 0.9981 Intercept - 0.0225 Slope = 0.0112

0.016	0.0250 ml			B6542		
0.016	0.0250 ml	25-2		B6481		
-0.002	0.0250 ml	25-2		B6444		
-0.003	0.0250 ml	25-2		B6408		
	0.450	.500 ml LMCS Std. 133B38A		R946	112.06 %	
VOID	0.769	.500 ml LMCS Std. 133B38A		R946	122.6 %	Too High
0.089	1.0 ml	3AP89110		R945		
0.009	1.0 ml	3AP891-9		R944		
-0.002	1.0 ml	3AP891-8		R943		
0.193	1.0 ml	3AP891-7		R942		
	0.710	0.250 ml 3AP891-6	+ .500 ml LMCS Std. 133B38A	R941	Spike	122.76%
-0.018	0.250 ml ~~1.0 ml~~ DKS 1-29-92	3AP891-6	Duplicate	R941		
0.003	0.250 ml ~~1.0 ml~~ DKS 1-29-92	3AP891-6		R941		
-0.021	0.0 ml	Reagent Blank		R940		
	0.663	.500 ml LMCS Std	133B38A	R939	114.38%	
	0.646	.500 ml Lmcs Std	133B38A	R938	111.34%	
0.029	1.0 ml	3AP891-5		R937		
0.004	1.0 ml	3AP891-4		R936		
0.046	1.0 ml	3AP1119-2		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	R933	Spike 114.3%	
0.010	0.250 ml	3AP891-1	Duplicate	R933		

Daniel Jackson 1-29-92

PERKIN-ELMER Chart No. CP3340-C

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: ION CHROMATOGRAPHIC - CHLORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MEYERS	Date: 01-08-92
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	R931-5572	11		
2	REAGENT BLANK	R932-5672	12		
3	SAMPLE 3AP1191-1	R935-5772	13		
4	FINAL LMCS CHECK STD	R938-5572	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	73C11DC/.100 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (CHLORIDE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5572	10JAP	12-16-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Range
CL	LA-533-105	% RECOVERY	N12HW	0

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

Remarks, Calculations, Results
EDP R972 DIONEX
STD# 73C11DC RESULT 7.3E1 ppm
STD VAL 7.5E1 ppm %REC 97.5%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Helen Hayes		Leslie Dion		Alvin Abbott
Hrs 6.873	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-8-92		Leslie Dion

54-0000-051 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5572	10JAP	12-16-91	15:48	25

Determination	Method/Standard	Result Units	Charge Code	Range
CL	LA-533-105	PPM	N12HW	0

Sample Size	Customer ID
? DIRECT	BLK

Remarks, Calculations, Results
REAGENT BLANK
< .1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Helen Hayes		Leslie Dion		Alvin Abbott
Hrs 6.873	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-8-92		Leslie Dion

54-0000-051 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
R 933.-5572	10JAP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Range
CL	LA-533-105	PPM	N12HW	0

Sample Size	Customer ID
? .100ml - 10ml	38P119-1 2AD

5/15/91

Remarks, Calculations, Results
4.9E1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Helen Hayes		Leslie Dion		Alvin Abbott
Hrs 6.873	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-8-92		Leslie Dion

54-0000-051 (R-10-83)

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5572	10JAP	12-16-91	15:58	25

Determination	Method/Standard	Result Units	Charge Code	Range
CL	LA-533-105	% RECOVERY	N12HW	0

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

Remarks, Calculations, Results
EDP R972 DIONEX
STD# 78C11DC RESULT 6.9E1 ppm
STD VAL 7.5E1 ppm %REC 98.1

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Helen Hayes		Leslie Dion		Alvin Abbott
Hrs 6.873	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-8-92		Leslie Dion

54-0000-051 (R-10-83)

DATA REPROCESSED ON Thu Jan 09 21:04:04 1992

R931 for Cl, F, PO_4, NO_3

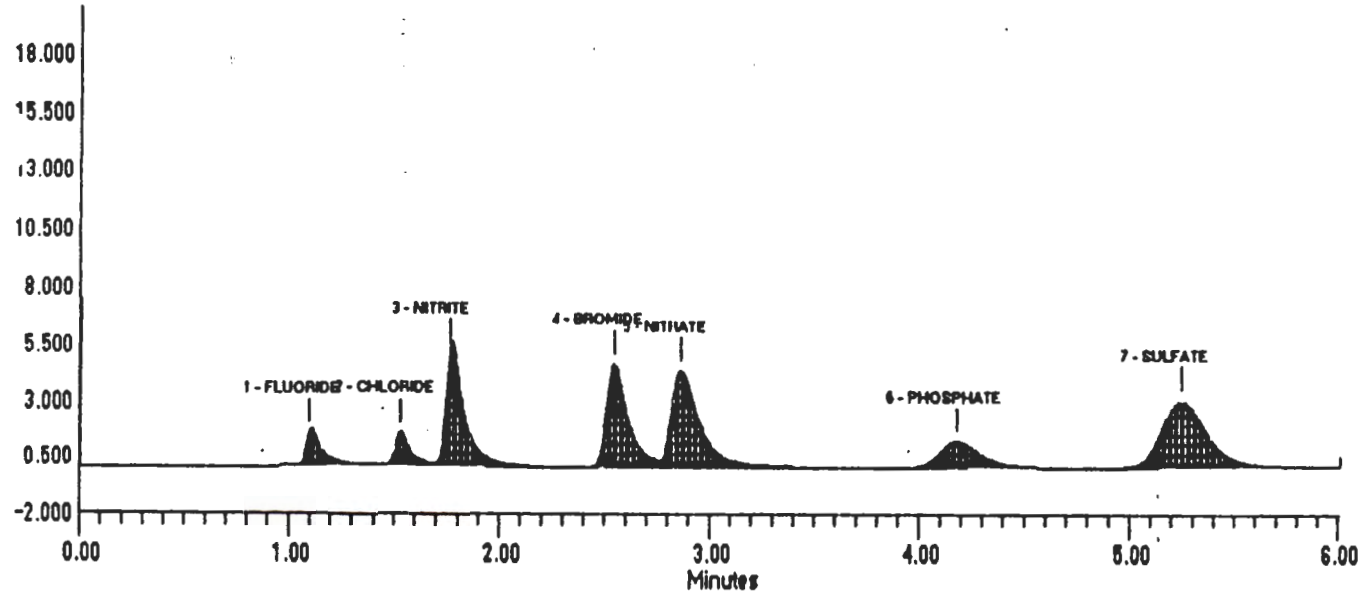
Sample Name: LMCS/73C11DC Date: Wed Jan 08 15:09:50 1992
Data File : C:\DX\DATA\91010801.D09
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 9 Detector: CDM-1

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

correct to DF 101

Pk. Num	Ret Time	Component Name	conc with 101 DF	% rec.	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE	52.8	94.5% rec.	0.523	1491	8474	1	0.00
2	1.53	CHLORIDE	73.1	97.5%	0.724	1490	7271	2	0.00
3	1.77	NITRITE	520	106%	5.121	5068	33444	2	-1.85
4	2.55	BROMIDE			6.854	4622	33583	2	0.00
5	2.87	NITRATE	666	105%	6.599	4340	41053	2	4.24
6	4.18	PHOSPHATE	537	104%	5.315	1215	15725	1	2.03
7	5.25	SULFATE	603	98.9%	5.966	3037	45140	1	1.29

File: C:\DX\DATA\91010801.D09 Sample: LMCS/73C11DC



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Melanie Myers 1/6/92
SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/ CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 80 TO 84.

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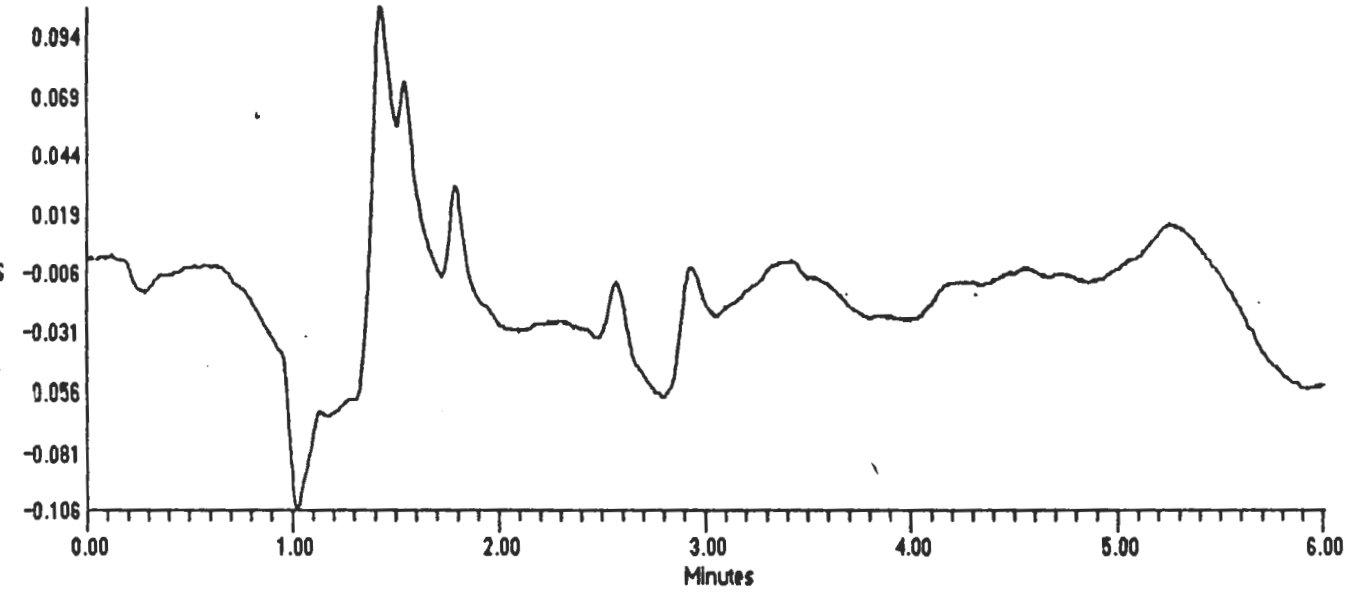
Sample Name: BLANK R932 Date: Wed Jan 08 15:39:15 1992
Data File : c:\dx\data\91010811.D02
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 2 Detector: CDM-1

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

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91010811.D02 Sample: BLANK



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DATA REPROCESSED ON Thu Jan 09 00:40:05 1992

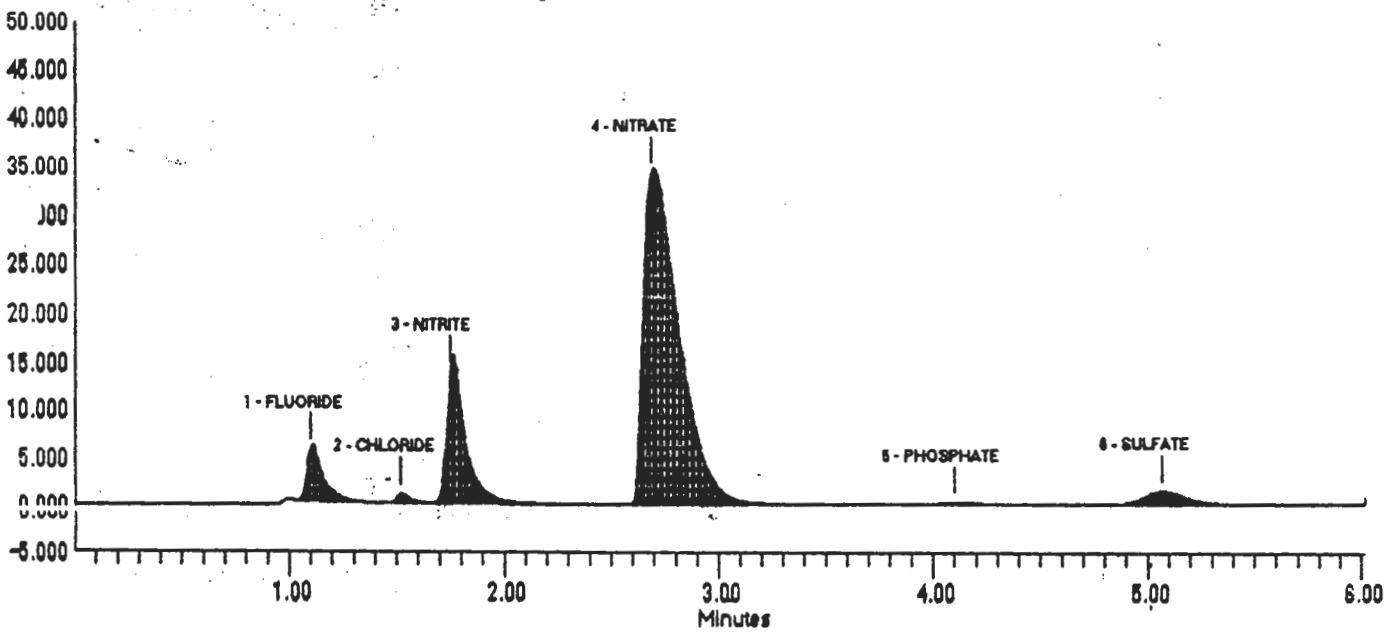
WHC-SD-WM-DP-025
Addendum 5 Rev 0

Sample Name: R935 Date: Wed Jan 08 16:15:22 1992
Data File: C:\DX\DATA\91010811.D07
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 7 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE	177.724	5317	32370	1	0.00
2	1.52	CHLORIDE	49.770	1065	4823	1	-1.09
3	1.75	NITRITE	1379.632	13825	94594	1	-2.78
4	2.68	NITRATE	5250.617	34280	406118	1	-2.42
5	4.10	PHOSPHATE	151.191	280	3467	1	0.00
6	5.07	SULPATE	318.265	1502	21747	1	-2.25

File: C:\DX\DATA\91010811.D07 Sample: R935



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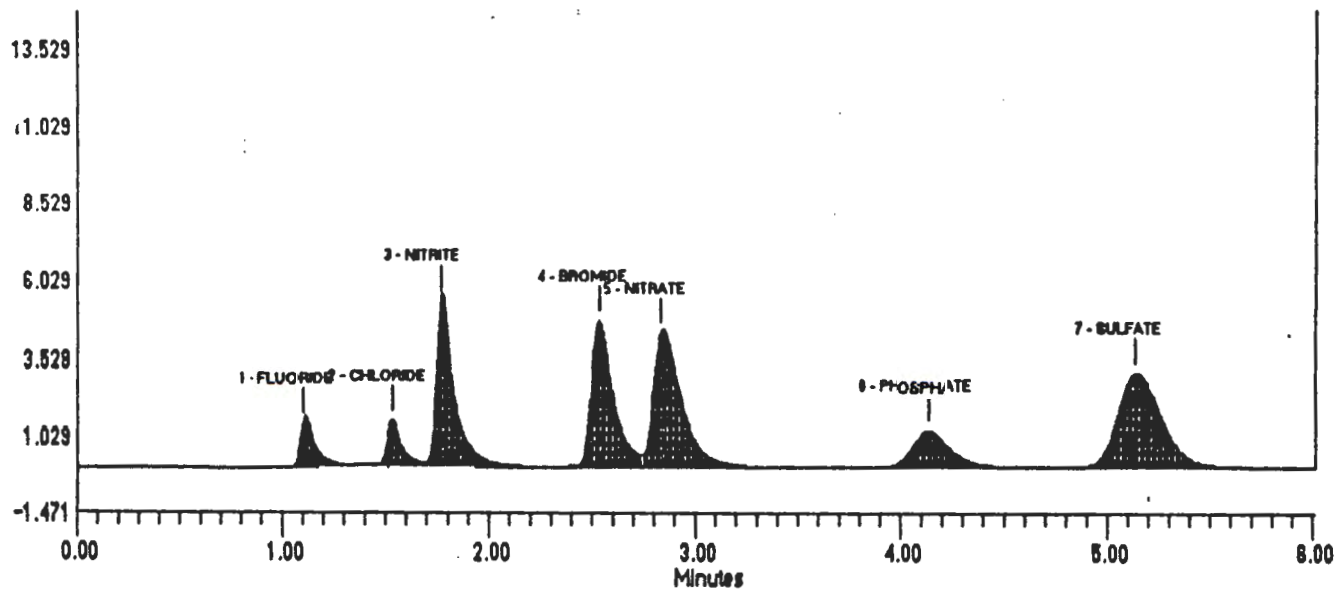
R938 for F, Cl, PO_4 SO_4

Sample Name: LMCS/73C11DB Date: Wed Jan 08 16:37:00 1992
Data File : c:\dx\data\91010811.D10
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 10 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE 90.1%	50.545	1444	8044	1	0.00
2	1.53	CHLORIDE 93.1%	69.794	1467	6918	2	0.00
3	1.77	NITRITE 103%	507.433	5319	32752	2	-1.85
4	2.53	BROMIDE	716.180	4684	34653	2	-0.65
5	2.83	NITRATE 106%	668.220	4297	41168	2	3.03
6	4.13	PHOSPHATE 101%	521.034	1194	15218	1	0.81
7	5.13	SULFATE 99.3%	605.173	3059	45354	1	-0.96

File: c:\dx\data\91010811.D10 Sample: LMCS/73C11DB



BEST AVAILABLE COPY

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: ION CHROMATOGRAPHIC - FLUORIDE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MEYERS	Date: 01-08-92
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	R931-5571	11		
2	REAGENT BLANK	R932-5671	12		
3	SAMPLE 3AP1191-1	R935-5771	13		
4	FINAL LMCS CHECK STD	R938-5571	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	73C11DC/.100 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (FLUORIDE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5571	103AP	12-16-91	15:45	25

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

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

Remarks, Calculations, Results
EDP R974 DIONEX
STDN 73C110C RESULT 5.2861 ppm
STD VAL 5.6E1 ppm %REC 94.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date	Time Completed	Lab Unit Mgr
1-8-92		

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5671	103AP	12-16-91	15:50	25

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

Sample Size	Customer ID
? DIRECT	BLK

Remarks, Calculations, Results
REAGENT BLANK
< .1 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date	Time Completed	Lab Unit Mgr
1-8-92		

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5771	103AP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
F	LA-533-105	G/G	N124W	0

Sample Size	Customer ID
? .100ml - 10ml	~~[illegible]~~ LAD ~~[illegible]~~ 3AP19-1

Remarks, Calculations, Results
1.78E 2 ppm
5/1/91

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date	Time Completed	Lab Unit Mgr
1-8-92		

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5571	103AP	12-16-91	15:56	25

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

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

Remarks, Calculations, Results
EDP R974 DIONEX
STDN 78C110C RESULT ~~[illegible]~~ 5.05E1 ppm
STD VAL 5.6E1 ppm %REC 90.2%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
6C823				

Date	Time Completed	Lab Unit Mgr
1-8-92		

DATA REPROCESSED ON Thu Jan 09 21:04:04 1992

R931 for Cl, F, PO_4, NO_4

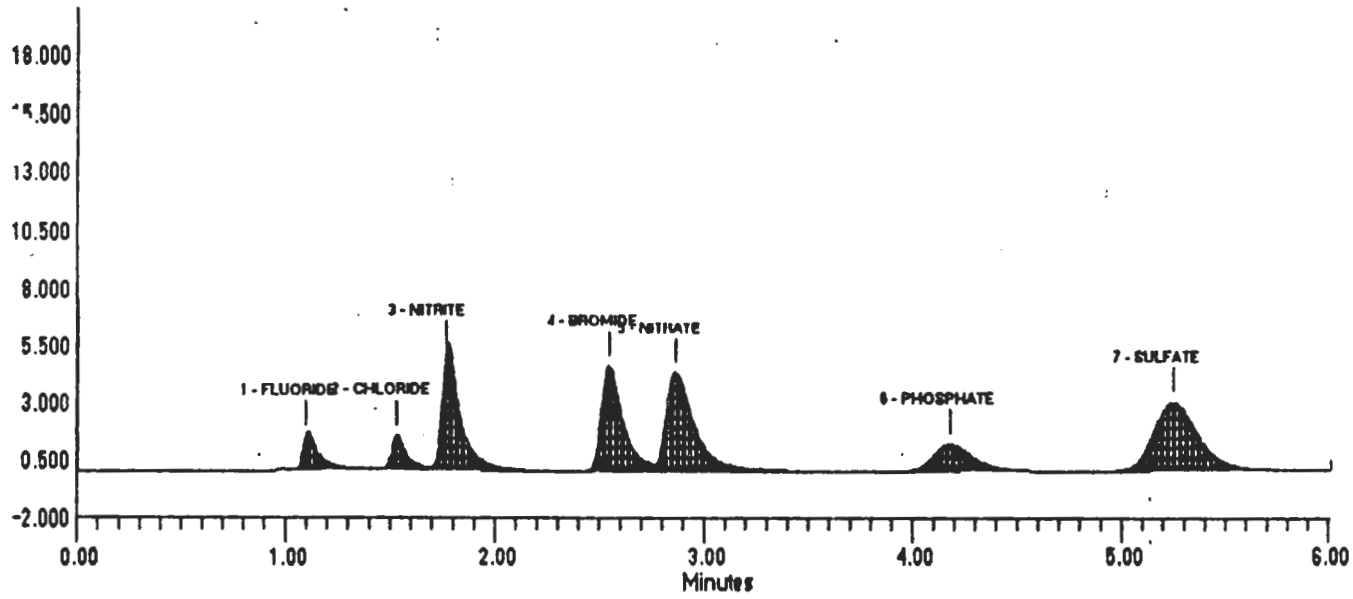
ample Name: LMCS/73C11DC Date: Wed Jan 08 15:09:50 1992
Data File : C:\DX\DATA\91010801.D09
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 9 Detector: CDM-1

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

correct to DF 101

Pk. Num	Ret Time	Component Name	conc with 101 DF	Concentration % rec.		Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE	52.8	94.5% rec.	0.523	1491	8474	1	0.00
2	1.53	CHLORIDE	73.1	97.5%	0.724	1490	7271	2	0.00
3	1.77	NITRITE	520	104%	5.121	5068	33444	2	-1.85
4	2.55	BROMIDE			6.854	4622	33583	2	0.00
5	2.87	NITRATE	666	105%	6.599	4340	41053	2	4.24
6	4.18	PHOSPHATE	537	104%	5.315	1215	15725	1	2.03
7	5.25	SULFATE	603	98.9%	5.966	3037	45140	1	1.29

File: C:\DX\DATA\91010801.D09 Sample: LMCS/73C11DC



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Lulamai Myers 1/6/92

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/ CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES 87 TO 91.

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9 3 1 2 3 6 3 1 3 3 3 5

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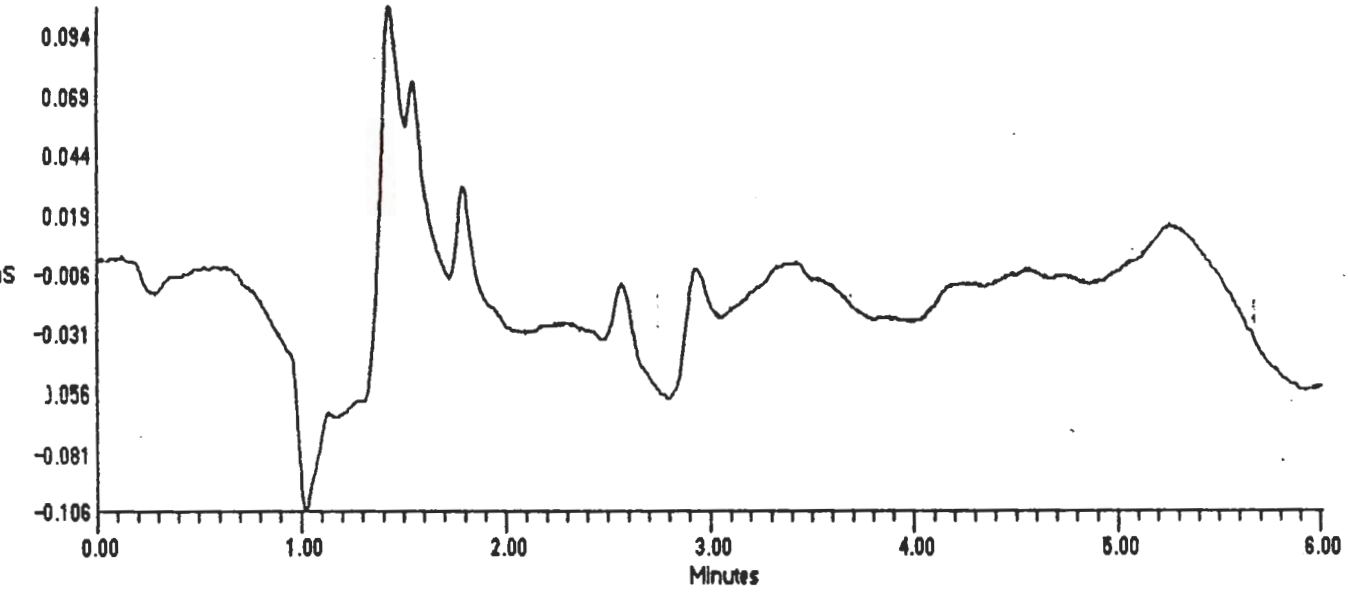
==================================================================================
  Sample Name: BLANK  R932                          Date: Wed Jan 08 15:39:15 1992
  Data File  : c:\dx\data\91010811.D02
  Method     : c:\dx\method\SYSTEM1.met
  ACI Address: 1        System : 1        Inject#:   2  Detector: CDM-1
==================================================================================
```

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

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91010811.D02 Sample: BLANK



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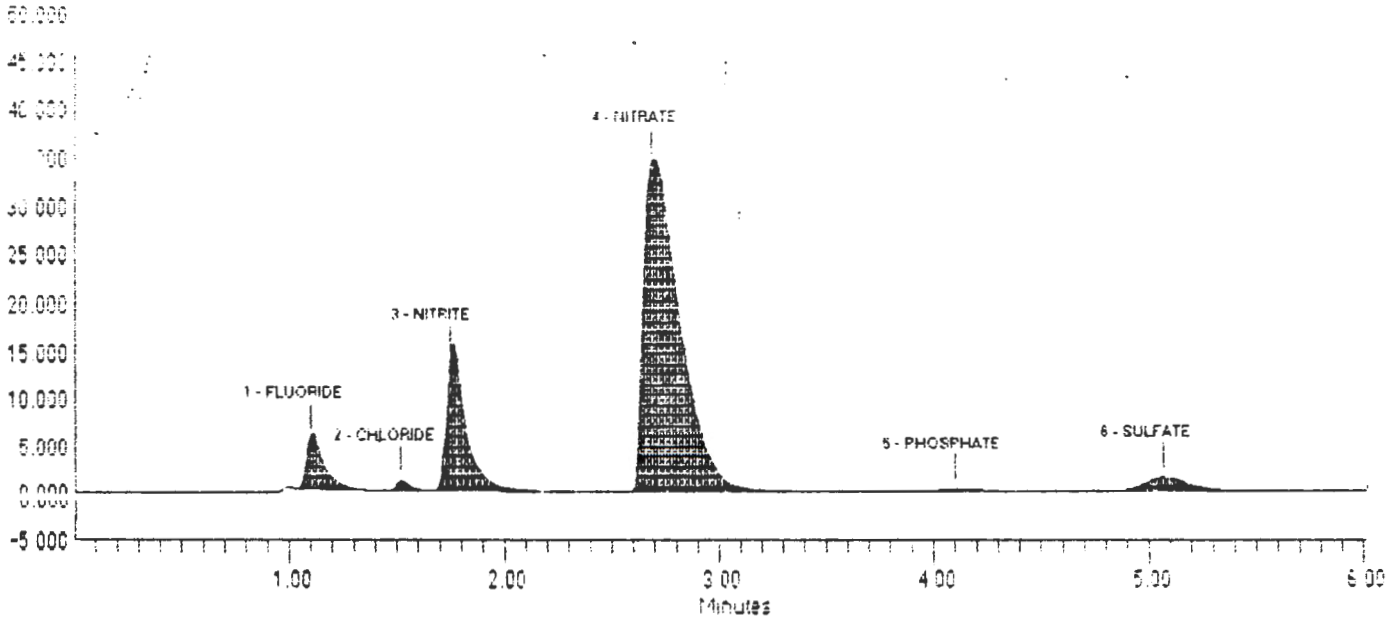
File: C:\DX\DATA\91010811.D07 Sample: R935



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R938 for F, Cl, PO_4 SO_4

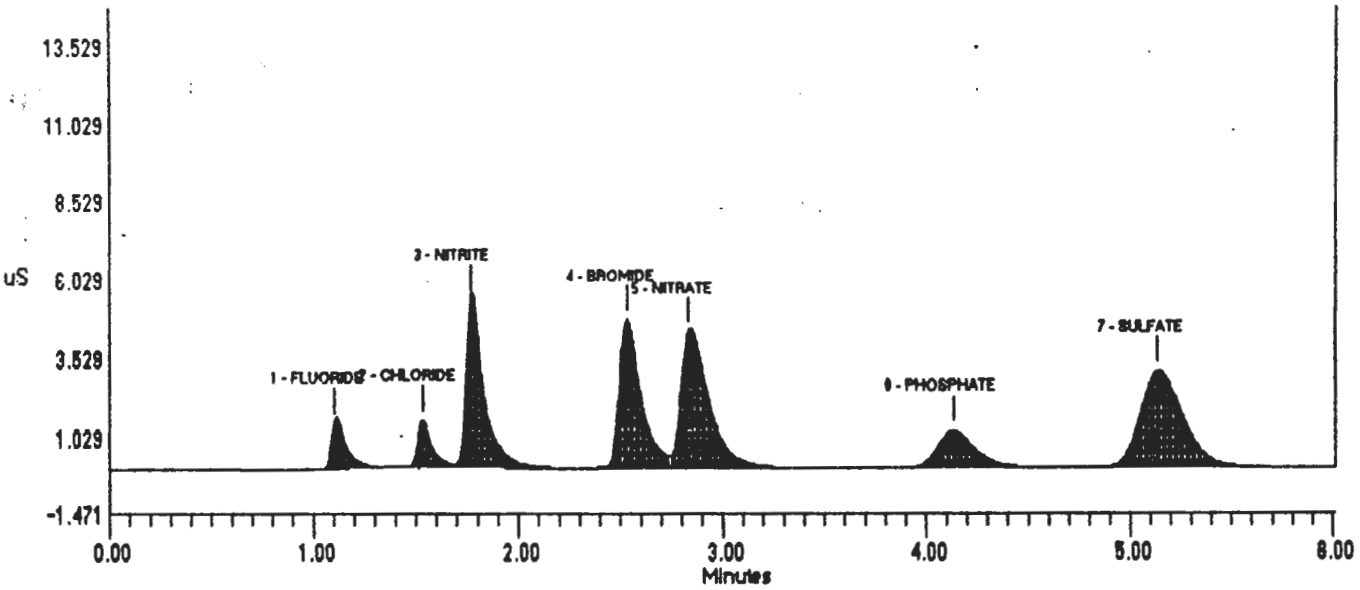
WHC-SD-WM-DP-025
Addendum 5 Rev 0

Sample Name: LMCS/73C11DB Date: Wed Jan 08 16:37:00 1992
Data File : c:\dx\data\91010811.D10
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 10 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE ~~90.1%~~ 90.2%	50.545	1444	8044	1	0.00
2	1.53	CHLORIDE 93.1%	69.794	1467	6918	2	0.00
3	1.77	NITRITE 103%	507.433	5319	32752	2	-1.85
4	2.53	BROMIDE	716.180	4684	34653	2	-0.65
5	2.83	NITRATE 106%	668.220	4297	41168	2	3.03
6	4.13	PHOSPHATE 101%	521.034	1194	15218	1	0.81
7	5.13	SULFATE 99.3%	605.173	3059	45354	1	-0.96

File: c:\dx\data\91010811.D10 Sample: LMCS/73C11DB



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WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: ION CHROMATOGRAPHIC -- NITRATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MEYERS	Date: 01-08-92
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	R931-5573	11		
2	REAGENT BLANK	R932-5673	12		
3	SAMPLE 3AP1191-1	R935-5773	13		
4	FINAL LMCS CHECK STD	R938-5573	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	73C11DC/.100 mL			N/A

A-6000-881 (03/92)

Serial No: R 931.-5573 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 15:47 | Priority: 25

Determination: NO3 | Method/Standard: LA-533-105 | Result Units: % RECOVERY | Charge Code: N124W | Remarks:

Sample Size: 7 .100ml - 10ml | Customer ID: STD

Remarks, Calculations, Results: EDP R978 DIONEX
STD #73C11DC RESULT 6.6882 ppm
STD VAL 6.3862 %REC 106%
ppm

Analyst 1: Juliana Lugo | Analyst 2: | Analyst 3: Leslie Diaz | Analyst 4: | Analyst 5: Alicia Albert

Hrs: 6.8823 | Date: 1-8-92 | Time Completed: | Lab Unit Mgr: Leslie Diaz

54-5000-051 (R-10-53)

Serial No: R 932.-5573 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 15:48 | Priority: 25

Determination: NO3 | Method/Standard: LA-533-105 | Result Units: PPM | Charge Code: N124W | Remarks:

Sample Size: 7 DIRECT | Customer ID: BLK

Remarks, Calculations, Results: REAGENT BLANK
<1.0ppm

Analyst 1: Juliana Lugo | Analyst 2: | Analyst 3: | Analyst 4: | Analyst 5: Alicia Albert

Hrs: 6.8823 | Date: 1-8-92 | Time Completed: | Lab Unit Mgr: Leslie Diaz

54-5000-051 (R-10-53)

Serial No: R 935.-5573 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 15:52 | Priority: 25

Determination: NO3 | Method/Standard: LA-533-105 | Result Units: PPM | Charge Code: N124W | Remarks: 0

Sample Size: 7 .250ml - 10ml | Customer ID: 3AP#19-1 LWD

Remarks, Calculations, Results: 5/14/91
3.5083ppm

Analyst 1: Juliana Lugo | Analyst 2: | Analyst 3: | Analyst 4: | Analyst 5: Alicia Albert

Hrs: 6.8823 | Date: 1-6-92 | Time Completed: | Lab Unit Mgr: Leslie Diaz

54-5000-051 (R-10-53)

Serial No: R 938.-5573 | Sample Point: 103AP | Date: 12-16-91 | Time Issued: 15:56 | Priority: 25

Determination: NO3 | Method/Standard: LA-533-105 | Result Units: % RECOVERY | Charge Code: N124W | Remarks: 0

Sample Size: 7 .100ml - 10ml | Customer ID: STD

Remarks, Calculations, Results: EDP R978 DIONEX
STD #78C11DC RESULT 6.4282 ppm 6/17/92
STD VAL 6.3862 %REC 101.4

Analyst 1: Juliana Lugo | Analyst 2: | Analyst 3: Leslie Diaz | Analyst 4: | Analyst 5: Alicia Albert

Hrs: 6.8823 | Date: 1-8-92 | Time Completed: | Lab Unit Mgr: Leslie Diaz

54-5000-051 (R-10-53)

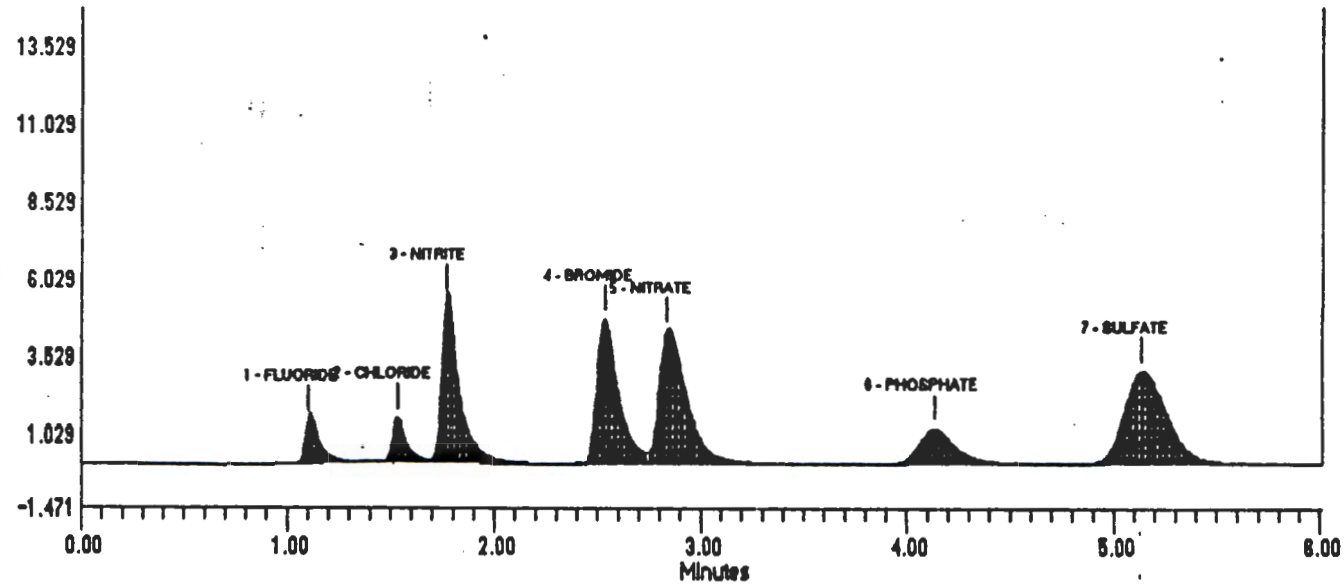
R.931 for NO_2, NO_3

Sample Name: LMCS/73C11DB Date: Wed Jan 08 16:37:00 1992
Data File : c:\dx\data\91010811.D10
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 10 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE 90.1%	50.545	1444	8044	1	0.00
2	1.53	CHLORIDE 93.1%	69.794	1467	6918	2	0.00
3	1.77	NITRITE 103%	507.433	5319	32752	2	-1.85
4	2.53	BROMIDE	716.180	4684	34653	2	-0.65
5	2.83	NITRATE 106%	668.220	4297	41168	2	3.03
6	4.13	PHOSPHATE 101%	521.034	1194	15218	1	0.81
7	5.13	SULFATE 99.3%	605.173	3059	45354	1	-0.96

File: c:\dx\data\91010811.D10 Sample: LMCS/73C11DB



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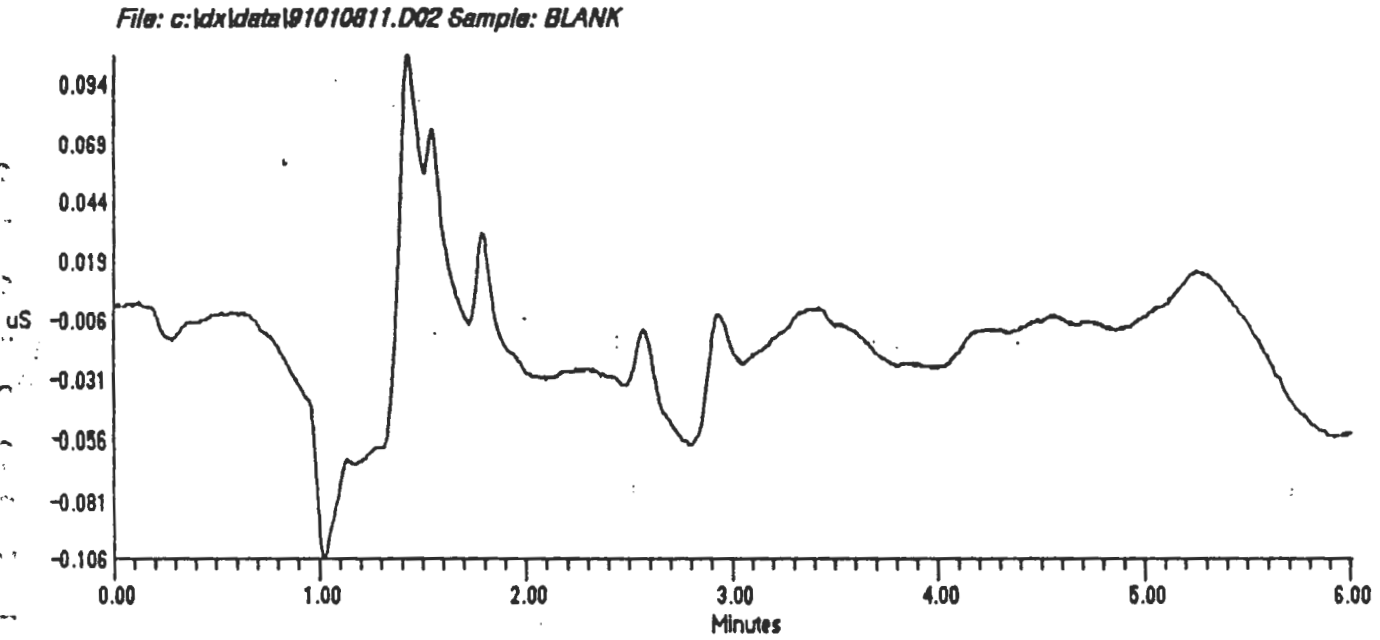
R932

Sample Name: BLANK Date: Wed Jan 08 15:39:15 1992
Data File : c:\dx\data\91010811.D02
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 2 Detector: CDM-1

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

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta



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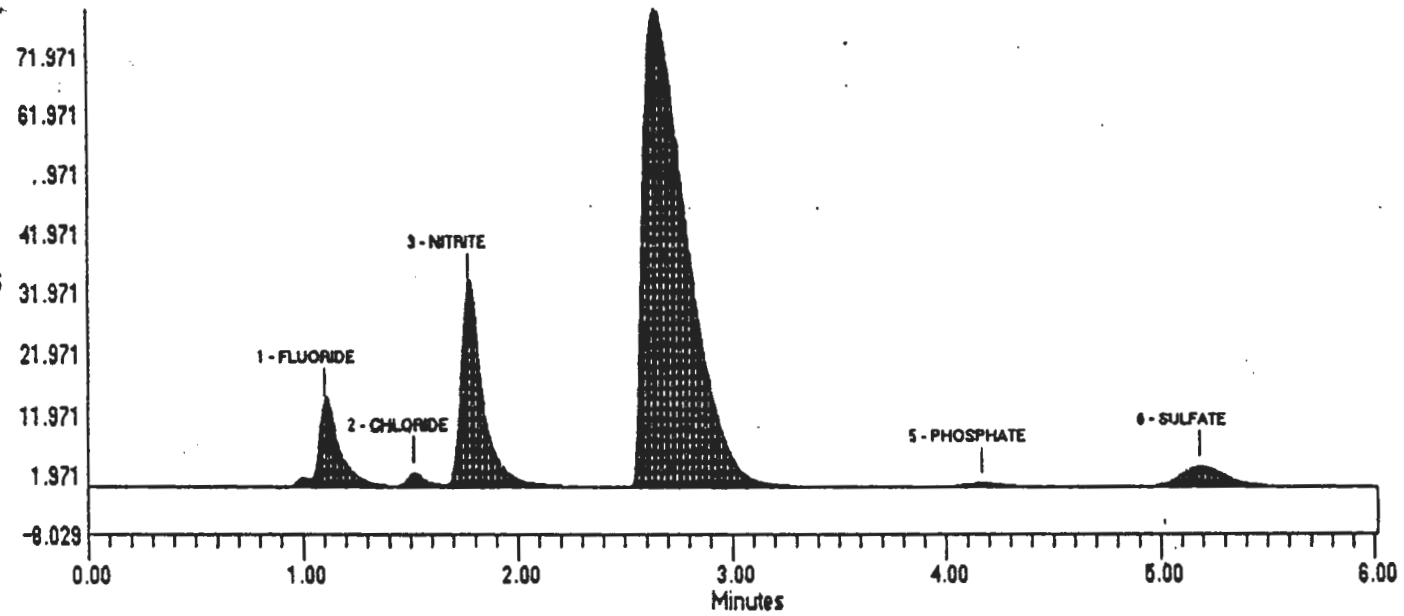
Sample Name: R935 Date: Wed Jan 08 17:27:35 1992
Data File : c:\dx\data\91010801.D17
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 17 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	41	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE	205.926	13563	103224	2	0.00
2	1.52	CHLORIDE	58.592	2385	14769	2	-1.09
3	1.77	NITRITE	1384.006	32739	239103	2	-1.85
4	2.63	NITRATE	3502.389	79400	1127691	1	-4.24
5	4.17	PHOSPHATE	131.530	690	8922	1	1.63
6	5.18	SULFATE	287.052	3543	53836	1	0.00

File: c:\dx\data\91010801.D17 Sample: R935



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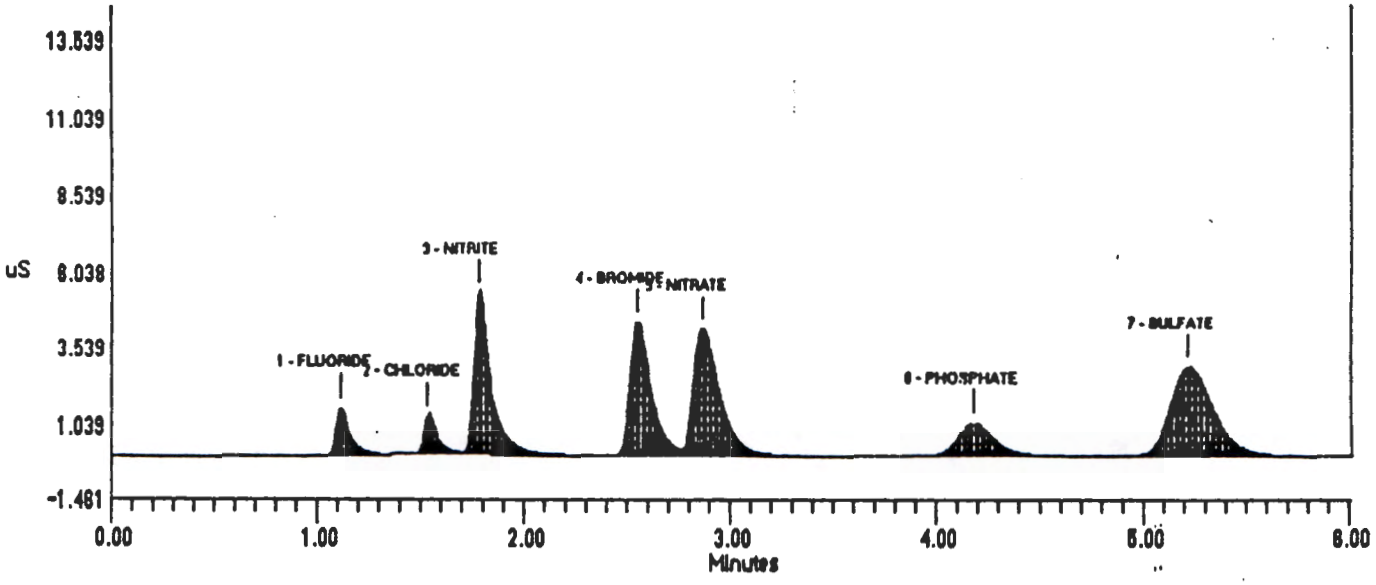
R938 for NO_3, NO_2

Sample Name: LMCS/73C11DC Date: Wed Jan 08 17:49:22 1992
Data File : c:\dx\data\91010801.D20
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 20 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.12	FLUORIDE	49.880	1616	7921	1	1.52
2	1.53	CHLORIDE	67.494	1298	6677	2	0.00
3	1.78	NITRITE 102	500.760	5352	32280	2	-0.93
4	2.55	BROMIDE 98	668.992	4418	32539	2	0.00
5	2.87	NITRATE 101.4	641.608	4215	39419	2	4.24
6	4.18	PHOSPHATE 98.1	506.358	1149	14746	1	2.03
7	5.22	SULFATE 97.5	593.579	2930	44393	1	0.64

File: c:\dx\data\91010801.D20 Sample: LMCS/73C11DC



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WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: ION CHROMATOGRAPHIC - NITRITE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MEYERS	Date: 01-08-92
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	R931-5576	11		
2	REAGENT BLANK	R932-5676	12		
3	SAMPLE 3AP1191-1	R935-5776	13		
4	FINAL LMCS CHECK STD	R938-5576	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	73C11DC/.100 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (NITRITE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5576	103AP	12-16-91	15:44	25

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

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

Remarks, Calculations, Results:
EDP R968 DIONEX
STD# 73C11DC RESULT 5.6762 ppm
STD VAL 4.91E2 %REC 103
ppm

Analyst - 1: Juliana Hayes
Analyst - 2:
Analyst - 3: Leslie Diaz
Analyst - 4:
Analyst - 5: Dennis J. Hart
Hrs: 6C623
Date: 1-8-92
Time Completed:
Lab Unit Mgr: Leslie Diaz

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5676	103AP	12-16-91	15:45	25

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

Sample Size: ? Direct
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
21.0 ppm

Analyst - 1: Juliana Hayes
Analyst - 2:
Analyst - 3:
Analyst - 4:
Analyst - 5: Dennis J. Hart
Hrs: 6C623
Date: 1-8-92
Time Completed:
Lab Unit Mgr: Leslie Diaz

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5776	103AP	12-16-91	15:52	25

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

Sample Size: ? Juliana Hayes .250ml - 10ml
Customer ID: LAD 38P119-1 4/4/91

Remarks, Calculations, Results:
1.38E3ppm

Analyst - 1: Juliana Hayes
Analyst - 2:
Analyst - 3:
Analyst - 4:
Analyst - 5: Dennis J. Hart
Hrs: 6C623
Date: 1-8-92
Time Completed:
Lab Unit Mgr: Leslie Diaz

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5576	103AP	12-16-91	15:52	25

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

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

Remarks, Calculations, Results:
EDP R968 DIONEX 5.01E2ppm
STD# 73C11DC RESULT ~~5.0702ppm~~ 5.0462
STD VAL 4.91E2 %REC ~~103~~ 102
ppm

Analyst - 1: Juliana Hayes
Analyst - 2:
Analyst - 3: Leslie Diaz
Analyst - 4:
Analyst - 5: Dennis J. Hart
Hrs: 6C623
Date: 1-8-92
Time Completed:
Lab Unit Mgr: Leslie Diaz

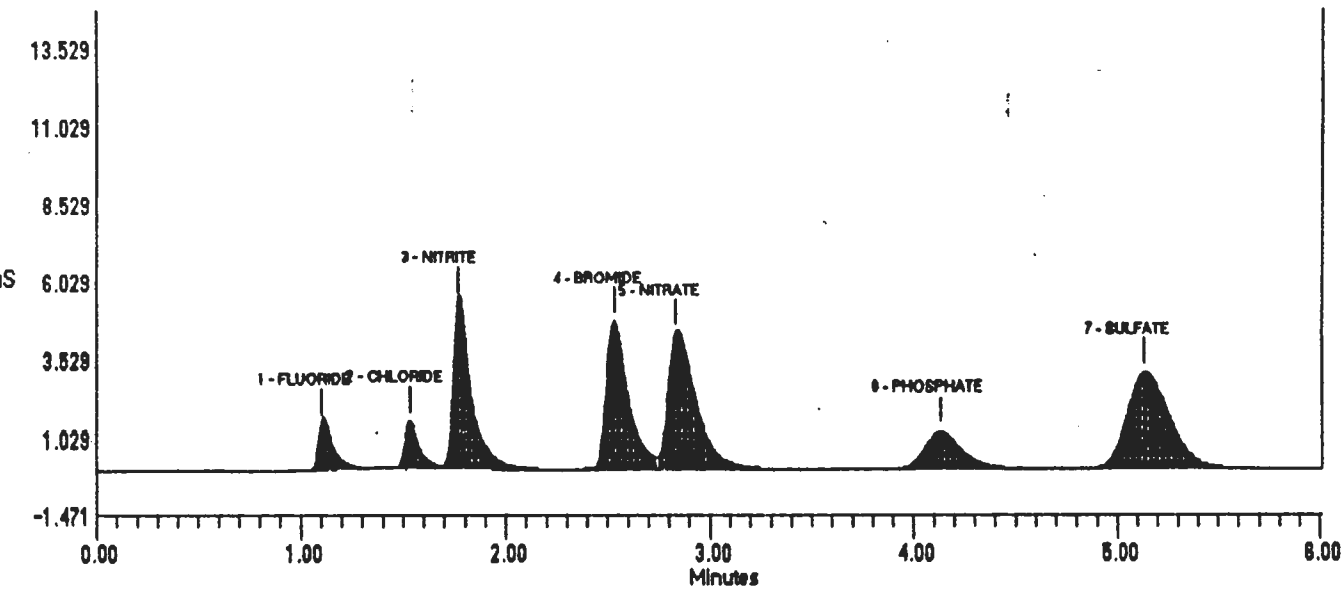
R 9.31 for NO_2, NO_3

Sample Name: LMCS/73C11DB Date: Wed Jan 08 16:37:00 1992
Data File : c:\dx\data\91010811.D10
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 10 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE 90.1%	50.545	1444	8044	1	0.00
2	1.53	CHLORIDE 93.1%	69.794	1467	6918	2	0.00
3	1.77	NITRITE 103%	507.433	5319	32752	2	-1.85
4	2.53	BROMIDE	716.180	4684	34653	2	-0.65
5	2.83	NITRATE 106%	668.220	4297	41168	2	3.03
6	4.13	PHOSPHATE 101%	521.034	1194	15218	1	0.81
7	5.13	SULFATE 99.3%	605.173	3059	45354	1	-0.96

File: c:\dx\data\91010811.D10 Sample: LMCS/73C11DB



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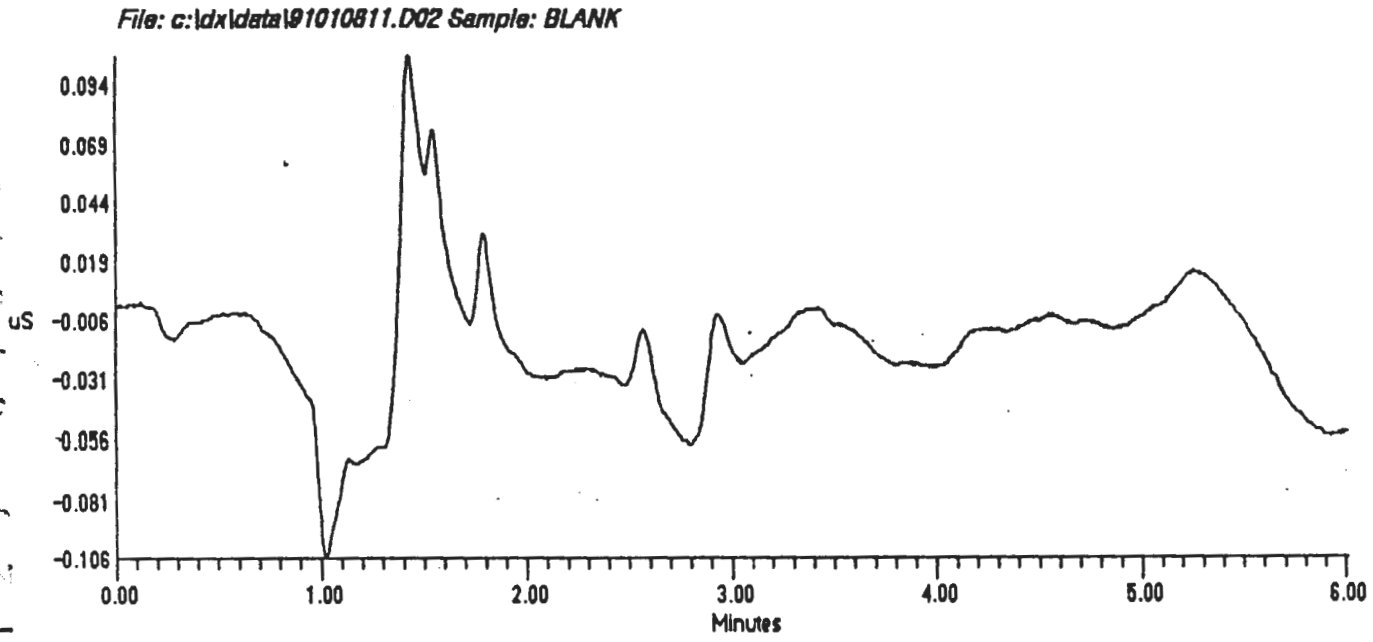
Sample Name: BLANK R932 Date: Wed Jan 08 15:39:15 1992
Data File : c:\dx\data\91010811.D02
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 2 Detector: CDM-1

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

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta



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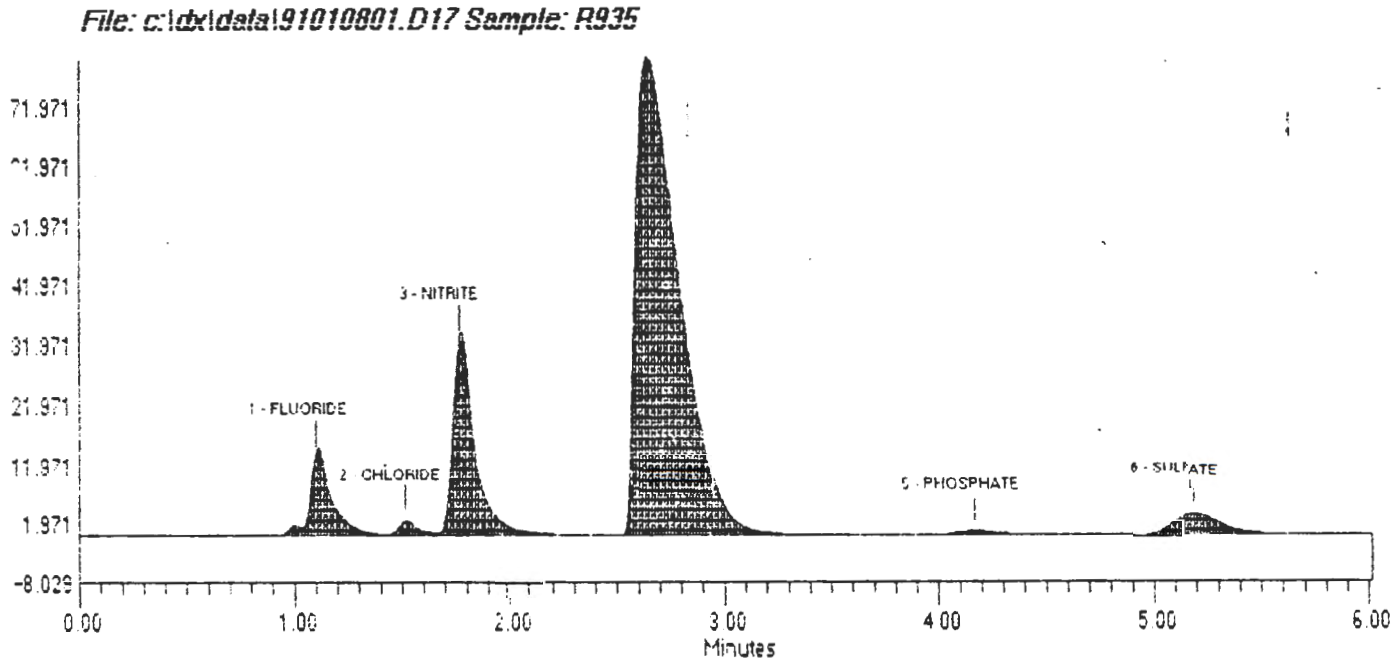

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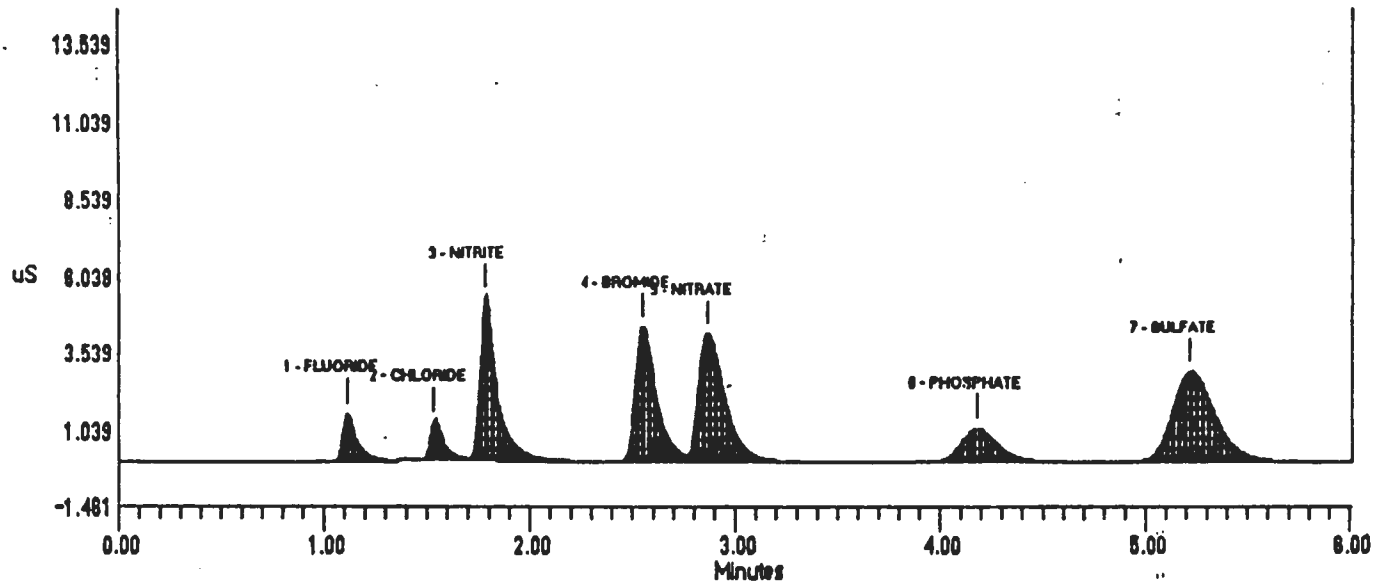
R938 for NO_3, NO_2

Sample Name: LMCS/73C11DC Date: Wed Jan 08 17:49:22 1992
Data File : c:\dx\data\91010801.D20
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 20 Detector: CDN-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.12	FLUORIDE	49.880	1616	7921	1	1.52
2	1.53	CHLORIDE	67.494	1298	6677	2	0.00
3	1.78	NITRITE 102	500.760	5352	32280	2	-0.93
4	2.55	BROMIDE 98	668.992	4418	32539	2	0.00
5	2.87	NITRATE 101.4	641.608	4215	39419	2	4.24
6	4.18	PHOSPHATE 98.1	506.358	1149	14746	1	2.03
7	5.22	SULFATE 97.5	593.579	2930	44393	1	0.64

File: c:\dx\data\91010801.D20 Sample: LMCS/73C11DC



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WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: ION CHROMATOGRAPHIC - PHOSPHATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MEYERS	Date: 01-08-92
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	R931-5574	11		
2	REAGENT BLANK	R932-5674	12		
3	SAMPLE 3AP1191-1	R935-5774	13		
4	FINAL LMCS CHECK STD	R938-5574	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	73C11DC/.100 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (PHOSPHATE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5574	103AP	12-16-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Range
PO4	LA-533-105	% RECOVERY	N124W	0

Sample Size: ?
Customer ID: STD

Remarks, Calculations, Results:
EDF R976 DIONEX
STDH 78C11DC RESULT 5.3762 ppm
STD VAL 5.16E2 ppm %REC 104.

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hulam Luyen				Gloria J Hart
Pos	Pos	Pos	Pos	Pos
6C823			Leslie Day	

Date	Time Completed	Lab Unit Mgr
1-8-92		

54-0000-051 (R-10-63)

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5574	103AP	12-16-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Range
PO4	LA-533-105	PPM	N124W	0

Sample Size: ? DIRECT
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
< 1.0 ppm

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hulam Luyen				Gloria J Hart
Pos	Pos	Pos	Pos	Pos
6C823			Leslie Day	

Date	Time Completed	Lab Unit Mgr
1-8-92		

54-0000-051 (R-10-63)

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5774	103AP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Range
PO4	LA-533-105	PPM	N124W	0

Sample Size: ? 100ml - 10ml
Customer ID: ~~[illegible]~~ LAD 3AP119-1

Remarks, Calculations, Results:
1.51E2 ppm
7.1.791

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hulam Luyen				Gloria J Hart
Pos	Pos	Pos	Pos	Pos
6C823			Leslie Day	

Date	Time Completed	Lab Unit Mgr
1-8-92		

54-0000-051 (R-10-63)

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5574	103AP	12-16-91	15:55	25

Determination	Method/Standard	Result Units	Charge Code	Range
PO4	LA-533-105	% RECOVERY	N124W	0

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

Remarks, Calculations, Results:
EDF R976 DIONEX
STDH 78C11DC RESULT 5.2182 ppm
STD VAL 5.16E2 ppm %REC 101 %

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hulam Luyen		Leslie Day		Gloria J Hart
Pos	Pos	Pos	Pos	Pos
6C823			Leslie Day	

Date	Time Completed	Lab Unit Mgr
1-8-92		

54-0000-051 (R-10-63)

DATA REPROCESSED ON Thu Jan 09 21:04:04 1992

R931 for Cl, F, PO_4, NO_3

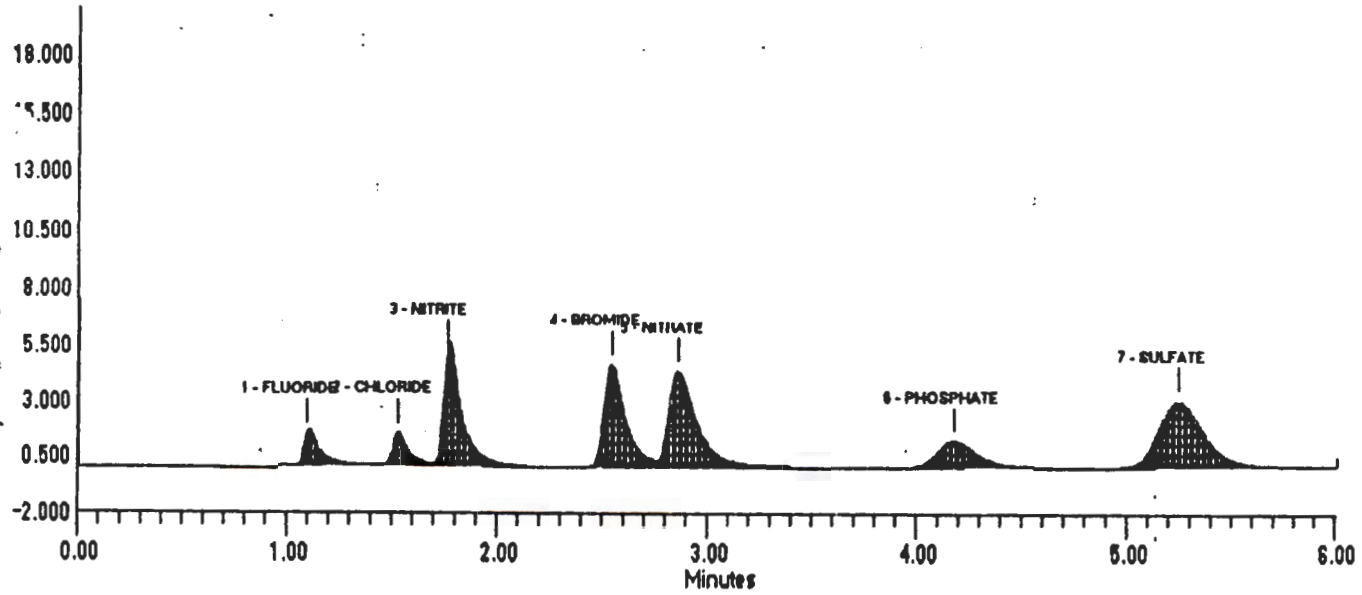
Sample Name: LMCS/73C11DC Date: Wed Jan 08 15:09:50 1992
Data File : C:\DX\DATA\91010801.D09
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 9 Detector: CDM-1

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

correct to DF 101

Pk. Num	Ret Time	Component Name	conc with 101 DF	Concentration % rec.		Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE	52.8	94.5% rec.	0.523	1491	8474	1	0.00
2	1.53	CHLORIDE	73.1	97.5%	0.724	1490	7271	2	0.00
3	1.77	NITRITE	520	106%	5.121	5068	33444	2	-1.85
4	2.55	BROMIDE			6.854	4622	33583	2	0.00
5	2.87	NITRATE	666	105%	6.599	4340	41053	2	4.24
6	4.18	PHOSPHATE	537	104%	5.315	1215	15725	1	2.03
7	5.25	SULFATE	603	98.9%	5.966	3037	45140	1	1.29

File: C:\DX\DATA\91010801.D09 Sample: LMCS/73C11DC



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Melanie Myers 1/6/92
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CHEMIST THAT COMPLETED THE ANALYSIS RUN ON PAGES
___ TO ___.

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9 3 1 2 3 3 1 3 5 6

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==================================================================================
| Sample Name: BLANK  R932                          Date: Wed Jan 08 15:39:15 1992|
| Data File   : c:\dx\data\91010811.D02                                           |
  Method      : c:\dx\method\SYSTEM1.met                                          |
| ACI Address: 1        System : 1        Inject#:    2  Detector: CDM-1         |
==================================================================================
```
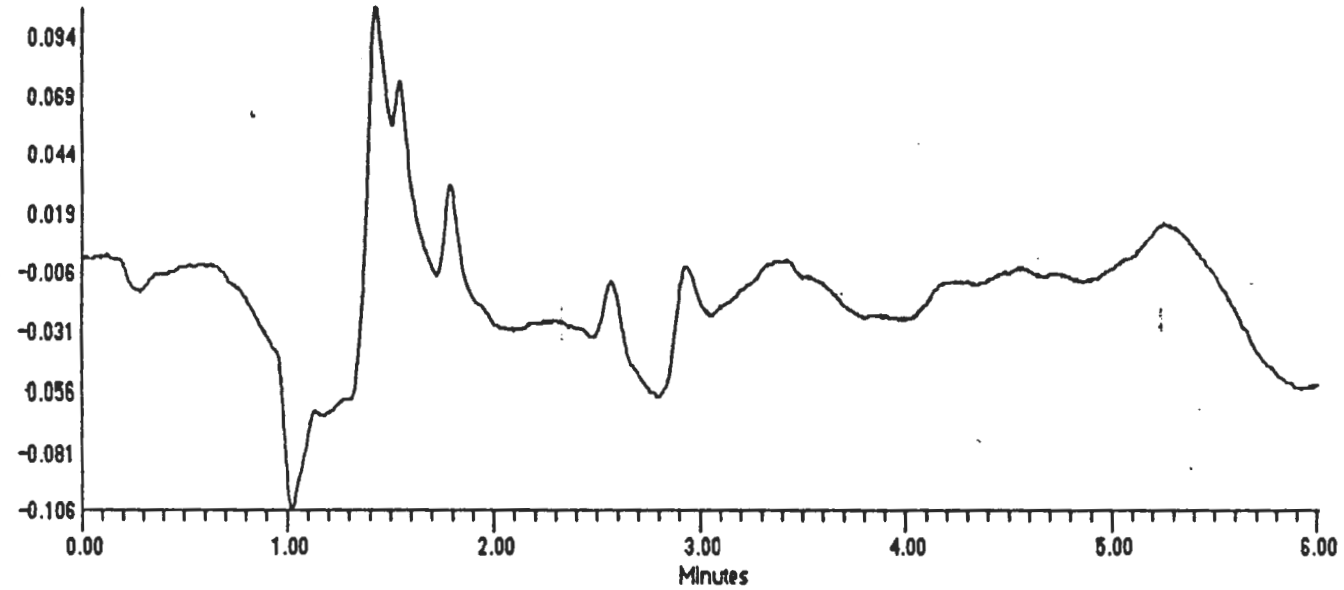

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta

File: c:\dx\data\91010811.D02 Sample: BLANK



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DATA REPROCESSED ON Thu Jan 09 00:40:05 1992

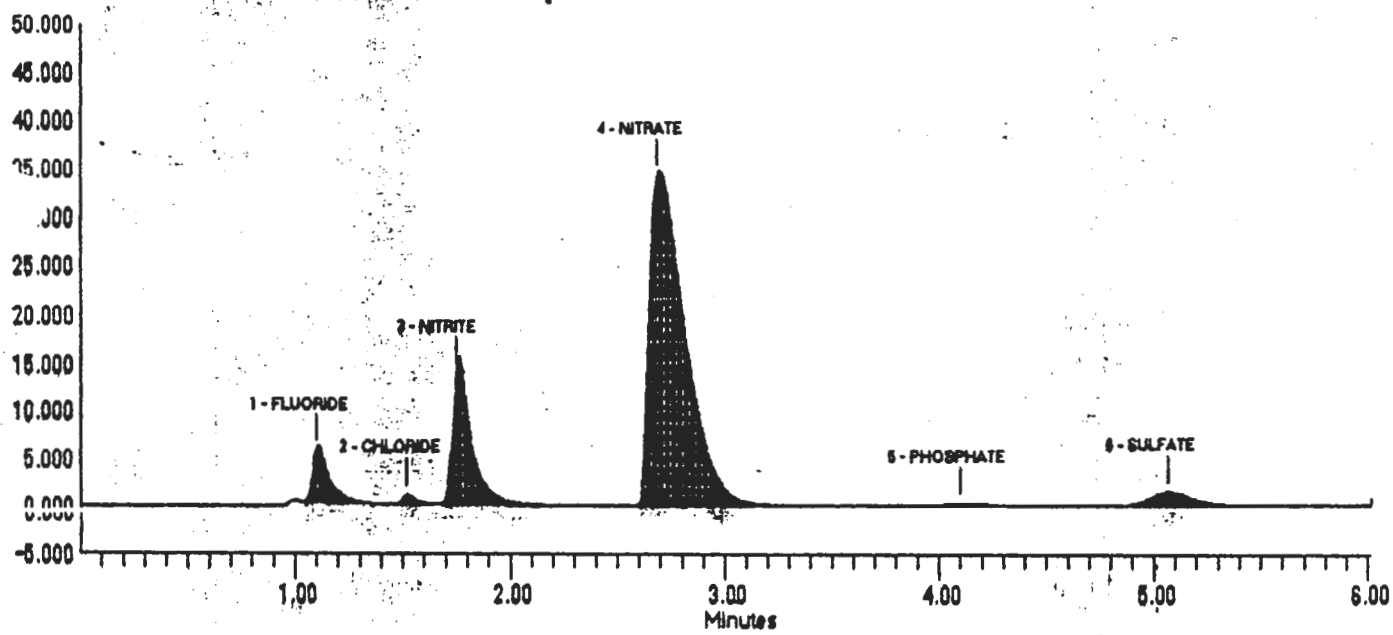
WHC-SD-WM-DP-025
Addendum 5 Rev 0

Sample Name: R935 Date: Wed Jan 08 16:15:22 1992
Data File : C:\DX\DATA\91010811.D07
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 7 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE	177.724	5317	32370	1	0.00
2	1.52	CHLORIDE	49.770	1065	4823	1	-1.09
3	1.75	NITRITE	1379.632	13825	94594	1	-2.78
4	2.68	NITRATE	5250.617	34280	406118	1	-2.42
5	4.10	PHOSPHATE	151.191	280	3467	1	0.00
6	5.07	SULFATE	318.265	1502	21747	1	-2.25

File: C:\DX\DATA\91010811.D07 Sample: R935



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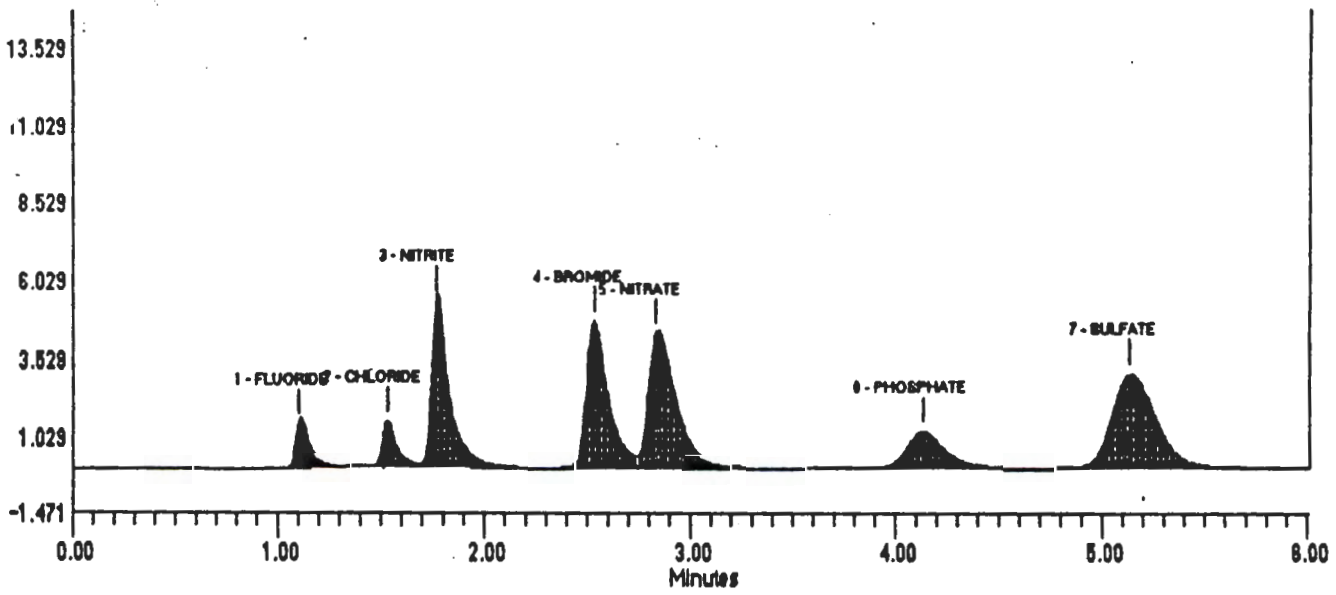
R938 for F, Cl, PO_4 SO_4

Sample Name: LMCS/73C11DB	Date: Wed Jan 08 16:37:00 1992
Data File : c:\dx\data\91010811.D10	
Method : c:\dx\method\SYSTEM1.met	
ACI Address: 1 System : 1 Inject#: 10 Detector: CDM-1	

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE 90.1%	50.545	1444	8044	1	0.00
2	1.53	CHLORIDE 93.1%	69.794	1467	6918	2	0.00
3	1.77	NITRITE 103%	507.433	5319	32752	2	-1.85
4	2.53	BROMIDE	716.180	4684	34653	2	-0.65
5	2.83	NITRATE 106%	668.220	4297	41168	2	3.03
6	4.13	PHOSPHATE 101%	521.034	1194	15218	1	0.81
7	5.13	SULFATE 99.3%	605.173	3059	45354	1	-0.96

File: c:\dx\data\91010811.D10 Sample: LMCS/73C11DB



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WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: ION CHROMATOGRAPHIC -- SULFATE	Sample Prep: UNDIGESTED

Instrument: DIONEX 4000, WB54428	Procedure/Rev: LA-533-105/B-1
Technologist: M. MEYERS	Date: 01-08-92
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	R931-5575	11		
2	REAGENT BLANK	R932-5675	12		
3	SAMPLE 3AP1191-1	R935-5775	13		
4	FINAL LMCS CHECK STD	R938-5575	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	73C11DC/.100 mL			N/A

A-6000-881 (03/92)

ION CHROMATOGRAPHIC ANALYSIS (SULPHATE) - UNDIGESTED SAMPLE

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5575	103AP	12-16-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	% RECOVERY	N124W	

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

Remarks, Calculations, Results:
EDP K970 DIONEX
STD# 73C11DC RESULT 6.05E2 ppm
STD VAL 6.09E2 ppm %REC 99.9 %

Analyst - 1: [signature] Pos: 6C823 Date: 1-8-92
Analyst - 2: Pos:
Analyst - 3: Pos:
Analyst - 4: Pos:
Analyst - 5: Pos:
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5675	103AP	12-16-91	15:45	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	PPM	N124W	0

Sample Size: ? DIRECT
Customer ID: BLK

Remarks, Calculations, Results:
REAGENT BLANK
<1.0ppm

Analyst - 1: [signature] Pos: 6C823 Date: 1-8-92
Analyst - 2: Pos:
Analyst - 3: Pos:
Analyst - 4: Pos:
Analyst - 5: Pos:
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5775	103AP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	PPM	N124W	0

Sample Size: ? .100ml - 10ml
Customer ID: 3AP119-1 AJ 9/15/91

Remarks, Calculations, Results:
3.18E2 ppm

Analyst - 1: [signature] Pos: 6C823 Date: 1-8-92
Analyst - 2: Pos:
Analyst - 3: Pos:
Analyst - 4: Pos:
Analyst - 5: Pos:
Time Completed:
Lab Unit Mgr:

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5575	103AP	12-16-91	15:55	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
SO4	LA-533-105	% RECOVERY	N124W	0

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

Remarks, Calculations, Results:
EDP K970 DIONEX
STD# 73C11DC RESULT 6.05E2
STD VAL 6.09E2 %REC 99.3

Analyst - 1: [signature] Pos: 6C823 Date: 1-8-92
Analyst - 2: Pos:
Analyst - 3: Pos:
Analyst - 4: Pos:
Analyst - 5: Pos:
Time Completed:
Lab Unit Mgr:

WHC-SD-WM-DP-025 Addendum 5 Rev 0

Addendum 5 Rev 0

DATA REPROCESSED ON Thu Jan 09 21:04:04 1992

R931 for Cl, F, PO_4, NO_4

Sample Name: LMCS/73C11DC Date: Wed Jan 08 15:09:50 1992

Data File : C:\DX\DATA\91010801.D09

Method : c:\dx\method\SYSTEM1.met

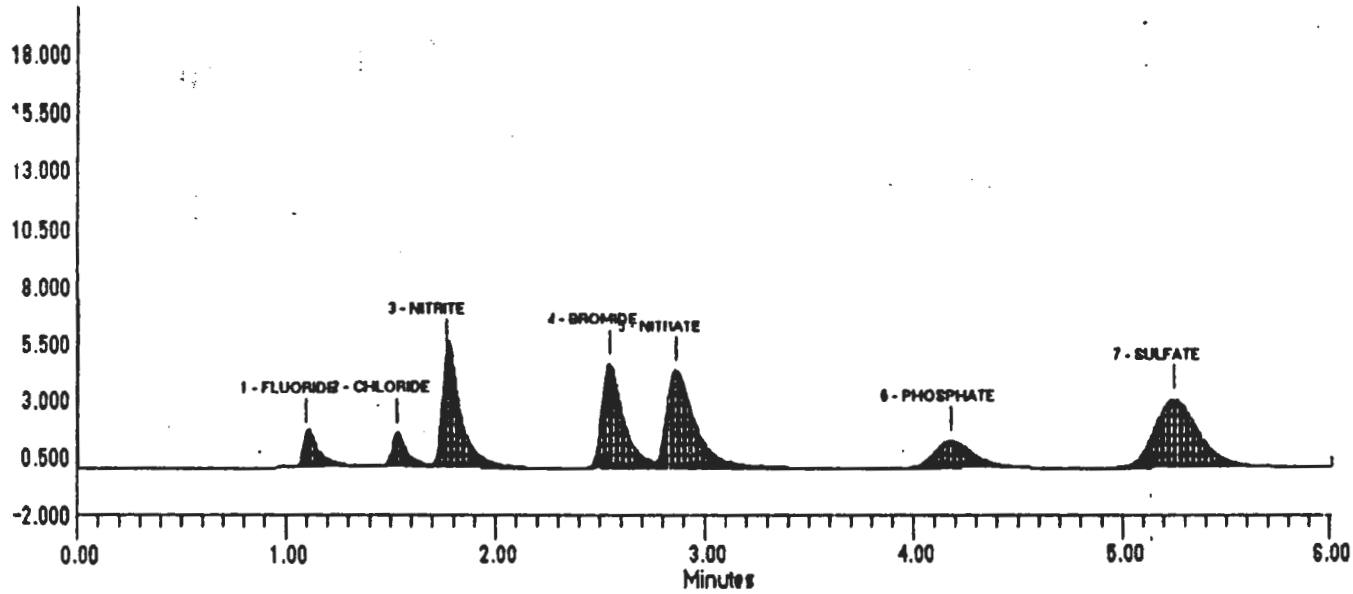
ACI Address: 1 System : 1 Inject#: 9 Detector: CDM-1

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

correct to DF 101

Pk. Num	Ret Time	Component Name	conc with 101 DF	Concentration % rec.		Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE	52.8	94.5% rec.	0.523	1491	8474	1	0.00
2	1.53	CHLORIDE	73.1	97.5%	0.724	1490	7271	2	0.00
3	1.77	NITRITE	520	104%	5.121	5068	33444	2	-1.85
4	2.55	BROMIDE			6.854	4622	33583	2	0.00
5	2.87	NITRATE	666	105%	6.599	4340	41053	2	4.24
6	4.18	PHOSPHATE	537	104%	5.315	1215	15725	1	2.03
7	5.25	SULFATE	603	98.9%	5.966	3037	45140	1	1.29

File: C:\DX\DATA\91010801.D09 Sample: LMCS/73C11DC



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Melanie Myers 1/8/92

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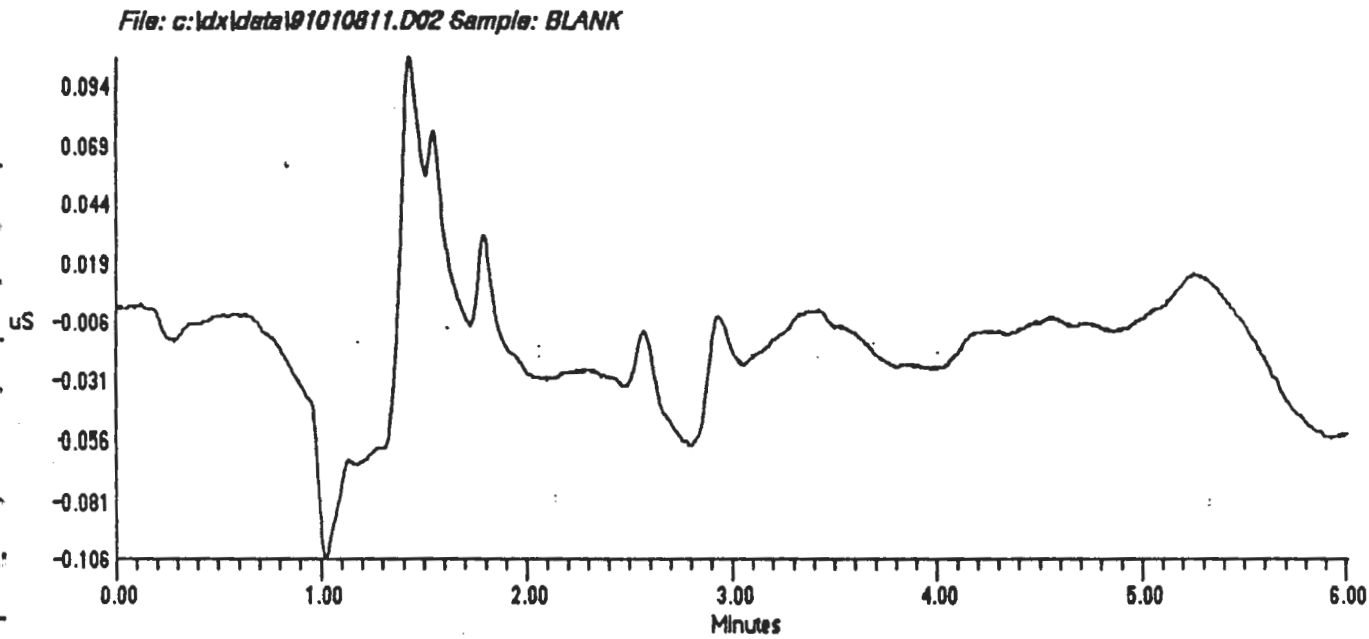
Sample Name: BLANK R932 Date: Wed Jan 08 15:39:15 1992
Data File : c:\dx\data\91010811.D02
Method : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 2 Detector: CDM-1

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

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta



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DATA REPROCESSED ON Thu Jan 09 00:40:05 1992

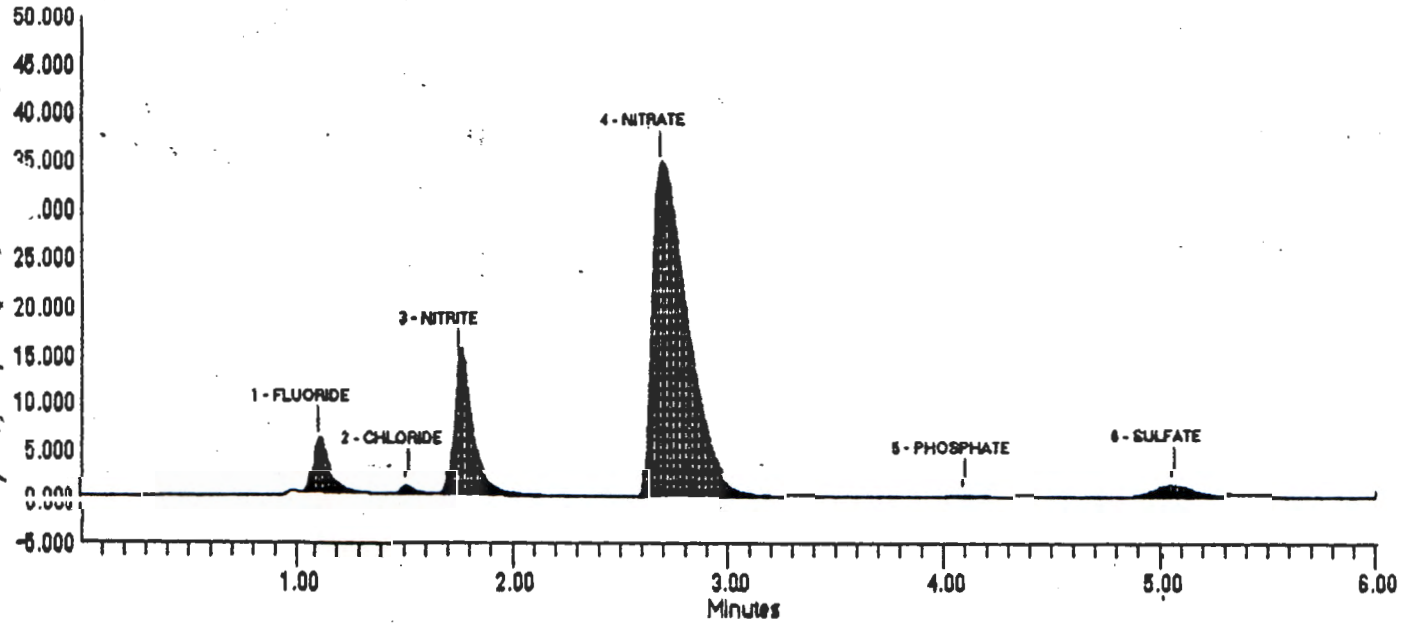
WHC-SD-WM-DP-025
Addendum 5 Rev 0

Sample Name: R935 Date: Wed Jan 08 16:15:22 1992
ta File : C:\DX\DATA\91010811.D07
..ethod : c:\dx\method\SYSTEM1.met
ACI Address: 1 System : 1 Inject#: 7 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE	177.724	5317	32370	1	0.00
2	1.52	CHLORIDE	49.770	1065	4823	1	-1.09
3	1.75	NITRITE	1379.632	13825	94594	1	-2.78
4	2.68	NITRATE	5250.617	34280	406118	1	-2.42
5	4.10	PHOSPHATE	151.191	280	3467	1	0.00
6	5.07	SULFATE	318.265	1502	21747	1	-2.25

File: C:\DX\DATA\91010811.D07 Sample: R935



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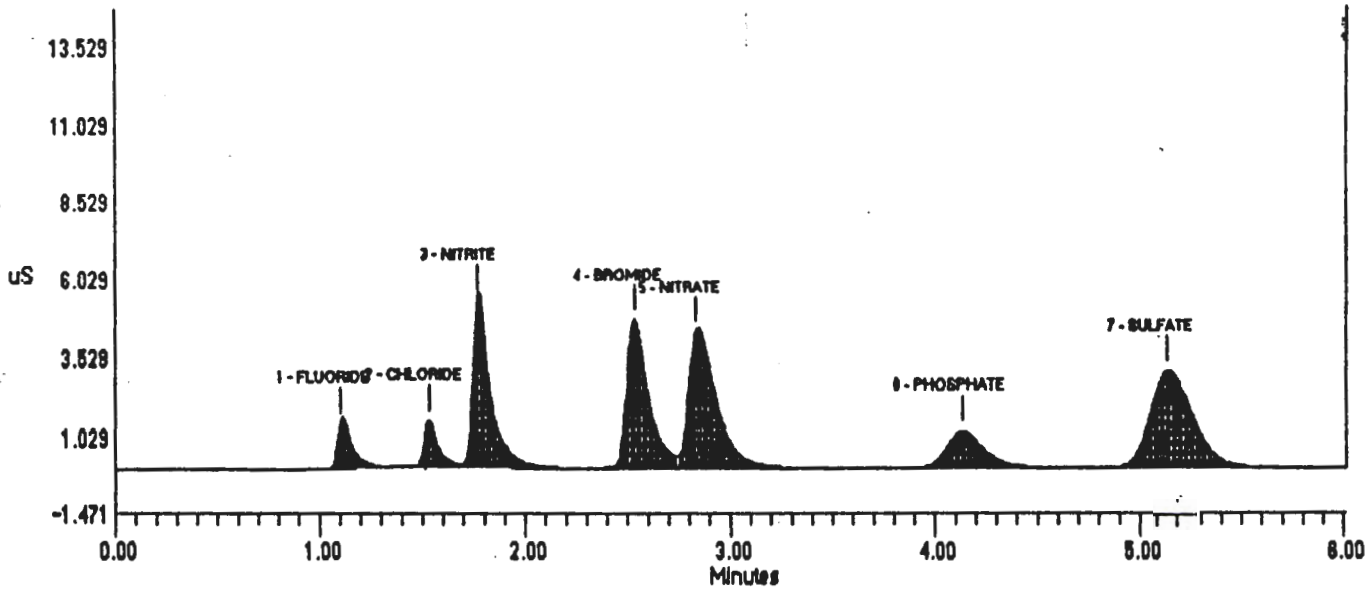
R938 for F, Cl, PO4 SO4

Sample Name: LMCS/73C11DB	Date: Wed Jan 08 16:37:00 1992
Data File : c:\dx\data\91010811.D10	
Method : c:\dx\method\SYSTEM1.met	
ACI Address: 1 System : 1 Inject#: 10 Detector: CDM-1	

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	101	1805	5Hz	0.00	6.02	1000

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.10	FLUORIDE 90.1%	50.545	1444	8044	1	0.00
2	1.53	CHLORIDE 93.1%	69.794	1467	6918	2	0.00
3	1.77	NITRITE 103%	507.433	5319	32752	2	-1.85
4	2.53	BROMIDE	716.180	4684	34653	2	-0.65
5	2.83	NITRATE 106%	668.220	4297	41168	2	3.03
6	4.13	PHOSPHATE 101%	521.034	1194	15218	1	0.81
7	5.13	SULFATE 99.3%	605.173	3059	45354	1	-0.96

File: c:\dx\data\91010811.D10 Sample: LMCS/73C11DB



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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

Reference Peak FLUORIDE Window Size

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	

BEST AVAILABLE COPY

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: GAMMA ENERGY	Sample Prep: UNDIGESTED

Instrument: WB57237, WB57265	Procedure/Rev: LA-548-121/D-0
Technologist: S. LAI	Date: 01-08-92
Starting Time: N/A	Temperature: N/A
Ending Time: N/A	Chemist: S. CATLOW

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R931-5530	11		
2	REAGENT BLANK	R932-5630	12		
3	SAMPLE 3AP1191-1	R935-5730	13		
4	FINAL LMCS CHECK STD	R938-5530	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	48B49/.100 mL			N/A
SAMPLES RERUN.				

A-6000-881 (03/92)

GAMMA ENERGY ANALYSIS - UNDIGESTED SAMPLE

2967 (43) 2973 (43)

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-5530	103AP	12-16-91	15:43	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	% RECOVERY	N124W	1

Sample Size	Customer ID
? 100 λ	STD

Remarks, Calculations, Results

COLX STDH 48849
R901 7.57E STD VAL
RESULT % REC
R905 6.42E STD VAL
RESULT % REC

RERUN

Cs-137 : 7.67×10¹ uCi/L
% Recovery : 103%
Co-60 : 6.46×10¹ uCi/L
% Recovery : 107%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li	[illegible]	269549 [illegible]	[illegible]	[illegible]
Hrs 16916	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-8-92		A.K. Dalle 01/09/92

2971 (43) (43) 2977

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-5630	103AP	12-16-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	uCI/L	N124W	1

Sample Size	Customer ID
? 22 ml	BLK

Remarks, Calculations, Results

COUNT AS uCI/L
LASER PRINTOUT

RERUN

Li-22

Cs-137 : <2.8 uCi/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li	269549 [illegible]	[illegible]		
Hrs 16916	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-8-92		A.K. Dalle 01/09/92

2983

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-5730	103AP	12-16-91	15:51	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	uCI/L	N124W	1

Sample Size	Customer ID
? 100-10-500	3AP891-3

Remarks, Calculations, Results

COUNT AS uCI/L
LASER PRINTOUT

RERUN

Cs-137 → 5.80 × 10³ uCi/L
Cs 134 <9.69 uCi/L
Eu 155 <4.83E¹¹ uCi/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li	[illegible]			
Hrs 16916	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-8-92		A.K. Dalle 01/09/92

~~2980~~ + 2988

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-5530	103AP	12-16-91	15:56	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
GEA	LA-548-121	% RECOVERY	N124W	1

Sample Size	Customer ID
? 100 λ	STD

Remarks, Calculations, Results

COLX STDH 48849
R901 STD VAL
RESULT % REC
R905 STD VAL
RESULT % REC

RERUN

Cs-137 : 7.67×10¹ uCi/L
% Recovery = 103%
Co-60 : 6.46×10¹ uCi/L
% Recovery = 108%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Li	[illegible]	[illegible]	[illegible]	[illegible]
Hrs 16916	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-8-92		A.K. Dalle

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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            *
*                                                                   *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

ANBERRA SPECTRAN-F V2.06  SOFTWARE

22-S COUNTING ROOM                                  09-JAN-92  00:04:24

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

ICA UNIT NUMBER:   1     /     ADC UNIT NUMBER: 2.0
DETECTOR NUMBER:    2    /     GEOMETRY NUMBER:  43
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:
ANA   ED BY:        69549

SAMPLE DESCRIPTION: R931-5530
GEOMETRY DESCRIPTION:  22ML LIQ
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 1.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL205

COLLECT STARTED ON  8-JAN-92 AT 23:14:13

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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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	1126.51	562.89	1.60	178.	154.	24.5	CS-134, EU-152
2C	1138.60	568.93	1.60	166.	245.	22.6	CS-134, BI-207
3	1209.29	604.27	1.67	217.	1537.	5.8	CS-134
4	1323.20	661.21	1.72	138.	1705.	5.2	CS-137
4B		661.85			36.	13.9	
5C	1591.57	795.38	1.80	92.	1114.	7.3	CS-134
6C	1603.63	801.41	1.80	79.	124.	20.1	CS-134
7	2345.97	1172.54	2.39	79.	904.	7.3	CO-60
8	2664.37	1331.73	2.09	17.	895.	6.7	CO-60
8B		1332.24			9.	37.4	
9	2921.88	1460.48	2.58	4.	154.	16.4	K-40
9B		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

?22-S COUNTING ROOM 09-JAN-92 00:04:24

SAMPLE: R931-5530
DATE COLLECTED ON 8-JAN-92 AT 23:14:13
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
AM-241	LLD<9.07E+00		LLD<9.07E+00		59.54	
AM-243	LLD<2.51E+00		LLD<2.51E+00		74.67	
BA-133	LLD<2.13E+00		LLD<2.13E+00		356.02	
BA-140	LLD<5.64E+00		LLD<5.64E+00		537.27	
CEPR144	LLD<1.31E+01		LLD<1.31E+01		133.51	
CO-60	6.42E+01	+-4.75E+00	6.42E+01	+-4.75E+00	1332.50	-0.77 107.4 1. JK 6-15-92
					1173.24	-0.70
CR-51	LLD<1.19E+01		LLD<1.19E+01		320.09	
CS-134	5.92E+01	+-5.25E+00	5.92E+01	+-5.25E+00	795.84	-0.47
					604.70	-0.43
CS-137	7.57E+01	+-5.79E+00	7.57E+01	+-5.79E+00	661.65	-0.44 102.1 JK 6-15-92
EU-152	LLD<4.66E+00		LLD<4.66E+00		1408.01	
EU-154	LLD<3.70E+00		LLD<3.70E+00		1274.45	
EU-155	LLD<4.11E+00		LLD<4.11E+00		105.31	
FE-59	LLD<3.62E+00		LLD<3.62E+00		1099.25	
I-131	LLD<1.60E+00		LLD<1.60E+00		364.48	
K-[illegible]	LLD<2.13E+01		LLD<2.13E+01		1460.75	
LA-[illegible]	LLD<1.09E+00		LLD<1.09E+00		1596.20	
MN-54	LLD<1.33E+00		LLD<1.33E+00		834.83	
NA-22	LLD<1.31E+00		LLD<1.31E+00		1274.55	
NB-95	LLD<1.64E+00		LLD<1.64E+00		765.78	
NP-237	LLD<8.56E+00		LLD<8.56E+00		86.50	
PU-239	LLD<1.19E+04		LLD<1.19E+04		129.30	
PU-241	LLD<4.05E+05		LLD<4.05E+05		148.57	
RA-224	LLD<2.59E+01		LLD<2.59E+01		240.99	
RA-226	LLD<2.39E+01		LLD<2.39E+01		186.10	
RU-103	LLD<1.48E+00		LLD<1.48E+00		497.08	
RU103	LLD<1.56E+00		LLD<1.56E+00		497.08	
RURH106	LLD<2.91E+01		LLD<2.91E+01		621.80	
SB-125	LLD<1.25E+01		LLD<1.25E+01		176.33	
SE-75	LLD<1.83E+00		LLD<1.83E+00		264.66	
SN-113	LLD<2.09E+00		LLD<2.09E+00		391.67	
SR-85	LLD<1.74E+00		LLD<1.74E+00		513.99	
TH-228	LLD<1.02E+02		LLD<1.02E+02		84.37	
U-235	LLD<1.58E+00		LLD<1.58E+00		185.71	
Y-88	LLD<1.11E+00		LLD<1.11E+00		1836.06	
ZN-65	LLD<4.27E+00		LLD<4.27E+00		1115.55	
ZR-95	LLD<2.91E+00		LLD<2.91E+00		756.73	
TOTAL	1.99E+02	+-9.15E+00	1.99E+02	+-9.15E+00		

STANDARD DEVIATION = 0.16

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.28E-09 UC/LI
TOTAL MEASURED ACTIVITY = 1.99E+02 (+-9.15E+00) UC/LI
% TECH. SPEC. = ****** (+-****)

QUOTATION AT 1.96 SIGMA
FIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

ENTROID HANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1126.51	562.89	154.	24.5	1.90E+01
1138.60	568.93	245.	22.6	3.06E+01
1603.63	801.41	124.	20.1	2.10E+01

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

ENTROID HANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.88	1460.48	154.	16.4	4.50E+01

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

CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM                                    09-JAN-92  04:21:25


                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:  43
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:          VR

SAMPLE DESCRIPTION: R932-5630 103AF
GEOMETRY DESCRIPTION:  22ML LIQ
SAMPLE SIZE:   2.2000E-02 LI        / CONVERSION FACTOR: 1.0000E+00
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL205

COLLECT STARTED ON  9-JAN-92 AT 03:31:13

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

K	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	2921.16	1460.12	1.69	4.	167.	13.7	K-40
1B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

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

9 3 1 2 3 3 1 3 7 3

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SAMPLE: R932-5630 103AF
DATA COLLECTED ON 9-JAN-92 AT 03:31:13
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
AM-241	LLD<2.49E-02		LLD<2.49E-02		59.54	
AM-243	LLD<6.99E-03		LLD<6.99E-03		74.67	
BA-133	LLD<4.13E-03		LLD<4.13E-03		356.02	
BA-140	LLD<1.41E-02		LLD<1.41E-02		537.27	
CEPR144	LLD<3.77E-02		LLD<3.77E-02		133.51	
CO-60	LLD<6.45E-03		LLD<6.45E-03		1332.50	
CR-51	LLD<2.75E-02		LLD<2.75E-02		320.09	
CS-134	LLD<3.57E-03		LLD<3.57E-03		795.84	
CS-137	LLD<6.01E-03		LLD<6.01E-03		661.65	
EU-152	LLD<3.42E-02		LLD<3.42E-02		1408.01	
EU-154	LLD<1.34E-02		LLD<1.34E-02		1274.45	
EU-155	LLD<1.18E-02		LLD<1.18E-02		105.31	
FE-59	LLD<9.91E-03		LLD<9.91E-03		1099.25	
I-131	LLD<3.39E-03		LLD<3.39E-03		364.48	
K-40	LLD<1.02E-01		LLD<1.02E-01		1460.75	
LA-140	LLD<7.56E-03		LLD<7.56E-03		1596.20	
MN-54	LLD<4.01E-03		LLD<4.01E-03		834.83	
NA-22	LLD<4.76E-03		LLD<4.76E-03		1274.55	
NB-95	LLD<4.08E-03		LLD<4.08E-03		765.78	
NP-237	LLD<2.77E-02		LLD<2.77E-02		86.50	
PU-239	LLD<3.47E+01		LLD<3.47E+01		129.30	
PU-241	LLD<1.05E+03		LLD<1.05E+03		148.57	
RA-224	LLD<6.33E-02		LLD<6.33E-02		240.99	
RA-226	LLD<6.05E-02		LLD<6.05E-02		186.10	
RU-103	LLD<3.19E-03		LLD<3.19E-03		497.08	
RU103	LLD<3.36E-03		LLD<3.36E-03		497.08	
RURH106	LLD<7.01E-02		LLD<7.01E-02		621.80	
SB-125	LLD<3.24E-02		LLD<3.24E-02		176.33	
SE-75	LLD<4.33E-03		LLD<4.33E-03		264.66	
SN-113	LLD<4.82E-03		LLD<4.82E-03		391.67	
SR-85	LLD<4.66E-03		LLD<4.66E-03		513.99	
TH-228	LLD<2.97E-01		LLD<2.97E-01		84.37	
U-235	LLD<4.16E-03		LLD<4.16E-03		185.71	
Y-88	LLD<3.12E-03		LLD<3.12E-03		1836.06	
ZN-65	LLD<1.52E-02		LLD<1.52E-02		1115.55	
ZR-95	LLD<6.37E-03		LLD<6.37E-03		756.73	
TOTAL	0.00E-01	+-0.00E-01	0.00E-01	+-0.00E-01		

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ALL DETECTED PEAKS WERE USED IN THE ANALYSIS

BEST AVAILABLE COPY

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

2921.16 1460.12 167. 15.7 4.88E+01

9 3 1 2 3 3 1 3 3 0

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              *
*                                                                     *
*   * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

CANBERRA SPECTRAN-F V2.06  SOFTWARE

222-S COUNTING ROOM                                 09-JAN-92  09:40:52


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

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

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

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2983
ANALYZED BY:        63099

SAMPLE DESCRIPTION: R935-5730
GEOMETRY DESCRIPTION:  22ML LIQ
SAMPLE SIZE:   1.0000E-03 LI       / CONVERSION FACTOR: 4.9505E-03
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL205

COLLECT STARTED ON  9-JAN-92 AT 08:06:33

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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222-S COUNTING ROOM 09-JAN-92 09:40:52

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

P..	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	1323.12	661.17	1.67	98.	13129.	1.7	CS-137
1B		661.85			36.	13.9	
2	2920.61	1459.85	2.79	12.	155.	17.5	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 09-JAN-92 09:40:52

SAMPLE: R935-5730
D/ COLLECTED ON 9-JAN-92 AT 08:06:33
DL ,ED 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
AM-241	LLD<1.04E+02		LLD<1.04E+02		59.54	
AM-243	LLD<2.67E+01		LLD<2.67E+01		74.67	
BA-133	LLD<2.44E+01		LLD<2.44E+01		356.02	
BA-140	LLD<6.68E+01		LLD<6.68E+01		537.27	
CEPR144	LLD<1.50E+02		LLD<1.50E+02		133.51	
CO-60	LLD<1.07E+01		LLD<1.07E+01		1332.50	
CR-51	LLD<1.32E+02		LLD<1.32E+02		320.09	
CS-134	LLD<9.69E+00		LLD<9.69E+00		795.84	
CS-137	5.80E+03	+-1.56E+02	5.80E+03	+-1.56E+02	661.65	-0.48
EU-152	LLD<4.98E+01		LLD<4.98E+01		1408.01	
EU-154	LLD<2.59E+01		LLD<2.59E+01		1274.45	
EU-155	LLD<4.83E+01		LLD<4.83E+01		105.31	
FE-59	LLD<2.26E+01		LLD<2.26E+01		1099.25	
I-131	LLD<1.89E+01		LLD<1.89E+01		364.48	
K-40	LLD<1.06E+02		LLD<1.06E+02		1460.75	
LA-140	LLD<9.68E+00		LLD<9.68E+00		1596.20	
MN-54	LLD<9.09E+00		LLD<9.09E+00		834.83	
NI	LLD<9.20E+00		LLD<9.20E+00		1274.55	
NB-95	LLD<9.18E+00		LLD<9.18E+00		765.78	
NP-237	LLD<1.03E+02		LLD<1.03E+02		86.50	
PU-239	LLD<1.50E+05		LLD<1.50E+05		129.30	
PU-241	LLD<4.70E+06		LLD<4.70E+06		148.57	
RA-224	LLD<2.89E+02		LLD<2.89E+02		240.99	
RA-226	LLD<2.81E+02		LLD<2.81E+02		186.10	
RU-103	LLD<1.89E+01		LLD<1.89E+01		497.08	
RU103	LLD<1.99E+01		LLD<1.99E+01		497.08	
RURH106	LLD<2.93E+02		LLD<2.93E+02		621.80	
SB-125	LLD<1.44E+02		LLD<1.44E+02		176.33	
SE-75	LLD<2.07E+01		LLD<2.07E+01		264.66	
SN-113	LLD<2.47E+01		LLD<2.47E+01		391.67	
SR-85	LLD<1.85E+01		LLD<1.85E+01		513.99	
TH-228	LLD<1.17E+03		LLD<1.17E+03		84.37	
U-235	LLD<1.85E+01		LLD<1.85E+01		185.71	
Y-88	LLD<9.49E+00		LLD<9.49E+00		1836.06	
ZN-65	LLD<3.31E+01		LLD<3.31E+01		1115.55	
ZR-95	LLD<1.70E+01		LLD<1.70E+01		756.73	
TOTAL	5.80E+03	+-1.56E+02	5.80E+03	+-1.56E+02		

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI
TOTAL MEASURED ACTIVITY = 5.80E+03 (+-1.56E+02) UC/LI
% H. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

ETECTED PEAKS WERE USED IN THE ANALYSIS

9 3 1 2 3 3 1 3 3 4

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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 09-JAN-92 15:00:15

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: 43
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

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

ANALYSIS OF SPECTRUM SAVED IN DISK FILE: SD2988
ANA[illegible]ED BY:

SAMPLE DESCRIPTION: R-938-5530
GEOMETRY DESCRIPTION: 22ML LIQ
SAMPLE SIZE: 1.0000E-03 LI / CONVERSION FACTOR: 1.0000E-01
STANDARD SIZE: 1.0000E+00 EA
ANALYSIS LIBRARY FILE: ANL205

COLLECT STARTED ON 9-JAN-91 AT 13:42:00

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

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

ENERGY CALIBRATION PERFORMED 17-MAR-89
EFFICIENCY CALIBRATION PERFORMED 16-MAY-91

222-S COUNTING ROOM 09-JAN-92 15:00:15

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	1126.43	562.84	1.69	169.	146.	28.5	CS-134, EU-152
2C	1138.45	568.86	1.69	169.	285.	22.7	CS-134, BI-207
3C	1209.24	604.24	1.67	160.	1598.	6.2	CS-134
4C	1217.97	608.61	1.67	140.	39.	33.7	BI-214A
5	1323.17	661.20	1.67	119.	1727.	5.1	CS-137
5B		661.85			36.	13.9	
6C	1591.36	795.28	1.78	121.	1034.	8.6	CS-134
7C	1603.48	801.33	1.78	121.	79.	34.4	CS-134
8	2346.23	1172.67	2.02	73.	1039.	6.7	CO-60
9	2664.44	1331.77	2.15	24.	902.	6.8	CO-60
9B		1332.24			9.	37.4	
10	2920.61	1459.85	2.35	16.	155.	18.0	K-40
10B		1460.85			156.	3.8	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

MULTIPLET ANALYSIS CONVERGED NORMALLY
VIRONMENTAL 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 09-JAN-92 15:00:15

SAMPLE: R-938-5530
DA' 'OLLECTED ON 9-JAN-91 AT 13:42:00
DEC. .D 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
AM-241	LLD<9.04E+00		LLD<9.04E+00		59.54	
AM-243	LLD<2.38E+00		LLD<2.38E+00		74.67	
BA-133	LLD<2.08E+00		LLD<2.08E+00		356.02	
BA-140	LLD<6.08E+00		LLD<6.08E+00		537.27	
CEPR144	LLD<1.34E+01		LLD<1.34E+01		133.51	
CO-60	6.46E+01	+-4.82E+00	6.46E+01	+-4.82E+00	1332.50	-0.73
					1173.24	-0.57
CR-51	LLD<1.13E+01		LLD<1.13E+01		320.09	
CS-134	5.49E+01	+-5.45E+00	5.49E+01	+-5.45E+00	795.84	-0.57
					604.70	-0.46
CS-137	7.67E+01	+-5.81E+00	7.67E+01	+-5.81E+00	661.65	-0.45
EU-152	LLD<5.79E+00		LLD<5.79E+00		1408.01	
EU-154	LLD<3.83E+00		LLD<3.83E+00		1274.45	
EU-155	LLD<4.25E+00		LLD<4.25E+00		105.31	
FE-59	LLD<3.96E+00		LLD<3.96E+00		1099.25	
I-131	LLD<1.65E+00		LLD<1.65E+00		364.48	
K-40	LLD<1.02E+01		LLD<1.02E+01		1460.75	
LA	LLD<1.09E+00		LLD<1.09E+00		1596.20	
MN-54	LLD<1.57E+00		LLD<1.57E+00		834.83	
NA-22	LLD<1.36E+00		LLD<1.36E+00		1274.55	
NB-95	LLD<1.53E+00		LLD<1.53E+00		765.78	
NP-237	LLD<9.22E+00		LLD<9.22E+00		86.50	
PU-239	LLD<1.27E+04		LLD<1.27E+04		129.30	
PU-241	LLD<3.84E+05		LLD<3.84E+05		148.57	
RA-224	LLD<2.53E+01		LLD<2.53E+01		240.99	
RA-226	LLD<2.30E+01		LLD<2.30E+01		186.10	
RU-103	LLD<1.52E+00		LLD<1.52E+00		497.08	
RU103	LLD<1.60E+00		LLD<1.60E+00		497.08	
RURH106	LLD<2.83E+01		LLD<2.83E+01		621.80	
SB-125	LLD<1.25E+01		LLD<1.25E+01		176.33	
SE-75	LLD<1.92E+00		LLD<1.92E+00		264.66	
SN-113	LLD<2.06E+00		LLD<2.06E+00		391.67	
SR-85	LLD<1.59E+00		LLD<1.59E+00		513.99	
TH-228	LLD<1.08E+02		LLD<1.08E+02		84.37	
U-235	LLD<1.54E+00		LLD<1.54E+00		185.71	
Y-88	LLD<1.13E-01		LLD<1.13E-01		1836.06	
ZN-65	LLD<3.96E+00		LLD<3.96E+00		1115.55	
ZR-95	LLD<2.65E+00		LLD<2.65E+00		756.73	
TOTAL	1.96E+02	+-9.31E+00	1.96E+02	+-9.31E+00		

STANDARD DEVIATION = 0.11

EBA.. = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.30E-09 UC/LI
TOTAL MEASURED ACTIVITY = 1.96E+02 (+-9.31E+00) UC/LI
% TECH. SPEC. = ****** (+-****)

ERROR QUOTATION AT 1.96 SIGMA
CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1126.43	562.84	146.	28.5	1.81E+01
1138.45	568.86	285.	22.7	3.56E+01
1603.48	801.33	79.	34.4	1.34E+01

ACID DIGESTION ANALYSIS RESULTS

ACID DIGESTION SAMPLE RESULTS

Tank: 103AP
Core: NA
Sample No.: R935
Customer ID: 3AP1191-1

	Check Standard		Blank		Sample		Duplicate Sample		Spike of Sample		Check Standard	
Lab ID:	R931		R932		R935		NA		NA		R938	
Acid Digestion (12-27-91)	Complete		Complete		Complete		NA		NA		Complete	
ICP (01-22-92)												
Aluminum	93.6	%	1.50E+2	ug/L	3.07E+5	ug/L	NA		NA		121	%
Barium	101.9	%	<1.30E+1	ug/L	<6.50E+1	ug/L	NA		NA		100	%
Cadmium	101.4	%	<4.00E+0	ug/L	1.33E+2	ug/L	NA		NA		92.5	%
Chromium	105	%	<8.00E+0	ug/L	4.87E+3	ug/L	NA		NA		107	%
Iron	101.6	%	<8.70E+1	ug/L	9.90E+2	ug/L	NA		NA		126	%
Lead	102	%	<8.00E+1	ug/L	<4.00E+2	ug/L	NA		NA		93.2	%
Magnesium	101.6	%	<2.44E+2	ug/L	1.53E+3	ug/L	NA		NA		116	%
Manganese	100.8		<3.00E+0	ug/L	5.15E+1	ug/L	NA		NA		97.2	%
Silver	104.2	%	<8.00E+1	ug/L	<4.00E+1	ug/L	NA		NA		98.3	%
Sodium	99.1	%	1.74E+3	ug/L	2.46E+6	ug/L	NA		NA		177.5	%
Zinc	101.2	%	2.74E+1	ug/L	1.21E+3	ug/L	NA		NA		101	%

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: ACID DIGESTION	Sample Prep: ACID DIGESTION

Instrument: METTLER BAL. SNF04495	Procedure/Rev: LA-505-158/A-2
Technologist: L. MORRISON	Date: 12-27-91
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	R931-8505	11		
2	REAGENT BLANK	R932-8605	12		
3	SAMPLE 3AP1191-1	R935-8705	13		
4	FINAL LMCS CHECK STD	R938-8505	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	ICP1-1B48Z/10 mL	ICP2-2B48AA/10 mL	ICP3-3B48AA/10 mL	N/A

A-6000-881 (03/92)

ACID DIGESTION ANALYSIS

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-8505	103AP	12-16-91	15:47	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
ACD-DIG	LA-505-158	% RECOVERY	N124W	0

Sample Size: 7 10mL ea in 50mL

Customer ID: STD

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID
1848E
2848AA
3848AA

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Initials	Laurine J. Ottmer			
Date	Time Completed	Lab Unit Mgr		
12/27/91	1/6/92		1/9/92	

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-8505	103AP	12-16-91	15:47	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
ACD-DIG	LA-505-158	G/G	N124W	

Sample Size: 7

Customer ID: MK

Remarks, Calculations, Results:
REAGENT BLANK
VOLUME ON
COMPLETION 50mL

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Initials	Laurine J. Ottmer			
Date	Time Completed	Lab Unit Mgr		
12/27/91	1/6/92		1-9-92	

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-8705	103AP	12-16-91	15:52	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
ACD-DIG	LA-505-158	G/G	N124W	0

Sample Size: 7 10mL ea in 50mL

Customer ID: LAV 3AP119.1 1-6-92

Remarks, Calculations, Results:

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Initials	Laurine J. Ottmer			
Date	Time Completed	Lab Unit Mgr		
12/27/91	1/6/92		1-9-92	

Serial No	Sample Point	Date	Time Issued	Priority
R 938.-8505	103AP	12-16-91	15:57	25

Determination	Method/Standard	Result Units	Charge Code	Rerun
ACD-DIG	LA-505-158	% RECOVERY	N124W	0

Sample Size: 7 10mL ea in 50mL

Customer ID: STD

Remarks, Calculations, Results:
LMCS CHECK SAMPLE
LMCS ID
1848E
2848AA
3848AA

Complete

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
65731	82768			
Initials	Laurine J. Ottmer			
Date	Time Completed	Lab Unit Mgr		
12/27/91	1/6/92		1-9-92	

9 3 1 2 3 3 1 3 9 2

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

ANALYTICAL BATCH

Lab Segment Serial No.: R935	Customer ID: 3AP1191-1
Analysis: INDUCTIVELY COUPLED PLASMA	Sample Prep: ACID DIGESTION

Instrument: METTLER BAL. SNF04495	Procedure/Rev: LA-505-151/B-0
Technologist: T. FRAZIER	Date: 01-22-92
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	R931-8550	11		
2	REAGENT BLANK	R932-8650	12		
3	SAMPLE 3AP1191-1	R935-8750	13		
4	FINAL LMCS CHECK STD	R938-8550	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	ICP1-1B48AC	ICP2-2B48AD	ICP3-3B48AD	N/A
SPIKE	ICP1-1B48Z/10 mL	ICP2-2B48AA/10 mL	ICP3-3B48AA/10 mL	N/A
SPIKE(SPEX)	LOT 1-150AS/2 mL			

A-6000-881 (03/92)

ICP ANALYSIS - ACID DIGESTION

Serial No	Sample Point	Date	Time Issued	Priority
R 931.-8550	103AP	12-16-91	15:44	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	N124W	0

Sample Size	Customer ID
?10ml ea in 50ml DIGESTED STDS.	STD

Remarks Calculations Results

1st STD Digested STD
1B482, 2B48AA, 3B48AA

2nd STD CCV OR LMCS

Zn 1.93x5=9.65 96.5%

Ag .992ppm x5=4.96=99.2% Rec.
Al ~~1.93x5=9.65 96.5%~~ 1.125x5.60 112.0%
Ba 1.94x5=9.70 97.0%
Cd 1.85x5=9.25 92.5%
Cr .996x5=4.98 99.6%
Fe 1.02x5=5.10 102.0%
Mg 1.14x5=5.70 114.0%
Mn .958x5=4.79 95.8%
Na 3.13x5=15.65 156.5%
Pb 0.96x5=4.80 96.0%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
67768	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Teresa L. Frair	Lauline J. Ottmer		Teresa L. Frair	

Date	Time Completed	Lab Unit Mgr
1-22-92	1/23/92	Teresa L. Frair

54-6800-061 (10-83)

#R931-8550
931-
JMW 3/12/92

Ag 5.21 104.2%
Al 4.68 93.6% Rec.
Ba 10.19 101.9% Rec
Cd 10.14 101.4% Rec.
Cr 5.25 105.0% wrg #7097
Fe 5.08 101.6%
Mg 5.08 101.6%
Mn 5.04 100.8%
Na 9.91 99.1%
Pb 5.10 102.0%
Zn 10.12 101.2% verified 3/12/92 taf

ICP ANALYSIS - ACID DIGESTION

Serial No	Sample Point	Date	Time Issued	Priority
R 932.-8650	103AP	12-16-91	15:46	25

Determination	Method Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPB	N124W	0

Sample Size	Customer ID
? 50 ml Direct	BLK

Remarks, Calculations, Results

REAGENT BLANK

Al 1.50E2 ug/l
Zn 2.74E1 ug/l
Fe <8.70E1 ug/l
Cr <8.0 ug/l
Ba <1.30E1 ug/l
Mg 2.44E2 ug/l
Na 1.74E3 ug/l
Ag <8.0 ug/l
Pb <8.0E1 ug/l
Cd <4.0 ug/l
Mn <3.0 ug/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
67768	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Teresa L. Fugier	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
1-22-92	1/23/92	Teresa L. Fugier

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

Serial No	Sample Point	Date	Time Issued	Priority
R 935.-8750	103AP	12-16-91	15:53	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	PPB	N124W	0

Sample Size	Customer ID
? 10 ml in 50 ml - 2 ml - 10 ml (for Na)	3AP 119-1 ~~3AP 891-3~~ LAD 1692

Remarks, Calculations, Results

Al (6.14E4)(5) = 3.07E5 ug/l
Zn (2.42E2)(5) = 1.21E3 ug/l
Fe (1.98E2)(5) = 9.90E2 ug/l
Cr (9.74E2)(5) = 4.87E3 ug/l
Ba (<1.30E1)(5) = <6.50E1 ug/l
Mg (3.06E2)(5) = 1.53E3 ug/l
Na (2.46E5)(5)(2) = 2.46E6 ug/l
Ag (<8.0)(5) = <4.0E1 ug/l
Pb (<8.0E1)(5) = <4.0E2 ug/l
Cd (2.66E1)(5) = 1.33E2 ug/l
Mn (1.03E1)(5) = 5.15E1 ug/l

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
67768	82768			
Hrs	Hrs	Hrs	Hrs	Hrs
Teresa L. Fugier	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
1-22-92	1/23/92	Teresa L. Fugier

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

ICP ANALYSIS - ACID DIGESTION

Serial No.	Sample Point	Date	Time Issued	Priority
R 938.-8550	TOSAP	12-16-91	15:57	25

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	11240	0

Sample Size	Customer ID
? 10mL ea in 50mL	STD

Remarks, Calculations, Results

1st STD Digested STD
12482, 2848AA, 3848AA

2nd STD CCV OK LMCS

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	Laurine J. Ottman			

Date	Time Completed	Lab Unit Mgr
1-22-92	1/23/92	Teresa L. Fraire

54-6800-061 (9/10-83)

R938-8550

DIGESTED		UNDIGESTED	
Al 1.21ppm x 5 = 6.05	121.0% Rec.	Al 4.72	94.4% Rec.
Zn 2.02 x 5 = 10.10	101.0% Rec.	Zn 9.59	95.9% Rec.
Fe 1.26 x 5 = 6.30	126.0% Rec.	Fe 4.77	95.4% Rec.
Cr 1.07 x 5 = 5.35	107.0% Rec.	Cr 4.88	97.6% Rec.
Ba 2.00 x 5 = 10.00	100.0% Rec.	Ba 9.73	97.3% Rec.
Mg 1.16 x 5 = 5.80	116.0% Rec.	Mg 4.76	95.2% Rec.
Na 3.55 x 5 = 17.75	177.5% Rec.	Na 9.77	97.7% Rec.
Ag .983 x 5 = 4.92	98.3% Rec.	Ag 5.09	101.8% Rec.
Pb .932 x 5 = 4.66	93.2% Rec.	Pb 4.91	98.2% Rec.
Cd 1.85 x 5 = 9.25	92.5% Rec.	Cd 9.21	92.1% Rec.
Mn .972 x 5 = 4.86	97.2% Rec.	Mn 4.71	94.2% Rec.

Calibration Standard : BLANK 10:23 AM 22/ 1/92
Task name : ALL_SIM
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Ag (KPulses)	Al (KPulses)	As (KPulses)	B (KPulses)	Ba (KPulses)	Be (KPulses)	Bi (KPulses)	Ca (KPulses)
On Peak 1	2.013	8.773	0.694	1.474	3.883	1.188	2.715	0.503
On Peak 2	2.021	8.799	0.714	1.476	3.898	1.189	2.764	0.502
On Peak 3	2.018	8.800	0.722	1.463	3.890	1.188	2.705	0.502
OffPeak1 1	2.118	8.344	0.710	1.482	3.890		2.778	0.244
OffPeak2 1						1.196		
Mean	-0.101	0.447	0.000	-0.011	0.000	-0.008	-0.050	0.258
S.D.	0.004	0.015	0.014	0.007	0.008	0.001	0.032	0.001
% R.S.D.	4.015	3.427		63.636	2251.666	7.531	63.151	0.223

	Cd (KPulses)	Ce (KPulses)	Co (KPulses)	Cr (KPulses)	Cu (KPulses)	Eu (KPulses)	Fe (KPulses)	Hg (KPulses)
On Peak 1	3.788	4.173	1.515	1.132	2.132	2.841	0.879	1.557
On Peak 2	3.788	4.190	1.521	1.144	2.146	2.854	0.904	1.591
On Peak 3	3.793	4.179	1.522	1.156	2.139	2.840	0.890	1.573
OffPeak1 1	3.882	4.134	1.523	1.149	2.091	2.918	0.885	
OffPeak2 1								
Mean	-0.092	0.047	-0.004	-0.005	0.048	-0.073	0.006	1.574
S.D.	0.003	0.009	0.004	0.012	0.007	0.008	0.013	0.017
% R.S.D.	3.126	18.475	103.253	240.000	14.583	10.699	208.833	1.081

	K (KPulses)	La (KPulses)	Li (KPulses)	Mg (KPulses)	Mn (KPulses)	Mo (KPulses)	Na (KPulses)	Nd (KPulses)
On Peak 1	2.590	0.358	3.347	0.250	0.582	0.947	6.023	9.809
On Peak 2	2.597	0.359	3.348	0.249	0.583	0.941	6.031	9.965
On Peak 3	2.583	0.358	3.351	0.249	0.582	0.956	6.025	9.891
OffPeak1 1	2.631	0.362	3.350	0.227	0.580	0.929	5.943	9.815
OffPeak2 1								
Mean	-0.041	-0.004	-0.001	0.022	0.002	0.019	0.083	0.073
S.D.	0.007	0.001	0.002	0.001	0.001	0.008	0.004	0.078
% R.S.D.	17.073	15.746	156.125	2.585	24.744	39.736	4.996	106.410

	Ni (KPulses)	P (KPulses)	Pb (KPulses)	S (KPulses)	Sb (KPulses)	Se (KPulses)	Si (KPulses)	Sn (KPulses)
On Peak 1	1.840	0.345	1.096	0.707	1.100	1.160	2.416	4.292
On Peak 2	1.855	0.336	1.110	0.704	1.089	1.170	2.434	4.309
On Peak 3	1.870	0.337	1.107	0.710	1.082	1.148	2.425	4.307
OffPeak1 1	1.905	0.325	1.102	0.701	1.097		2.313	4.312
OffPeak2 1						1.212		
Mean	-0.050	0.014	0.002	0.006	-0.007	-0.053	0.112	-0.009
S.D.	0.015	0.005	0.007	0.003	0.009	0.011	0.009	0.009
% R.S.D.	30.000	34.415	315.905	50.000	136.107	20.915	8.036	99.553

	Sm (KPulses)	Sr (KPulses)	Ta (KPulses)	Ti (KPulses)	Tl (KPulses)	V (KPulses)	W (KPulses)	Zn (KPulses)
On Peak 1	2.054	3.175	2.533	2.663	2.703	1.501	2.955	1.222
On Peak 2	2.039	3.182	2.515	2.671	2.717	1.506	2.943	1.253
On Peak 3	2.041	3.180	2.569	2.669	2.720	1.501	2.903	1.231
OffPeak1 1	2.053	3.169	2.553	2.764			2.923	0.858
OffPeak2 1					2.774	1.478		
Mean	-0.008	0.010	-0.014	-0.096	-0.061	0.025	0.011	0.377

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S.D.	0.008	0.004	0.027	0.004	0.009	0.003	0.027	0.016
% R.S.D.	97.734	36.056	196.396	4.322	14.957	11.703	255.257	4.226

	Zr (KPulses)
Peak 1	3.573
On Peak 2	3.578
On Peak 3	3.580
OffPeak1 1	3.551
OffPeak2 1	
Mean	0.026
S.D.	0.004
% R.S.D.	13.868

Calibration Standard : SIM 1 10:25 AM 22/ 1/92
Task name : ALL_SIM
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Ba (KPulses)	Be (KPulses)	Ca (KPulses)	K (KPulses)	Li (KPulses)	Mg (KPulses)	Na (KPulses)	Sr (KPulses)
On Peak 1	349.937	119.488	121.418	6.186	205.560	97.819	39.563	527.972
On Peak 2	351.394	119.820	121.953	6.158	205.529	98.119	39.441	529.965
On Peak 3	350.347	119.231	121.564	6.156	206.597	97.607	39.551	528.142
OffPeak1 1	5.430		0.920	2.672	5.578	0.506	6.160	5.109
OffPeak2 1		2.308						
Mean	345.129	117.205	120.725	3.495	200.317	97.342	33.358	523.584
S.D.	0.751	0.295	0.277	0.017	0.608	0.257	0.067	1.105
% R.S.D.	0.218	0.252	0.229	0.480	0.303	0.264	0.202	0.211

Calibration Standard : SIM 2 10:27 AM 22/ 1/92
Task name : ALL_SIM
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Ag (KPulses)	Cd (KPulses)	Co (KPulses)	Cr (KPulses)	Cu (KPulses)	Fe (KPulses)	Mn (KPulses)	Ni (KPulses)
On Peak 1	69.448	528.597	93.964	53.053	91.601	65.871	213.475	92.591
On Peak 2	70.303	533.562	95.536	53.744	92.867	66.391	215.798	93.636
On Peak 3	70.326	535.772	95.453	53.841	92.817	66.650	216.355	93.831
OffPeak1 1	2.809	5.651	1.887	1.412	2.474	1.265	1.316	2.264
OffPeak2 1								
Mean	67.217	526.993	93.097	52.134	89.954	65.039	213.893	91.089
S.D.	0.500	3.675	0.885	0.430	0.717	0.397	1.528	0.667
% R.S.D.	0.744	0.697	0.950	0.824	0.797	0.610	0.714	0.732

	V (KPulses)	Zn (KPulses)
On Peak 1	32.601	244.297
On Peak 2	32.998	246.962
On Peak 3	33.076	247.671
Peak1 1		1.903
eak2 1	1.867	
Mean	31.025	244.407

S.D.	0.255	1.779
% R.S.D.	0.821	0.728

Calibration Standard : SIM 3 10:29 AM 22/ 1/92
Task name : ALL_SIM
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Al (KPulses)	B (KPulses)	Mo (KPulses)	P (KPulses)	Si (KPulses)	Ta (KPulses)	Ti (KPulses)	W (KPulses)
On Peak 1	58.441	106.308	68.578	3.615	31.290	37.813	156.793	3.115
On Peak 2	57.992	105.204	67.821	3.631	31.095	37.189	155.172	3.137
On Peak 3	58.205	105.851	68.022	3.576	31.189	37.347	155.561	3.103
OffPeak1 1	8.948	2.303	1.350	0.341	2.625	3.342	3.267	3.759
OffPeak2 1								
Mean	49.265	103.485	66.790	3.266	28.566	34.108	152.575	-0.641
S.D.	0.225	0.555	0.392	0.028	0.098	0.324	0.846	0.017
% R.S.D.	0.456	0.536	0.587	0.866	0.341	0.951	0.555	2.691

	Zr (KPulses)
On Peak 1	51.261
On Peak 2	50.747
On Peak 3	50.866
OffPeak1 1	3.829
OffPeak2 1	
	47.129
	0.269
% R.S.D.	0.571

Calibration Standard : SIM 4 10:31 AM 22/ 1/92
Task name : ALL_SIM
On-Peak Integrations : 3 Off-Peak Integrations : 1

	As (KPulses)	Bi (KPulses)	Pb (KPulses)	S (KPulses)	Sb (KPulses)	Se (KPulses)	Sn (KPulses)	Tl (KPulses)
On Peak 1	17.339	22.855	12.664	19.385	4.928	8.055	93.278	5.471
On Peak 2	17.317	22.717	12.677	19.358	4.937	8.026	93.020	5.459
On Peak 3	17.241	22.650	12.576	19.195	4.917	7.967	92.580	5.464
OffPeak1 1	0.797	2.952	1.194	0.825	1.119		2.707	
OffPeak2 1						1.307		2.888
Mean	16.502	19.789	11.445	18.488	3.808	6.709	90.252	2.577
S.D.	0.051	0.105	0.055	0.103	0.010	0.045	0.353	0.006
% R.S.D.	0.312	0.528	0.480	0.556	0.263	0.668	0.391	0.234

Calibration Standard : SIM 5 10:33 AM 22/ 1/92
Task name : ALL_SIM
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Ce	Eu	La	Nd	Sm

	(KPulses)	(KPulses)	(KPulses)	(KPulses)	(KPulses)
On Peak 1	14.206	315.395	5.621	60.477	13.055
On Peak 2	14.179	314.598	5.608	60.188	13.042
On Peak 3	14.213	315.584	5.638	60.475	13.074
OffPeak1 1	6.760	6.462	0.591	14.958	5.693
OffPeak2 1					
Mean	7.439	308.730	5.031	45.422	7.364
S.D.	0.018	0.523	0.015	0.166	0.016
% R.S.D.	0.241	0.170	0.299	0.366	0.219

Calibration Standard : SIM_HIREF 10:35 AM 22/ 1/92
Task name : ALL_SIM
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Ag (KPulses)	Al (KPulses)	As (KPulses)	B (KPulses)	Ba (KPulses)	Be (KPulses)	Bi (KPulses)	Ca (KPulses)
On Peak 1	8.615	16.707	2.416	11.905	36.829	12.121	4.788	12.702
On Peak 2	8.559	16.709	2.420	11.875	36.807	12.109	4.849	12.689
On Peak 3	8.671	16.768	2.449	11.956	37.106	12.201	4.804	12.806
OffPeak1 1	2.339	10.039	0.751	1.614	4.287		3.603	0.320
OffPeak2 1						1.347		
Mean	6.276	6.689	1.677	10.298	32.627	10.797	1.211	12.412
S.D.	0.056	0.035	0.018	0.041	0.167	0.050	0.032	0.064
% R.S.D.	0.892	0.518	1.074	0.398	0.511	0.463	2.612	0.517

	Cd (KPulses)	Ce (KPulses)	Co (KPulses)	Cr (KPulses)	Cu (KPulses)	Eu (KPulses)	Fe (KPulses)	Hg (KPulses)
On Peak 1	51.870	5.222	10.108	6.070	10.928	33.241	7.066	1.596
On Peak 2	51.811	5.235	10.118	6.079	10.924	33.183	7.015	1.596
On Peak 3	52.473	5.230	10.245	6.097	11.002	33.471	7.110	1.635
OffPeak1 1	4.080	4.462	1.602	1.214	2.224	3.333	0.955	
OffPeak2 1								
Mean	47.971	0.767	8.555	4.868	8.727	29.965	6.109	1.609
S.D.	0.366	0.007	0.076	0.014	0.044	0.152	0.048	0.023
% R.S.D.	0.764	0.855	0.893	0.282	0.503	0.508	0.778	1.399

	K (KPulses)	La (KPulses)	Li (KPulses)	Mg (KPulses)	Mn (KPulses)	Mo (KPulses)	Na (KPulses)	Nd (KPulses)
On Peak 1	2.957	0.878	23.278	19.020	20.692	7.584	9.388	14.967
On Peak 2	2.955	0.876	23.126	19.021	20.656	7.599	9.383	15.015
On Peak 3	2.974	0.881	23.254	19.201	20.822	7.689	9.385	15.068
OffPeak1 1	2.669	0.392	3.610	0.284	0.658	1.006	6.052	10.448
OffPeak2 1								
Mean	0.293	0.486	19.609	18.797	20.065	6.618	3.333	4.569
S.D.	0.010	0.003	0.082	0.104	0.087	0.057	0.003	0.051
% R.S.D.	3.563	0.517	0.417	0.554	0.435	0.858	0.075	1.106

	Ni (KPulses)	P (KPulses)	Pb (KPulses)	S (KPulses)	Sb (KPulses)	Se (KPulses)	Si (KPulses)	Sn (KPulses)
On Peak 1	10.402	0.666	2.298	2.606	1.483	2.022	5.652	5.217
On Peak 2	10.373	0.668	2.300	2.570	1.469	2.006	5.660	5.231
On Peak 3	10.447	0.676	2.304	2.603	1.480	2.028	5.691	5.232
OffPeak1 1	2.000	0.335	1.159	0.723	1.104		2.573	4.600
OffPeak2 1						1.294		
Mean	8.407	0.335	1.142	1.870	0.373	0.725	3.095	0.627

S.D.	0.037	0.005	0.003	0.020	0.007	0.011	0.021	0.006
% R.S.D.	0.444	1.580	0.268	1.068	1.974	1.569	0.666	1.338

	Sn (KPulses)	Sr (KPulses)	Ta (KPulses)	Ti (KPulses)	Tl (KPulses)	V (KPulses)	W (KPulses)	Zn (KPulses)
.eak 1	11.235	53.332	6.065	24.868	3.106	4.496	3.206	23.604
On Peak 2	11.379	53.290	6.033	24.832	3.111	4.499	3.261	23.616
On Peak 3	11.315	53.769	6.110	25.073	3.113	4.527	3.207	23.806
OffPeak1 1	2.199	3.449	2.759	2.961			3.124	1.017
OffPeak2 1					2.881	1.637		
Mean	9.111	50.015	3.310	21.963	0.229	2.870	0.101	22.658
S.D.	0.072	0.265	0.039	0.130	0.004	0.017	0.031	0.113
% R.S.D.	0.792	0.530	1.169	0.592	1.574	0.596	31.261	0.500

	Zr (KPulses)
On Peak 1	8.435
On Peak 2	8.443
On Peak 3	8.485
OffPeak1 1	4.041
OffPeak2 1	
Mean	4.413
S.D.	0.027
% R.S.D.	0.609

Corrected Counts Statistics 10:42 AM January 22, 1992
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	-0.029	0.008	
Sr	2	259.365	2.441	
Bi	3	-0.136	0.013	
Ta	5	-0.025	0.027	
Hg	6	1.607	0.037	
Sn	7	23.388	0.165	
Si	8	0.071	0.008	
Al	9	0.135	0.040	
W	10	0.700	0.061	
Zn	11	118.341	0.937	
Cu	12	21.866	0.191	
Li	14	96.934	1.041	
Co	15	45.344	0.336	
Ni	16	22.527	0.199	
La	17	-0.005	0.002	
Eu	18	-0.034	0.005	
Fe	19	15.999	0.108	
Ca	20	60.180	0.537	
Cr	21	13.209	0.147	
Mn	22	0.320	0.043	
Ce	24	0.096	0.014	
Sm	25	-0.354	0.016	

Ba	26	170.929	1.580
P	27	0.209	0.007
S	28	0.140	0.006
Mg	29	24.736	0.204
As	30	0.006	0.008
Na	31	16.376	0.143
Mo	32	-0.003	0.006
Se	33	0.472	0.007
Ag	34	1.169	0.008
Pb	35	0.011	0.010
Ti	36	-0.115	0.014
Cd	37	254.723	2.430
B	38	25.523	0.254
K	39	0.847	0.008
Mn	40	52.302	0.440
Sb	42	0.958	0.017
V	43	0.020	0.005
Be	44	-0.008	0.002
Tl	45	-0.064	0.007

Identity 1: SST1 STD 1848AC Identity 2: Direct 10:42 AM 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)
Mean	-24.353	10140.137	-86.699	-6.731	1886.792	5157.806	-28.236	-115.659
S.D.	3.333	95.439	13.106	16.214	2095.869	36.463	5.189	14.815
% R.S.D.	13.685	0.941	15.116	240.904	111.081	0.707	18.376	12.809

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-21182.957	10121.290	4940.101	9782.087	10169.345	5147.689	-4.026	2.562
S.D.	1888.341	80.405	43.249	105.024	75.426	45.297	6.152	0.328
% R.S.D.	8.914	0.794	0.875	1.074	0.742	0.880	152.804	12.820

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	5079.727	9895.337	5246.221	37.499	134.295	-1011.327	10191.525	1203.294
S.D.	34.228	88.676	58.205	19.423	39.627	45.822	94.219	44.792
% R.S.D.	0.674	0.896	1.109	51.796	29.507	4.531	0.924	3.722

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	57.973	5078.915	4.619	9906.810	-6.729	264.996	387.985	15.181
S.D.	6.404	41.896	9.106	86.990	1.659	23.093	2.313	16.709
% R.S.D.	11.046	0.825	197.126	0.878	24.661	8.714	0.596	110.070

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-2.402	10136.849	4944.095	5187.189	5044.876	5069.121	-2.914	0.000
S.D.	1.859	96.678	49.174	46.357	42.391	90.579	3.184	0.272
% R.S.D.	77.396	0.954	0.995	0.894	0.840	1.787	109.265	759244.483

Tl

	(ppb)
Mean	-26.308
S.D.	52.952
% R.S.D.	201.277

Corrected Counts Statistics 10:44 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	-0.151	0.008	
Sr	2	0.028	0.010	
Bi	3	5.105	0.046	
Ta	5	-0.017	0.002	
Hg	6	1.601	0.007	
Sn	7	-0.039	0.016	
Si	8	0.005	0.001	
Al	9	1.227	0.019	
W	10	-0.039	0.013	
Zn	11	-0.019	0.010	
Cu	12	0.104	0.006	
Li	14	0.002	0.002	
Co	15	0.014	0.016	
Ni	16	-0.062	0.008	
	17	1.324	0.009	
	18	81.191	0.314	
Fe	19	0.021	0.008	
Ca	20	0.527	0.022	
Cr	21	0.001	0.001	
Mo	22	12.306	0.053	
Ce	24	1.939	0.015	
Sm	25	1.858	0.005	
Ba	26	-0.443	0.008	
P	27	0.025	0.002	
S	28	0.010	0.004	
Mg	29	0.012	0.001	
As	30	0.087	0.011	
Na	31	0.031	0.013	
Mo	32	0.006	0.006	
Se	33	-0.044	0.013	
Ag	34	16.961	0.087	
Pb	35	2.916	0.017	
Ti	36	-0.135	0.009	
Cd	37	-0.074	0.038	
B	38	0.044	0.017	
K	39	-0.048	0.008	
Mn	40	-0.005	0.006	
Sb	42	-0.000	0.011	
V	43	0.056	0.002	
Be	44	-0.003	0.002	
	45	-0.045	0.007	

Identity 1: SST2 STD 2B48AD Identity 2: Direct 10:45 AM 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)
Mean	-78.050	0.704	5197.258	-1.979	1528.302	-6.834	-73.595	285.870
S.D.	3.558	0.408	46.443	1.236	368.287	3.502	0.687	7.017
% R.S.D.	4.558	58.002	0.894	62.463	24.098	51.242	0.934	2.455

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	1525.065	-33.983	12.605	0.336	3.962	-2.658	5345.549	5337.105
S.D.	413.112	0.827	1.456	0.175	3.588	1.741	36.543	20.634
% R.S.D.	27.088	2.435	11.548	51.962	90.566	65.522	0.684	0.387

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	4.870	44.348	2.382	5417.846	5182.026	5473.068	-26.453	68.134
S.D.	2.384	3.592	0.397	23.702	41.477	13.219	0.448	14.299
% R.S.D.	48.949	8.100	16.666	0.437	0.800	0.242	1.692	20.987

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	4.280	-2.192	100.129	-31.808	-3.917	23.594	5212.080	5103.057
S.D.	4.097	0.119	13.020	7.975	1.833	35.396	26.429	29.536
% R.S.D.	95.711	5.413	13.003	25.071	46.792	150.019	0.507	0.579

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-5.065	0.743	10.714	-38.078	-0.740	33.270	21.341	0.771
S.D.	1.201	1.497	3.333	46.845	0.540	58.573	1.556	0.272
% R.S.D.	23.703	201.531	31.110	123.025	72.996	176.054	7.291	35.249

	Tl (ppb)
Mean	110.183
S.D.	48.899
% R.S.D.	44.380

Corrected Counts Statistics 10:46 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	23.596	0.158	
Sr	2	0.033	0.005	
Bi	3	-1.962	0.009	
	5	16.525	0.083	
	6	28.274	0.238	
	7	0.146	0.030	

Si	8	12.869	0.084
Al	9	11.902	0.075
W	10	32.733	0.184
Zn	11	0.033	0.004
	12	0.067	0.004
Li	14	0.003	0.005
Co	15	-0.073	0.007
Ni	16	0.278	0.007
La	17	-0.006	0.001
Eu	18	-0.122	0.003
Fe	19	0.034	0.006
Ca	20	0.167	0.002
Cr	21	0.019	0.007
Nd	22	0.058	0.047
Ce	24	0.059	0.007
Sm	25	-0.062	0.002
Ba	26	0.024	0.003
P	27	1.632	0.024
S	28	4.796	0.039
Mg	29	0.009	0.001
As	30	4.151	0.069
Na	31	0.122	0.005
Mo	32	33.062	0.217
Se	33	1.585	0.016
Ag	34	-0.067	0.013
Pb	35	-0.071	0.018
Ti	36	37.560	0.219
Cd	37	-0.211	0.006
B	38	0.055	0.014
	39	-0.046	0.009
	40	0.015	0.006
Sb	42	0.053	0.023
V	43	14.699	0.101
Be	44	55.341	0.337
Tl	45	0.662	0.006

Identity 1: SST3 STD 3B48AD Identity 2: Direct 10:47 AM 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)
Mean	10374.234	0.912	-1927.283	9822.885	1511320.755	34.096	8767.007	4212.401
S.D.	69.374	0.201	9.367	49.027	13471.857	6.673	57.394	27.457
% R.S.D.	0.669	21.993	0.486	0.499	0.891	19.572	0.655	0.652

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-1004769.751	-29.493	4.303	0.471	-15.548	74.713	-8.053	-3.196
S.D.	5647.467	0.347	0.816	0.455	1.617	1.552	2.325	0.201
% R.S.D.	0.562	1.176	18.972	96.627	10.401	2.077	28.872	6.278

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	8.788	-15.064	9.529	-6.533	32.957	-153.386	1.391	10014.205

S.D.	1.915	0.256	2.779	20.615	18.643	6.102	0.182	150.949
% R.S.D.	21.787	1.699	29.166	315.571	-56.568	-3.978	13.093	1.507

	S (ppb)	Mg (ppb)	As (ppb)	Ba (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	5162.055	-2.672	4992.287	23.727	9955.903	4507.147	10.297	-128.452
S.D.	41.738	0.119	83.014	2.874	65.276	45.131	3.971	30.989
% R.S.D.	0.809	4.441	1.663	12.111	0.656	1.001	38.568	24.125

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	4932.950	-4.707	12.844	-28.344	1.266	313.429	9887.285	9845.211
S.D.	28.628	0.233	2.685	49.901	0.582	118.396	68.055	59.945
% R.S.D.	0.580	4.952	20.907	176.057	45.969	37.774	0.688	0.609

	Tl (ppb)
Mean	5189.108
S.D.	39.565
% R.S.D.	0.762

Corrected Counts Statistics 10:50 AM January 22, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Lyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	23.361	0.086	
Sr	2	0.025	0.001	
Bi	3	-1.946	0.012	
Ta	5	16.431	0.052	
Hg	6	28.162	0.180	
Sn	7	0.080	0.027	
Si	8	12.862	0.060	
Al	9	11.875	0.044	
W	10	32.308	0.153	
Zn	11	0.080	0.010	
Cu	12	0.059	0.002	
Li	14	-0.015	0.004	
Co	15	-0.072	0.008	
Ni	16	0.299	0.010	
La	17	-0.006	0.001	
Eu	18	-0.148	0.004	
Fe	19	0.053	0.007	
Ca	20	0.711	0.003	
Cr	21	0.013	0.007	
Nd	22	-0.097	0.081	
Ce	24	0.040	0.001	
Sm	25	-0.081	0.002	
Na	26	0.017	0.001	
	27	1.654	0.007	
	28	4.841	0.043	
Mg	29	0.021	0.001	

As	30	4.095	0.044
Na	31	0.098	0.008
Mo	32	32.774	0.177
Se	33	1.570	0.015
	34	-0.152	0.001
Pb	35	-0.038	0.006
Ti	36	37.215	0.141
Cd	37	-0.270	0.016
B	38	0.061	0.005
K	39	-0.054	0.006
Mn	40	0.019	0.003
Sb	42	0.031	0.007
V	43	14.549	0.058
Be	44	54.716	0.198
Tl	45	0.659	0.004

Identity 1: sst3 3b48ad Identity 2: 10:51 AM 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)	Mg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	10270.800	0.586	-1911.419	9766.661	1505000.000	19.547	8961.728	4682.016
S.D.	37.637	0.039	12.388	30.644	10174.991	6.023	42.073	18.151
% R.S.D.	0.366	6.667	0.648	0.314	0.676	30.811	0.469	0.388

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-991740.056	-25.489	2.567	-1.346	-15.399	79.501	-10.738	-4.947
S.D.	4696.597	0.818	0.471	0.354	1.742	2.373	2.325	0.273
% R.S.D.	0.474	3.211	18.361	26.339	11.312	2.985	21.653	5.527

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	14.822	74.865	7.146	-75.989	-18.169	-211.038	0.974	10152.488
S.D.	2.115	0.500	2.779	35.843	2.739	6.102	0.034	44.650
% R.S.D.	14.268	0.668	38.889	47.169	15.075	2.892	3.535	0.440

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	5209.757	-0.343	4924.439	9.134	9869.129	4465.456	-15.568	-71.233
S.D.	46.648	0.119	53.493	5.063	53.467	41.877	0.176	9.960
% R.S.D.	0.895	34.641	1.086	55.429	0.542	0.938	1.133	13.983

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	4887.798	-7.067	13.941	-75.067	1.525	199.614	9785.996	9734.039
S.D.	18.411	0.632	1.006	32.518	0.243	34.976	38.845	35.207
% R.S.D.	0.377	8.935	7.217	43.319	15.965	17.522	0.397	0.362

	Tl (ppb)
	5165.162
S.D.	28.735
% R.S.D.	0.556

ected Counts Statistics 10:57 AM January 22, 1992
ask 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	0.005	
Sr	2	0.015	0.006	
Bi	3	-0.456	0.022	
Ta	5	0.012	0.007	
Hg	6	1.587	0.013	
Sn	7	0.003	0.016	
Si	8	1.368	0.014	
Al	9	2.726	0.009	
W	10	0.152	0.027	
Zn	11	12.091	0.028	
Cu	12	4.497	0.018	
Li	14	-0.010	0.009	
Co	15	4.572	0.028	
Ni	16	4.430	0.012	
La	17	-0.005	0.001	
Eu	18	-0.072	0.006	
Fe	19	3.190	0.008	
Ca	20	6.318	0.021	
	21	2.637	0.006	
	22	0.187	0.032	
Ce	24	0.038	0.011	
Sm	25	-0.051	0.008	
Ba	26	17.136	0.053	
P	27	0.014	0.001	
S	28	0.027	0.009	
Mg	29	4.997	0.015	
As	30	0.866	0.009	
Na	31	1.716	0.004	
Mo	32	3.361	0.007	
Se	33	0.391	0.013	
Ag	34	3.330	0.012	
Pb	35	0.595	0.012	
Ti	36	7.712	0.018	
Cd	37	25.796	0.219	
B	38	4.911	0.029	
K	39	1.687	0.005	
Mn	40	10.582	0.025	
Sb	42	0.210	0.004	
V	43	1.534	0.009	
Be	44	5.568	0.013	
Tl	45	0.074	0.005	

ity 1: ICV Identity 2: ICV 10:58 AM January 22, 1992
k name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00

Teresa L. Frazier
1-22-92

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Hg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
	-7.920	0.182	-408.966	15.442	754.717	2.425	882.584	933.809
	2.017	0.222	22.209	3.895	740.190	3.516	9.874	3.500
% R.S.D.	25.466	121.847	5.431	25.220	98.075	144.981	1.119	0.375

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-4345.086	1005.082	1007.358	-0.841	1026.039	1021.483	-5.368	0.088
S.D.	824.506	2.366	3.980	0.858	6.167	2.802	4.027	0.401
% R.S.D.	18.976	0.235	0.395	102.059	0.601	0.274	75.019	457.496

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	1011.308	999.706	1049.459	43.232	-22.734	-123.094	1021.704	0.024
S.D.	2.600	3.469	2.393	14.065	30.044	23.513	3.131	7.150
% R.S.D.	0.257	0.347	0.228	32.534	132.158	19.101	0.306	29928.777

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	13.862	1022.400	1038.594	992.761	1007.040	986.084	1043.047	1038.712
S.D.	9.866	2.995	11.118	2.432	2.006	34.436	3.523	20.452
% R.S.D.	71.176	0.293	1.071	0.245	0.199	3.492	0.336	1.969

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	1022.851	1029.883	952.960	10093.177	1021.208	1139.897	1017.166	991.832
S.D.	2.359	8.716	5.709	30.905	2.454	21.230	6.114	2.224
% R.S.D.	0.231	0.846	0.599	0.306	0.240	1.862	0.601	0.224

	Tl (ppb)
Mean	962.657
S.D.	38.013
% R.S.D.	3.949

Corrected Counts Statistics 10:59 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	0.004	0.003	
Sr	2	-0.011	0.005	
Bi	3	-0.114	0.022	
Ta	5	0.004	0.009	
Hg	6	1.564	0.018	
Sn	7	-0.039	0.050	
Si	8	0.094	0.006	
Al	9	0.347	0.022	
[illegible]	10	-0.069	0.021	
Zn	11	0.046	0.002	

Cu	12	0.039	0.008
Li	14	-0.024	0.003
Co	15	-0.019	0.011
[illegible]	16	-0.067	0.012
	17	-0.004	0.001
[illegible]	18	-0.089	0.003
Fe	19	-0.000	0.010
Ca	20	0.288	0.002
Cr	21	-0.016	0.006
Nd	22	-0.076	0.082
Ce	24	0.004	0.007
Sm	25	-0.045	0.012
Ba	26	-0.023	0.008
P	27	0.012	0.003
S	28	0.030	0.012
Mg	29	0.007	0.001
As	30	0.003	0.007
Na	31	0.020	0.016
Mo	32	-0.001	0.002
Se	33	-0.018	0.008
Ag	34	-0.112	0.004
Pb	35	0.001	0.010
Ti	36	-0.118	0.006
Cd	37	-0.191	0.049
B	38	-0.012	0.011
K	39	-0.089	0.007
Mn	40	0.006	0.007
Sb	42	-0.010	0.010
"	43	0.018	0.003
	44	-0.012	0.002
	45	-0.064	0.010

Identity 1: ICB Identity 2: ICB 11:00 AM 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)
Mean	-9.534	-0.834	-64.520	10.889	-547.170	-6.760	-12.652	-40.968
S.D.	1.415	0.185	22.110	5.121	765.722	11.042	4.389	9.016
% R.S.D.	14.840	22.152	34.268	47.026	139.942	163.337	34.694	22.008

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	2436.051	-28.435	-2.037	-2.287	-3.364	-3.874	-1.341	-1.073
S.D.	890.139	0.198	1.797	0.350	2.377	2.802	4.027	0.211
% R.S.D.	36.540	0.697	88.233	15.283	70.659	72.326	300.306	19.684

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-1.906	4.909	-4.499	-66.179	-115.855	-104.528	-1.391	-12.360
[illegible]	3.316	0.286	2.393	36.524	19.237	35.178	0.488	19.904
[illegible].D.	174.010	5.825	53.186	55.189	16.605	33.654	35.080	161.038

	S	Mg	As	Na	Mo	Se	Ag	Pb

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	25.459	-3.220	-0.982	-38.294	-5.925	95.826	-3.348	-2.919
S.D.	12.853	0.119	8.426	9.697	0.460	21.330	1.235	17.281
% R.S.D.	50.486	3.685	857.787	25.323	7.767	22.259	36.873	591.949

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-2.795	-3.938	-0.194	-279.484	0.383	-15.758	-4.711	-0.771
S.D.	0.800	1.964	2.094	38.298	0.699	50.476	1.696	0.356
% R.S.D.	28.641	49.872	1081.688	13.703	182.525	320.323	35.994	46.156

	Tl (ppb)
Mean	-26.308
S.D.	68.277
% R.S.D.	259.529

Corrected Counts Statistics 11:02 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	-0.034	0.003	
Sr	2	258.028	4.869	
[illegible]	3	-0.109	0.006	
	5	-0.009	0.022	
Hg	6	1.595	0.024	
Sn	7	23.051	0.423	
Si	8	0.076	0.004	
Al	9	0.152	0.027	
W	10	0.654	0.040	
Zn	11	117.438	1.943	
Cu	12	21.817	0.380	
Li	14	97.278	1.540	
Co	15	44.759	0.787	
Ni	16	22.281	0.377	
La	17	-0.006	0.000	
Eu	18	-0.057	0.007	
Fe	19	15.862	0.276	
Ca	20	60.024	1.144	
Cr	21	13.060	0.251	
Nd	22	0.246	0.044	
Ce	24	0.076	0.005	
Sm	25	-0.365	0.011	
Ba	26	170.340	3.239	
P	27	0.216	0.003	
S	28	0.122	0.002	
Mg	29	24.552	0.449	
As	30	0.008	0.001	
Na	31	16.323	0.234	
	32	0.007	0.004	
[illegible]	33	0.466	0.010	
Ag	34	1.139	0.017	

Pb	35	0.003	0.010
Ti	36	-0.122	0.004
Cd	37	250.432	4.689
B	38	25.624	0.510
	39	0.847	0.017
	40	51.893	0.947
Sb	42	0.923	0.023
V	43	0.025	0.003
Be	44	-0.007	0.001
Tl	45	-0.064	0.004

Identity 1: SST1 STD 18484C Identity 2: Direct 11:03 AM 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)	Mg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-26.553	10087.837	-59.816	3.168	1188.679	5083.367	-25.538	-120.584
S.D.	1.415	190.366	5.552	12.825	1350.606	93.142	2.926	11.252
% R.S.D.	5.328	1.887	9.282	404.849	113.622	1.832	11.459	9.331

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-19790.645	10043.812	4928.931	9816.767	10038.231	5091.751	-9.396	1.029
S.D.	1213.771	166.695	85.958	155.421	176.574	86.037	0.000	0.461
% R.S.D.	6.133	1.660	1.744	1.583	1.759	1.690	0.000	44.826

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	5036.319	9869.606	5187.197	4.908	79.517	-1043.573	10156.386	1250.765
S.D.	87.655	188.874	99.509	19.443	14.055	32.290	193.151	15.582
% R.S.D.	1.740	1.914	1.918	396.101	17.675	3.094	1.902	1.246

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	38.802	5041.102	7.406	9874.786	-3.716	259.915	378.820	1.168
S.D.	0.680	92.172	1.352	142.542	1.218	22.966	5.087	18.287
% R.S.D.	1.751	1.828	18.260	1.443	32.769	8.836	1.343	1566.024

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-3.362	9966.148	4963.522	5189.136	5005.418	4883.516	0.006	0.178
S.D.	0.571	186.534	98.798	97.088	91.334	121.161	2.058	0.103
% R.S.D.	16.983	1.872	1.990	1.871	1.825	2.481	37116.685	57.723

	Tl (ppb)
Mean	-28.703
S.D.	25.901
% R.S.D.	90.240

Corrected Counts Statistics 11:04 AM January 22, 1992

Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

te	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.152	0.006	
Sr	2	0.011	0.008	
Bi	3	5.006	0.041	
Ta	5	-0.051	0.012	
Hg	6	1.604	0.022	
Sn	7	-0.014	0.027	
Si	8	-0.009	0.002	
Al	9	1.183	0.002	
W	10	-0.021	0.020	
Zn	11	0.032	0.009	
Cu	12	0.100	0.001	
Li	14	-0.018	0.012	
Co	15	0.012	0.010	
Ni	16	-0.094	0.011	
La	17	1.297	0.006	
Eu	18	80.055	0.385	
Fe	19	0.014	0.008	
Ca	20	0.849	0.006	
Cr	21	0.005	0.004	
Nd	22	12.094	0.105	
Ce	24	1.886	0.006	
Sm	25	1.815	0.005	
Ba	26	-0.435	0.002	
[illegible]	27	0.018	0.003	
	28	0.020	0.008	
Mg	29	0.013	0.002	
As	30	0.087	0.002	
Na	31	0.031	0.020	
Mo	32	0.019	0.004	
Se	33	-0.050	0.002	
Ag	34	16.731	0.051	
Pb	35	2.868	0.020	
Ti	36	-0.141	0.001	
Cd	37	-0.044	0.018	
B	38	0.016	0.023	
K	39	-0.071	0.002	
Mn	40	-0.003	0.002	
Sb	42	-0.008	0.011	
V	43	0.068	0.001	
Be	44	-0.004	0.002	
Tl	45	-0.046	0.005	

Identity 1: SST2 STD 2948AD Identity 2: Direct 11:05 AM 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)
Mean	-78.344	0.039	5096.781	-21.974	1716.981	-1.323	-85.283	301.801

S.D.	2.451	0.313	41.202	6.849	1264.433	5.871	1.074	0.946
% R.S.D.	3.128	799.967	0.806	31.170	73.643	493.886	1.259	0.313

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	962.109	-29.607	11.850	-1.682	3.588	-10.030	5236.812	5262.497
S.D.	618.198	0.733	0.131	1.164	2.269	2.539	25.892	25.304
% R.S.D.	64.254	2.476	1.103	69.195	63.225	25.314	0.494	0.481

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	2.435	97.682	3.970	5323.555	5036.866	5347.993	-25.937	24.791
S.D.	2.645	1.010	1.731	46.433	15.085	15.512	0.091	19.904
% R.S.D.	108.606	1.034	43.588	0.872	0.299	0.290	0.351	80.286

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	13.870	-1.850	100.130	-31.605	0.000	4.878	5141.919	5018.979
S.D.	8.094	0.314	2.084	12.407	1.205	6.038	15.508	35.395
% R.S.D.	58.355	16.973	2.081	39.256	1383018.090	123.781	0.302	0.705

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-5.895	1.910	5.163	-172.408	-0.616	-5.252	28.977	0.593
S.D.	0.076	0.722	4.501	8.921	0.147	57.862	0.778	0.272
% R.S.D.	1.283	37.802	87.169	5.175	23.876	1101.747	2.685	45.823

	Tl (ppb)
Mean	100.605
	38.013
S.D.	37.784

Corrected Counts Statistics 11:06 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	2R.S.D. Kpulses
Zr	1	23.446	0.159	
Sr	2	0.020	0.005	
Bi	3	-1.907	0.043	
Ta	5	16.455	0.166	
Hg	6	28.065	0.158	
Sn	7	0.069	0.032	
Si	8	12.850	0.095	
Al	9	11.890	0.086	
W	10	32.465	0.273	
Zn	11	0.047	0.004	
Cu	12	0.066	0.005	
Li	14	-0.008	0.007	
[illegible]	15	-0.077	0.005	
	16	0.272	0.009	
--	17	-0.007	0.001	

Eu	18	-0.147	0.007
Fe	19	0.020	0.006
Ca	20	0.204	0.002
Cr	21	0.020	0.001
	22	-0.007	0.033
Ce	24	0.033	0.011
Sm	25	-0.085	0.009
Ba	26	0.007	0.009
P	27	1.620	0.007
S	28	4.792	0.041
Mg	29	0.012	0.000
As	30	4.112	0.037
Na	31	0.098	0.019
Mo	32	32.850	0.279
Se	33	1.584	0.010
Ag	34	-0.087	0.021
Pb	35	-0.089	0.011
Ti	36	37.408	0.264
Cd	37	-0.230	0.023
B	38	0.036	0.011
K	39	-0.044	0.011
Mn	40	0.019	0.003
Sb	42	0.028	0.006
V	43	14.604	0.110
Be	44	55.017	0.356
Tl	45	0.662	0.003

Identity 1: SST3 STD 3B48AD Identity 2: Direct 11:07 AM 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)
Mean	10308.359	0.378	-1872.102	9781.113	1499509.434	17.048	8953.294	4688.025
S.D.	70.167	0.193	43.700	98.374	8927.619	7.096	66.507	35.052
% R.S.D.	0.681	51.030	2.334	1.006	0.595	41.621	0.743	0.748

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-996560.951	-28.320	4.001	-0.706	-16.520	73.421	-12.080	-4.838
S.D.	8367.794	0.309	1.140	0.672	1.151	2.090	2.325	0.461
% R.S.D.	0.840	1.092	28.483	95.119	6.966	2.846	19.247	9.535

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	4.341	-8.948	9.926	-35.368	-37.341	-222.764	0.378	9941.967
S.D.	1.749	0.252	0.397	14.491	28.985	27.238	0.564	40.602
% R.S.D.	40.299	2.819	4.000	40.971	77.624	12.227	149.236	0.408

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	5156.973	-2.124	4944.541	8.729	9891.827	4505.221	4.289	-160.565
S.D.	44.091	0.000	44.330	11.686	84.108	27.097	6.263	19.374
% R.S.D.	0.855	0.000	0.897	133.873	0.850	0.601	146.030	12.066

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	4913.038	-5.490	9.165	-18.610	1.648	183.855	9823.277	9787.579
.	34.551	0.933	2.124	65.124	0.243	28.931	73.824	63.273
D.	0.703	17.000	23.175	349.949	14.744	15.736	0.752	0.646

	Tl (ppb)
Mean	5189.108
S.D.	21.947
% R.S.D.	0.423

Corrected Counts Statistics 11:09 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	0.007	0.011	
Sr	2	0.014	0.011	
Bi	3	-0.459	0.011	
Ta	5	0.013	0.011	
Hg	6	1.574	0.003	
Sn	7	0.001	0.035	
Si	8	1.341	0.005	
	9	2.636	0.019	
	10	0.070	0.023	
Zn	11	11.759	0.068	
Cu	12	4.365	0.023	
Li	14	-0.014	0.012	
Co	15	4.414	0.020	
Ni	16	4.269	0.024	
La	17	-0.005	0.001	
Eu	18	-0.081	0.011	
Fe	19	3.103	0.014	
Ca	20	6.118	0.039	
Cr	21	2.543	0.026	
Nd	22	0.149	0.046	
Ce	24	0.019	0.009	
Sm	25	-0.066	0.011	
Ba	26	16.564	0.105	
P	27	0.015	0.001	
S	28	0.051	0.013	
Mg	29	4.827	0.031	
As	30	0.828	0.012	
Na	31	1.672	0.006	
Mo	32	3.240	0.032	
Se	33	0.376	0.006	
Ag	34	3.241	0.014	
Pb	35	0.556	0.008	
Ti	36	7.439	0.040	
	37	24.522	0.168	
	38	4.797	0.058	
K	39	1.642	0.006	

Mo	40	10.207	0.049
Sb	42	0.192	0.016
V	43	1.483	0.008
K-	44	5.343	0.030
	45	0.068	0.006

Identity 1: ICV Identity 2: ICV 11:09 AM 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)	Mg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-8.361	0.143	-411.990	15.838	18.868	2.058	863.840	896.800
S.D.	4.960	0.432	11.331	6.515	149.760	7.640	3.719	7.734
% R.S.D.	59.328	301.645	2.750	41.135	793.725	371.310	0.431	0.862

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-1837.222	976.596	977.545	-1.312	990.682	984.850	-6.711	-0.547
S.D.	711.836	5.830	5.244	1.233	4.535	5.573	2.325	0.723
% R.S.D.	38.745	0.597	0.536	94.002	0.458	0.566	34.648	132.217

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	983.675	966.660	1011.739	26.493	-74.772	-166.089	987.579	4.152
S.D.	4.297	6.441	10.202	20.291	24.700	32.246	6.231	6.192
% R.S.D.	0.437	0.666	1.008	76.590	33.034	19.415	0.631	149.137

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	39.654	987.327	992.438	966.209	970.482	952.253	1020.858	969.231
S.D.	13.516	6.388	14.792	3.349	9.571	13.593	4.406	14.049
% R.S.D.	34.086	0.647	1.491	0.347	0.986	1.428	0.432	1.450

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	987.175	979.202	930.951	9832.303	985.073	1043.592	982.355	951.751
S.D.	5.241	6.698	11.308	33.210	4.690	85.995	5.102	5.304
% R.S.D.	0.531	0.684	1.215	0.338	0.476	8.240	0.519	0.557

	Tl (ppb)
Mean	917.160
S.D.	42.093
% R.S.D.	4.589

Corrected Counts Statistics 11:11 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	0.009	0.010
Sr	2	-0.008	0.010
	3	-0.088	0.034
	5	-0.023	0.015
	6	1.598	0.011
Sn	7	-0.017	0.024
Si	8	0.092	0.007
Al	9	0.366	0.030
W	10	-0.029	0.038
Zn	11	0.051	0.007
Cu	12	0.040	0.007
Li	14	-0.024	0.006
Co	15	-0.037	0.018
Ni	16	-0.060	0.007
La	17	-0.007	0.001
Eu	18	-0.101	0.010
Fe	19	0.001	0.014
Ca	20	0.276	0.002
Cr	21	-0.005	0.002
Nd	22	0.064	0.099
Ce	24	0.012	0.016
Sm	25	-0.048	0.013
Ba	26	-0.024	0.013
P	27	0.015	0.001
S	28	0.024	0.017
Mg	29	0.008	0.001
As	30	-0.009	0.008
Na	31	0.029	0.022
	32	0.005	0.006
	33	-0.032	0.005
Hg	34	-0.114	0.006
Pb	35	-0.015	0.009
Ti	36	-0.124	0.011
Cd	37	-0.136	0.023
B	38	0.030	0.002
K	39	-0.067	0.008
Mn	40	0.002	0.002
Sb	42	-0.034	0.020
V	43	0.032	0.004
Be	44	-0.006	0.002
Tl	45	-0.030	0.004

Identity 1: ICB Identity 2: ICB 11:12 AM 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)
Mean	-7.334	-0.704	-38.645	-5.543	1358.491	-1.911	-14.292	-32.911
S.D.	4.342	0.408	33.774	8.915	605.246	5.249	4.784	12.469
% R.S.D.	59.212	58.002	87.395	160.845	44.553	274.750	33.476	37.887

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)

Mean	1228.249	-28.006	-1.886	-2.287	-7.475	-2.278	-12.080	-1.839
S.D.	1152.742	0.571	1.508	0.605	4.055	1.644	4.650	0.686
% R.S.D.	93.852	2.040	79.940	26.471	54.250	72.184	38.494	37.290

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Mg (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-1.482	2.861	0.132	-4.005	-94.857	-112.345	-1.471	2.088
S.D.	4.496	0.343	0.826	43.784	42.782	36.653	0.760	7.150
% R.S.D.	303.309	11.999	624.205	1093.188	45.102	32.625	51.653	342.447

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	19.730	-2.877	-15.425	-32.821	-4.218	56.229	-4.061	-30.361
S.D.	17.785	0.237	9.401	13.601	1.808	12.543	1.858	15.169
% R.S.D.	90.139	8.248	60.949	41.439	42.858	22.307	45.757	49.963

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-3.624	-1.737	7.874	-152.940	-0.066	-145.331	4.722	0.237
S.D.	1.476	0.930	0.296	48.632	0.201	102.444	2.805	0.411
% R.S.D.	40.733	53.570	3.756	31.798	303.045	70.490	59.406	173.179

	Tl (ppb)
Mean	213.151
S.D.	25.229
% R.S.D.	11.836

Corrected Counts Statistics 11:13 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	0.006	0.004	
Sr	2	0.097	0.002	
Bi	3	-0.101	0.027	
Ta	5	-0.023	0.004	
Hg	6	2.053	0.006	
Sn	7	6.252	0.007	
Si	8	0.544	0.008	
Al	9	610.430	2.955	
W	10	-0.041	0.041	
Zn	11	0.262	0.002	
Cu	12	0.037	0.006	
Li	14	-0.034	0.004	
Co	15	-0.029	0.017	
Ni	16	-0.081	0.009	
La	17	-0.049	0.001	
Eu	18	0.050	0.010	
Fe	19	313.522	2.133	
	20	1171.411	5.581	
	21	0.008	0.012	
Nd	22	3.540	0.067	

Ce	24	-0.006	0.009
Sm	25	-8.823	0.007
Ba	26	0.006	0.006
	27	0.023	0.002
	28	2.403	0.019
	29	975.510	4.766
As	30	0.129	0.007
Na	31	0.064	0.028
Mo	32	0.003	0.008
Se	33	-0.040	0.007
Ag	34	-0.125	0.004
Pb	35	-0.129	0.007
Ti	36	-0.093	0.002
Cd	37	0.266	0.040
B	38	-0.463	0.011
K	39	-0.064	0.009
Mn	40	1.757	0.015
Sb	42	-0.027	0.012
V	43	0.019	0.001
Be	44	-0.001	0.001
Tl	45	-0.072	0.004

Identity 1: ICSA-I Identity 2: ICSA 11:15 AM 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)
Mean	-8.801	3.415	-51.079	-5.543	27150.943	1380.020	303.410	249900.856
S.D.	1.919	0.090	27.375	2.473	311.749	1.468	5.681	1210.422
% R.S.D.	21.800	2.644	53.593	44.610	1.148	0.106	1.872	0.484

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	1586.463	-9.873	-2.414	-3.330	-5.606	-7.142	-183.911	8.100
S.D.	1257.482	0.172	1.247	0.408	3.860	2.069	2.325	0.631
% R.S.D.	79.263	1.738	51.654	12.247	68.858	28.968	1.264	7.791

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	99579.649	193593.761	5.161	128.538	-144.157	-25837.885	0.338	55.750
S.D.	677.536	922.608	4.959	22.928	23.401	20.590	0.372	12.889
% R.S.D.	0.680	0.477	96.076	17.838	16.233	0.080	110.206	23.120

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	884.787	200470.201	150.284	-11.742	-4.921	33.985	-7.523	-230.630
S.D.	23.215	979.524	8.541	17.025	2.454	20.414	1.073	12.911
% R.S.D.	2.624	0.489	5.684	144.993	49.865	60.069	14.260	5.598

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
	0.437	14.268	-87.454	-133.472	32.530	-106.809	-3.812	1.186
	0.227	1.610	2.034	49.901	0.833	63.036	0.674	0.178
% R.S.D.	51.962	11.282	2.326	37.387	2.562	59.017	17.673	15.000

	Tl (ppb)
Mean	-86.173
	25.901
S.D.	30.058

Corrected Counts Statistics 11:16 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	0.050	0.022	
Sr	2	0.147	0.023	
Bi	3	-0.119	0.058	
Ta	5	-0.013	0.025	
Hg	6	2.067	0.015	
Sn	7	6.352	0.100	
Si	8	0.575	0.031	
Al	9	607.610	3.626	
W	10	0.059	0.070	
Zn	11	12.152	0.085	
Cu	12	2.289	0.026	
Li	14	0.004	0.023	
Co	15	2.230	0.028	
	16	4.326	0.087	
	17	-0.044	0.001	
Eu	18	0.097	0.025	
Fe	19	315.737	3.359	
Ca	20	1175.459	8.927	
Cr	21	1.372	0.014	
Nd	22	3.664	0.142	
Ce	24	0.059	0.032	
Sm	25	-8.886	0.034	
Ba	26	8.700	0.080	
P	27	0.017	0.001	
S	28	2.422	0.046	
Mg	29	979.235	9.800	
As	30	0.125	0.011	
Na	31	0.165	0.054	
Mo	32	0.008	0.012	
Se	33	0.037	0.017	
Ag	34	3.356	0.032	
Pb	35	0.499	0.033	
Ti	36	-0.044	0.022	
Cd	37	25.885	0.446	
B	38	-0.482	0.007	
K	39	-0.052	0.023	
Mn	40	7.016	0.066	
Sb	42	0.003	0.015	
V	43	0.804	0.015	
	44	2.877	0.037	
Tl	45	-0.042	0.022	

Identity 1: ICSAB-I Identity 2: ICSAB 11:17 AM 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)
Mean	10.419	5.356	-69.561	0.396	27905.660	1402.212	325.434	248745.545
S.D.	9.786	0.881	58.758	14.946	864.637	21.935	22.015	1485.418
% R.S.D.	93.925	16.452	84.469	3770.975	3.098	1.564	6.765	0.597

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-1497.117	1010.316	507.491	0.538	500.985	997.694	-162.432	11.143
S.D.	2144.266	7.322	5.949	2.281	6.200	19.776	4.027	1.636
% R.S.D.	143.226	0.725	1.172	423.849	1.238	1.982	2.479	14.679

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	100283.182	194261.944	546.696	178.607	32.957	-26021.590	518.693	18.599
S.D.	1066.959	1475.569	5.501	52.794	87.014	99.885	4.763	7.150
% R.S.D.	1.064	0.760	1.006	29.559	264.025	0.384	0.918	38.441

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	899.760	201235.717	146.076	49.468	-3.314	122.380	1055.989	869.388
S.D.	36.132	2013.878	13.405	32.792	3.475	45.798	9.699	58.262
[illegible].D.	4.016	1.001	9.177	66.288	104.844	37.423	0.918	6.701

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	6.812	1033.423	-91.133	-61.440	539.988	50.780	525.318	513.170
S.D.	2.918	17.746	1.427	131.681	5.333	79.492	10.136	6.565
% R.S.D.	42.843	1.717	1.566	214.325	0.988	156.542	1.930	1.279

	Tl (ppb)
Mean	131.735
S.D.	158.260
% R.S.D.	120.136

Corrected Counts Statistics 11:18 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	-0.001	0.005	
[illegible]	2	-0.008	0.004	
	3	-0.084	0.010	
[illegible]	5	-0.012	0.016	

Hg	6	1.570	0.014
Sn	7	-0.019	0.015
Si	8	0.088	0.012
Al	9	0.361	0.013
	10	-0.046	0.013
Zn	11	0.049	0.002
Cu	12	0.039	0.004
Li	14	-0.032	0.010
Co	15	0.007	0.009
Ni	16	-0.098	0.019
La	17	-0.004	0.001
Eu	18	-0.093	0.004
Fe	19	0.025	0.018
Ca	20	0.371	0.040
Cr	21	-0.012	0.002
Nd	22	0.184	0.032
Ce	24	0.008	0.003
Sm	25	-0.043	0.009
Ba	26	-0.027	0.005
P	27	0.010	0.002
S	28	0.002	0.004
Mg	29	0.081	0.032
As	30	0.006	0.007
Na	31	0.011	0.010
Nb	32	-0.005	0.008
Se	33	-0.046	0.007
Ag	34	-0.120	0.006
Pb	35	-0.026	0.002
Ti	36	-0.124	0.004
[illegible]	37	-0.124	0.045
B	38	-0.021	0.012
K	39	-0.057	0.005
Mn	40	0.000	0.002
Sb	42	-0.000	0.007
V	43	0.023	0.002
Be	44	-0.007	0.001
Tl	45	-0.060	0.006

Identity 1: XXX Identity 2: Rinse 11:19 AM 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)
Mean	-12.028	-0.704	-33.940	0.990	-188.679	-2.278	-17.103	-35.233
S.D.	1.985	0.170	9.895	9.207	768.506	3.309	8.147	5.188
% R.S.D.	16.500	24.216	29.153	929.772	407.308	145.268	47.631	14.724

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	1729.799	-28.120	-1.961	-3.128	2.317	-11.018	-2.683	-1.313
S.D.	388.812	0.131	0.943	1.011	1.907	4.292	2.325	0.263
% R.S.D.	22.477	0.466	48.062	32.312	82.305	38.954	86.647	20.002

	Fe	Ca	Cr	Nd	Ce	Sm	Ba	P

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	6.035	18.626	-2.779	49.033	-106.726	-99.642	-1.630	-24.743
[illegible]	5.565	6.547	0.688	14.023	7.906	24.932	0.273	12.889
[illegible].D.	92.217	35.153	24.744	28.600	7.408	25.021	16.766	52.092

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-4.115	11.988	3.031	-43.969	-7.231	19.248	-5.996	-49.045
S.D.	3.840	6.552	7.832	5.864	2.275	18.700	1.737	3.646
% R.S.D.	93.325	54.651	258.425	13.336	31.458	97.154	28.971	7.435

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-3.581	-1.246	-1.872	-94.536	-0.206	33.270	-0.893	0.119
S.D.	0.529	1.783	2.342	28.810	0.150	35.756	1.403	0.178
% R.S.D.	14.786	143.059	125.140	30.476	72.675	107.473	157.095	149.955

	Tl (ppb)
Mean	-2.362
S.D.	43.302
% R.S.D.	1833.046

Corrected Counts Statistics 11:20 AM January 22, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
k Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.013	0.006	
Sr	2	0.000	0.007	
Bi	3	-0.038	0.016	
Ta	5	0.035	0.004	
Hg	6	1.572	0.009	
Sn	7	-0.021	0.017	
Si	8	0.114	0.006	
Al	9	0.338	0.027	
W	10	-0.002	0.037	
Zn	11	0.505	0.007	
Cu	12	0.261	0.006	
Li	14	-0.030	0.014	
Co	15	0.424	0.009	
Ni	16	0.262	0.016	
La	17	-0.003	0.001	
Eu	18	-0.073	0.016	
Fe	19	-0.016	0.014	
Ca	20	0.141	0.001	
Cr	21	0.063	0.012	
Nd	22	0.062	0.075	
Ce	24	0.026	0.008	
[illegible]	25	-0.018	0.012	
	26	-0.007	0.012	
	27	0.016	0.004	
S	28	0.001	0.012	

Mg	29	0.008	0.002
As	30	0.012	0.015
Na	31	0.048	0.005
Mo	32	-0.005	0.004
Se	33	-0.037	0.008
K	34	-0.045	0.008
Pb	35	-0.004	0.017
Ti	36	-0.117	0.007
Cd	37	0.095	0.040
B	38	0.015	0.018
K	39	-0.052	0.008
Mn	40	0.309	0.010
Sb	42	0.032	0.017
V	43	0.160	0.002
Be	44	0.045	0.001
Tl	45	-0.066	0.010

Identity 1: CRI-I Identity 2: CRI 11:21 AM 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)
Mean	-5.866	-0.391	11.762	28.904	-75.472	-2.792	1.640	-44.656
S.D.	2.424	0.274	16.391	2.473	507.333	3.709	3.997	11.102
% R.S.D.	41.322	70.000	139.357	8.555	672.216	132.810	243.696	24.861

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	378.575	10.976	48.154	-2.893	95.981	71.217	2.686	0.000
S.D.	1128.336	0.563	1.287	1.413	1.907	3.535	4.027	1.043
% R.S.D.	298.048	5.126	2.674	48.837	1.987	4.963	149.924	715266.381

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-6.882	-19.504	26.865	-5.024	-56.513	-24.401	-0.417	10.344
S.D.	4.289	0.094	4.852	33.129	20.678	35.823	0.716	22.325
% R.S.D.	62.322	0.483	18.059	659.438	36.590	146.808	171.627	215.833

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	-5.576	-2.946	9.863	-21.674	-7.332	37.364	16.916	-10.510
S.D.	12.396	0.356	17.973	2.999	1.141	21.591	2.313	30.153
% R.S.D.	222.308	12.084	182.234	13.839	15.559	57.785	13.674	286.906

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-2.751	7.439	5.034	-65.333	29.604	201.365	90.964	9.309
S.D.	0.966	1.589	3.426	45.366	0.968	88.265	1.556	0.103
% R.S.D.	35.101	21.365	68.045	69.437	3.268	43.833	1.711	1.103

	Tl (ppb)
Mean	-43.070
S.D.	68.529

% R.S.D. 159.109

C ed Counts Statistics 11:22 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	0.004	0.004	
Sr	2	0.007	0.004	
Bi	3	-0.232	0.009	
Ta	5	0.001	0.006	
Hg	6	1.560	0.017	
Sn	7	-0.011	0.013	
Si	8	0.764	0.022	
Al	9	1.481	0.022	
W	10	0.042	0.018	
Zn	11	5.974	0.017	
Cu	12	2.213	0.010	
Ti	14	-0.013	0.009	
Co	15	2.233	0.006	
Ni	16	2.151	0.013	
La	17	-0.003	0.000	
Eu	18	-0.089	0.004	
Fe	19	1.536	0.021	
	20	3.460	0.010	
	21	1.273	0.010	
Nd	22	0.063	0.057	
Ce	24	0.019	0.011	
Gd	25	-0.047	0.009	
Ba	26	8.359	0.030	
P	27	0.019	0.002	
S	28	0.018	0.008	
Mg	29	2.437	0.010	
As	30	0.421	0.009	
Na	31	0.866	0.020	
Mo	32	1.595	0.008	
Se	33	0.169	0.005	
Ag	34	1.579	0.005	
Pb	35	0.262	0.005	
Ti	36	3.655	0.022	
Cd	37	12.377	0.064	
B	38	2.415	0.027	
K	39	0.788	0.005	
Mn	40	5.150	0.025	
Sb	42	0.089	0.018	
V	43	0.765	0.006	
Be	44	2.689	0.012	
Tl	45	0.010	0.006	

/ 1: CCV-1 Identity 2: CCV 11:23 AM 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 (ppa)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-9.534	-0.130	-183.480	9.107	-792.453	-0.661	458.512	423.751
S.D.	1.546	0.137	8.789	3.818	940.940	2.877	15.722	8.872
% R.S.D.	16.212	105.358	4.790	41.927	118.738	435.034	3.429	2.094

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-974.913	480.216	490.207	-1.211	501.583	501.926	2.686	-1.051
S.D.	551.309	1.489	2.160	0.910	1.364	2.851	0.000	0.286
% R.S.D.	56.550	0.310	0.441	75.154	0.272	0.568	0.000	27.247

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Mo (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	485.962	528.233	507.391	-8.414	-76.598	-110.391	498.381	28.919
S.D.	6.723	1.618	4.145	25.228	29.541	26.867	1.760	10.724
% R.S.D.	1.383	0.306	0.817	299.845	38.566	24.338	0.353	37.085

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	8.657	496.301	502.751	476.119	474.746	494.734	513.032	454.838
S.D.	8.963	2.058	10.855	12.347	2.435	13.911	1.507	8.027
% R.S.D.	103.527	0.415	2.159	2.593	0.513	2.812	0.294	1.765

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	491.382	496.059	469.800	4842.602	496.835	504.287	499.041	479.670
S.D.	2.826	2.560	5.272	26.764	2.430	94.164	3.711	2.157
% R.S.D.	0.575	0.516	1.122	0.553	0.489	18.673	0.744	0.450

	Tl (ppb)
Mean	502.896
S.D.	44.863
% R.S.D.	8.921

Corrected Counts Statistics 11:24 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	0.021	0.004	
Sr	2	0.005	0.002	
Bi	3	-0.067	0.028	
Ta	5	0.006	0.014	
Hg	6	1.566	0.019	
Sn	7	-0.011	0.031	
[illegible]	8	0.097	0.005	
Al	9	0.360	0.008	
W	10	0.017	0.024	

Zn	11	0.049	0.003
Cu	12	0.047	0.003
[illegible]	14	-0.009	0.005
	15	-0.031	0.006
	16	-0.082	0.010
La	17	-0.004	0.001
Eu	18	-0.083	0.008
Fe	19	-0.003	0.011
Ca	20	0.276	0.002
Cr	21	-0.010	0.006
Nd	22	0.089	0.041
Ce	24	0.030	0.011
Sm	25	-0.013	0.004
Ba	26	-0.003	0.007
P	27	0.014	0.004
S	28	0.011	0.011
Mg	29	0.007	0.001
As	30	-0.013	0.010
Na	31	0.050	0.017
Mo	32	0.012	0.005
Se	33	-0.064	0.015
Ag	34	-0.120	0.004
Pb	35	-0.020	0.011
Ti	36	-0.114	0.004
Cd	37	-0.159	0.032
B	38	0.011	0.009
K	39	-0.056	0.002
Mn	40	0.005	0.008
Sb	42	-0.008	0.010
	43	0.014	0.002
	44	-0.008	0.001
Tl	45	-0.073	0.004

Identity 1: CCB-1 Identity 2: CCV 11:25 AM 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)
Mean	-2.199	-0.182	-17.138	11.681	-433.962	-0.661	-10.543	-35.506
S.D.	1.587	0.081	28.228	8.020	1075.472	6.849	3.221	3.277
% R.S.D.	72.182	44.608	164.706	68.657	247.826	1035.648	30.551	9.231

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-204.698	-28.177	-0.150	-0.740	-6.055	-7.218	0.001	-0.657
S.D.	737.151	0.248	0.570	0.508	1.235	2.307	2.325	0.513
% R.S.D.	360.117	0.879	379.885	68.635	20.398	31.955	170166.197	78.120

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-2.859	2.976	-2.117	7.067	-46.470	-11.698	-0.179	-2.040
	3.346	0.252	2.326	18.166	30.169	11.098	0.397	26.989
.S.D.	117.065	8.484	109.868	257.039	64.921	94.871	221.944	1322.983

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	[illegible] (ppb)
Mean	5.002	-3.220	-20.642	-20.458	-2.109	-31.389	-5.894	-39.703
S.D.	12.253	0.119	12.057	10.485	1.594	39.623	1.222	19.531
% R.S.D.	244.931	3.685	58.410	51.252	75.596	126.232	20.732	49.193

	Tl (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-2.314	-2.652	4.260	-84.801	0.255	-8.754	-7.406	-0.059
S.D.	0.524	1.273	1.688	13.488	0.729	52.879	1.403	0.178
% R.S.D.	22.642	48.005	39.626	15.905	285.468	604.063	18.938	300.181

	Tl (ppb)
Mean	-90.962
S.D.	29.033
% R.S.D.	31.918

Corrected Counts Statistics 11:27 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	4.589	0.044	
Sr	2	49.619	0.417	
Bi	3	0.514	0.014	
Ta	5	1.319	0.003	
Hg	6	6.515	0.022	
Sn	7	4.415	0.061	
Sr	8	4.821	0.044	
Al	9	3.174	0.023	
W	10	6.237	0.094	
Zn	11	22.928	0.251	
Cu	12	4.260	0.034	
Li	14	19.140	0.154	
Co	15	8.520	0.086	
Ni	16	4.168	0.036	
La	17	0.248	0.002	
Eu	18	15.230	0.169	
Fe	19	3.225	0.028	
Ca	20	20.962	0.195	
Cr	21	2.504	0.026	
Nd	22	2.368	0.047	
Ce	24	0.432	0.008	
Sm	25	0.217	0.006	
Ba	26	32.574	0.278	
P	27	0.327	0.003	
S	28	1.054	0.021	
Mg	29	5.554	0.049	
As	30	0.800	0.023	
Na	31	5.238	0.021	
Mo	32	6.448	0.066	
Se	33	0.376	0.012	

Ag	34	3.147	0.027
Pb	35	0.550	0.012
Ti	36	7.243	0.061
[illegible]	37	46.456	0.258
	38	8.109	0.066
K	39	0.135	0.004
Mn	40	9.941	0.079
Sb	42	0.179	0.008
V	43	2.885	0.030
Be	44	10.591	0.088
Tl	45	0.086	0.005

Identity 1: R931 Dig. STB 10-50 Identity 2: 1B48Z,2B48AA,3B48AA 11:30 AM 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)	Mg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	2008.240	1939.573	568.251	791.485	279698.113	975.126	3310.099	1117.347
S.D.	19.258	16.322	14.586	1.714	1233.651	13.453	31.089	9.225
% R.S.D.	0.959	0.842	2.567	0.217	0.441	1.380	0.939	0.826

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-191202.547	1934.838	953.771	1931.613	1911.546	961.821	1013.534	1005.016
S.D.	2891.862	21.546	7.759	15.520	19.278	8.225	6.975	11.088
R.S.D.	1.512	1.114	0.814	0.803	1.009	0.855	0.688	1.103

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	1022.319	3420.542	995.991	991.688	1056.380	662.538	1942.186	1935.989
S.D.	8.873	32.252	10.484	20.572	22.138	18.617	16.599	18.575
% R.S.D.	0.868	0.943	1.053	2.074	2.096	2.810	0.855	0.959

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	1098.937	1136.800	958.328	3134.524	1937.047	954.878	992.040	959.889
S.D.	22.195	10.032	27.563	12.466	19.757	32.349	8.165	20.897
% R.S.D.	2.020	0.882	2.876	0.398	1.020	3.388	0.823	2.177

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	961.412	1851.736	1572.174	1028.780	957.577	975.303	1927.423	1885.299
S.D.	7.964	10.270	12.811	25.458	7.626	39.659	19.923	15.714
% R.S.D.	0.828	0.555	0.815	2.475	0.796	4.066	1.034	0.833

	Tl (ppb)
Mean	1051.257
S.D.	35.437
% R.S.D.	3.371

Corrected Counts Statistics 11:32 AM January 22, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.026	0.003	
Sr	2	0.145	0.004	
Bi	3	-0.069	0.026	
Ta	5	-0.000	0.012	
Hg	6	1.564	0.003	
Sn	7	0.007	0.012	
Si	8	1.418	0.022	
Al	9	0.813	0.020	
W	10	0.001	0.011	
Zn	11	0.696	0.008	
Cu	12	0.071	0.005	
Li	14	0.013	0.006	
Co	15	-0.019	0.012	
Ni	16	-0.003	0.016	
La	17	-0.002	0.000	
Eu	18	-0.059	0.005	
Fe	19	0.155	0.023	
Ca	20	11.641	0.083	
Cr	21	-0.002	0.001	
Nd	22	0.191	0.004	
Ce	24	0.044	0.005	
Sm	25	-0.061	0.004	
Ba	26	0.055	0.003	
P	27	0.017	0.001	
S	28	0.119	0.003	
Mg	29	1.210	0.004	
As	30	0.007	0.001	
Na	31	2.949	0.006	
Mo	32	-0.000	0.006	
Se	33	-0.057	0.006	
Ag	34	-0.095	0.003	
Pb	35	0.016	0.006	
Tl	36	-0.092	0.004	
Cd	37	-0.043	0.045	
B	38	3.442	0.019	
K	39	-0.032	0.004	
Mn	40	0.038	0.002	
Sb	42	-0.028	0.005	
V	43	0.024	0.001	
Be	44	-0.009	0.001	
Tl	45	-0.053	0.004	

Identity 1: R932 Dig. Blank Identity 2: Direct 11:36 AM 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)

Mean	0.002	5.278	-19.155	8.117	-528.302	3.454	917.728	150.081
S.D.	1.165	0.141	25.742	6.960	172.927	2.612	15.437	8.163
% R.S.D.	53674.731	2.671	134.391	85.744	32.733	75.614	1.682	5.439

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	286.585	27.364	5.133	1.413	-3.364	10.795	6.714	0.898
S.D.	325.448	0.670	1.070	0.649	2.618	3.686	0.000	0.296
% R.S.D.	113.561	2.449	20.845	45.922	77.842	34.146	0.000	32.989

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	47.432	1881.626	1.323	38.447	-8.126	-150.454	3.240	14.471
S.D.	7.147	13.726	0.229	2.030	12.650	11.098	0.150	3.575
% R.S.D.	15.068	0.729	17.320	5.281	155.670	7.377	4.632	24.703

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	105.623	244.006	3.835	1742.692	-5.825	-13.804	1.845	23.939
S.D.	2.605	0.856	1.204	3.665	1.659	15.672	0.769	9.753
% R.S.D.	2.467	0.351	31.392	0.210	28.488	113.537	41.668	40.740

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	0.568	1.950	668.524	51.476	2.146	-110.311	-0.668	-0.178
S.D.	0.472	1.790	3.696	23.604	0.213	25.912	0.389	0.205
% R.S.D.	83.205	91.830	0.553	45.854	9.944	23.490	58.214	115.493

	Tl (ppb)
	50.319
S.D.	28.735
% R.S.D.	57.106

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	0.036	0.007	
Sr	2	0.130	0.009	
Bi	3	-0.065	0.036	
Ta	5	0.003	0.007	
Hg	6	1.574	0.007	
Sn	7	0.060	0.010	
Si	8	3.181	0.029	
Al	9	49.815	0.595	
W	10	0.134	0.008	
Zn	11	0.486	0.009	
Cu	12	0.382	0.005	
	14	0.309	0.007	
	15	0.000	0.017	
Ni	16	0.019	0.009	

La	17	-0.003	0.002
Eu	18	-0.060	0.017
Fe	19	0.145	0.017
Ca	20	5.826	0.076
Cr	21	1.761	0.015
Nd	22	0.277	0.050
Ce	24	0.066	0.013
Sm	25	-0.023	0.013
Ba	26	0.073	0.016
P	27	1.211	0.012
S	28	27.631	0.332
Mg	29	1.028	0.012
As	30	-0.011	0.011
Na	31	1197.640	12.602
Mo	32	0.146	0.005
Se	33	0.024	0.008
Ag	34	-0.097	0.006
Pb	35	0.008	0.003
Ti	36	-0.086	0.009
Cd	37	0.251	0.010
B	38	3.601	0.055
K	39	12.147	0.122
Mn	40	0.019	0.005
Sb	42	-0.010	0.006
V	43	0.020	0.003
Be	44	-0.008	0.003
Tl	45	-0.078	0.007

ID 1: R933 San 83AP891-1 Identity 2: 10ml-50ml 11:41 AM 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)
Mean	4.550	4.705	-15.122	10.295	18.868	15.064	2157.141	20225.600
S.D.	3.123	0.363	35.828	4.296	408.176	2.302	20.528	243.647
% R.S.D.	68.625	7.722	236.925	41.734	2163.331	15.279	0.952	1.205

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-3780.390	9.317	75.551	31.317	0.897	15.811	4.029	0.876
S.D.	248.210	0.750	1.021	0.706	3.701	2.044	6.152	1.107
% R.S.D.	6.566	8.046	1.351	2.256	412.557	12.925	152.701	126.445

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	44.149	918.974	701.137	83.683	53.042	-41.013	4.333	7411.591
S.D.	5.511	12.485	5.995	22.435	36.232	38.259	0.937	76.921
% R.S.D.	12.482	1.359	0.855	26.809	68.308	93.285	21.628	1.038

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	29759.832	206.672	-17.566	728177.158	38.265	53.674	1.234	10.510
S.D.	357.253	2.370	12.737	7662.481	1.381	21.498	1.683	5.631
% R.S.D.	1.200	1.147	72.506	1.052	3.608	40.053	136.339	53.576

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
	1.397	13.659	699.375	71184.413	0.992	-15.758	-3.139	0.000
	1.189	0.392	10.575	709.634	0.504	32.096	1.783	0.448
	85.067	2.869	1.512	0.997	50.855	203.684	56.795	1250865.847

	Tl (ppb)
Mean	-129.276
S.D.	51.803
% R.S.D.	40.072

Corrected Counts Statistics 11:45 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
Y	1	0.015	0.005	
Sr	2	0.113	0.006	
Mi	3	-0.110	0.017	
Ta	5	-0.017	0.015	
Hg	6	1.595	0.018	
Se	7	0.056	0.019	
	8	3.669	0.015	
	9	50.537	0.390	
	10	0.162	0.039	
Zn	11	0.425	0.002	
Cu	12	0.370	0.004	
Cl	14	0.292	0.010	
Co	15	-0.011	0.005	
Ni	16	-0.017	0.009	
La	17	-0.005	0.001	
Eu	18	-0.088	0.007	
Sm	19	0.134	0.004	
Ca	20	6.759	0.063	
Cr	21	1.789	0.010	
Nd	22	0.145	0.006	
Ce	24	0.015	0.009	
Sm	25	-0.066	0.009	
Ba	26	0.034	0.007	
P	27	1.254	0.027	
S	28	28.461	0.360	
Mg	29	1.124	0.008	
As	30	-0.016	0.002	
Na	31	1214.224	9.984	
Mo	32	0.148	0.004	
Se	33	0.016	0.005	
Ag	34	-0.111	0.001	
Pb	35	0.010	0.004	
Tl	36	-0.102	0.003	
	37	0.281	0.017	
	38	4.416	0.025	

K	39	12.115	0.096
Mn	40	0.025	0.004
Sb	42	0.006	0.004
V	43	0.024	0.003
	44	-0.007	0.001
	45	-0.069	0.002

Identity 1: R933 Dup #3AP891-1 Identity 2: 10ml-50ml 11:46 AM 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)	Mg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-4.693	4.027	-60.152	-1.781	1188.679	14.256	2499.912	20521.256
S.D.	1.985	0.218	17.354	8.789	1027.219	4.282	10.760	159.756
% R.S.D.	42.294	5.406	28.851	493.403	86.417	30.039	0.430	0.778

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-4660.692	4.083	72.985	29.635	-1.570	7.527	-5.368	-0.963
S.D.	1210.610	0.131	0.915	1.011	1.129	2.027	4.027	0.447
% R.S.D.	25.975	3.210	1.254	3.411	71.904	26.926	75.019	46.417

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	40.762	1073.180	712.254	23.800	-85.728	-165.112	1.987	7677.838
S.D.	1.284	10.451	3.787	2.441	23.294	26.599	0.419	164.092
% R.S.D.	3.149	0.974	0.532	10.255	27.172	16.110	21.071	2.137

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	30653.223	226.401	-23.580	738261.101	38.868	27.306	-3.246	12.845
S.D.	388.291	1.682	2.406	6070.893	1.313	13.341	0.353	6.151
% R.S.D.	1.267	0.743	10.204	0.822	3.379	48.856	10.866	47.889

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-0.742	14.865	857.115	70997.518	1.462	66.539	-0.219	0.178
S.D.	0.454	0.671	4.903	562.901	0.360	18.940	1.696	0.103
% R.S.D.	61.131	4.513	0.572	0.793	24.641	28.464	774.098	57.723

	Tl (ppb)
Mean	-62.227
S.D.	14.954
% R.S.D.	24.032

Corrected Counts Statistics 11:51 AM January 22, 1992
Task name : ALL_SIM
Sa[illegible] Weight : 1.0000 Solution Volume : 1.00
On[illegible] Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.034	0.017	
[illegible]	2	0.231	0.028	
	3	-0.058	0.027	
[illegible]	5	0.033	0.028	
Hg	6	1.567	0.022	
Sn	7	0.115	0.044	
Si	8	3.765	0.032	
Al	9	70.310	0.119	
W	10	0.304	0.007	
Zn	11	24.493	0.293	
Cu	12	4.862	0.015	
Li	14	0.342	0.022	
Co	15	8.737	0.053	
Ni	16	8.534	0.064	
La	17	-0.006	0.002	
Eu	18	-0.046	0.018	
Fe	19	12.631	0.022	
Ca	20	19.652	1.974	
Cr	21	3.851	0.020	
Mo	22	0.309	0.099	
Ce	24	0.083	0.031	
Sr	25	-0.063	0.030	
Ba	26	137.044	0.294	
P	27	1.179	0.032	
S	28	28.126	0.322	
Hg	29	1.287	0.030	
Mg	30	6.461	0.011	
[illegible]	31	1240.773	4.859	
	32	0.140	0.017	
[illegible]	33	2.649	0.030	
Ag	34	0.563	0.015	
Pb	35	1.133	0.014	
Ti	36	-0.049	0.020	
Cd	37	5.235	0.033	
B	38	3.731	0.033	
K	39	12.517	0.050	
Mn	40	20.357	0.069	
Sb	42	0.340	0.019	
V	43	2.991	0.017	
Be	44	1.080	0.006	
Tl	45	1.026	0.011	

Identity 1: R933 Spk N3AP891-1 Identity 2: 10ml-50ml 11:53 AM 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)
Mean	3.670	8.641	-7.729	27.914	-377.358	27.115	2567.857	28621.956
S.D.	7.330	1.080	27.244	16.405	1251.699	9.713	22.584	48.608
%RSD	199.722	12.499	352.496	58.770	331.700	35.822	0.879	0.170

	W	Zn	Cu	Li	Co	Ni	La	Eu

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-9014.856	2069.115	1090.002	34.680	1960.059	1957.157	-10.738	1.752
S.D.	221.465	25.138	3.351	2.179	11.945	14.529	6.152	1.168
% R.S.D.	2.457	1.215	0.307	6.284	0.609	0.742	57.289	66.691

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sn (ppb)	Ba (ppb)	P (ppb)
Mean	4010.082	3202.884	1531.041	80.965	100.515	-156.317	8171.131	7213.454
S.D.	6.918	326.237	7.834	41.639	83.539	86.681	17.531	195.932
% R.S.D.	0.173	10.186	0.512	51.428	83.111	55.452	0.215	2.716

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	30272.841	259.967	7773.363	754404.693	36.457	7094.097	202.654	1980.500
S.D.	344.380	6.077	13.259	2954.568	5.227	81.514	4.586	24.834
% R.S.D.	1.138	2.337	0.171	0.392	14.338	1.149	2.263	1.254

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	6.157	211.928	724.482	73343.437	1963.934	1822.783	1998.842	193.469
S.D.	2.568	1.293	6.299	292.043	6.554	98.321	11.321	1.111
% R.S.D.	41.712	0.610	0.869	0.398	0.334	5.394	0.566	0.574

	Tl (ppb)
Mean	7799.210
S.D.	79.456
% R.S.D.	1.019

Corrected Counts Statistics 12:00 PM 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
Y	1	0.037	0.003	
Sr	2	0.025	0.002	
Bi	3	-0.042	0.023	
Ta	5	0.009	0.012	
Hg	6	1.540	0.013	
Sn	7	0.009	0.033	
Si	8	0.167	0.036	
Al	9	0.447	0.012	
W	10	-0.065	0.029	
Zn	11	0.097	0.006	
Cu	12	0.063	0.004	
Li	14	0.012	0.002	
Co	15	-0.001	0.002	
Ni	16	-0.052	0.015	
La	17	-0.003	0.001	
Eu	18	-0.061	0.009	
Fe	19	0.092	0.026	
Ca	20	0.688	0.002	
Cr	21	0.003	0.001	

Nd	22	0.242	0.031
Ce	24	0.066	0.002
Sm	25	0.009	0.003
Ba	26	0.051	0.002
P	27	0.020	0.002
	28	0.014	0.004
[illegible]	29	0.010	0.001
As	30	-0.028	0.008
Na	31	0.155	0.006
Mo	32	0.019	0.003
Se	33	-0.056	0.011
Ag	34	-0.096	0.002
Pb	35	0.077	0.008
Ti	36	-0.087	0.003
Cd	37	-0.049	0.020
B	38	0.007	0.033
K	39	-0.037	0.007
Mn	40	0.042	0.002
Sb	42	-0.027	0.013
V	43	0.023	0.002
Be	44	-0.006	0.001
Tl	45	-0.055	0.002

Identity 1: R933 Sam #3AP891-1 Identity 2: 10ml-50ml-2ml-12ml 12:00 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)
Mean	4.844	0.599	7.729	13.858	-1924.528	3.821	38.658	0.273
S.D.	1.165	0.060	22.685	6.960	727.823	7.255	25.255	4.939
% R.S.D.	24.042	9.962	293.502	50.222	37.818	189.860	65.328	1808.314

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	2333.659	-24.002	3.322	1.379	0.523	-0.530	4.029	0.810
S.D.	899.609	0.488	0.857	0.210	0.467	3.338	4.650	0.592
% R.S.D.	38.549	2.033	25.806	15.232	89.212	630.157	115.431	73.110

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	27.210	71.070	3.176	74.194	53.955	54.748	3.041	33.047
S.D.	8.357	0.253	0.397	13.924	4.184	7.377	0.091	12.889
% R.S.D.	30.715	0.356	12.500	18.767	7.754	13.475	2.995	39.003

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	7.997	-2.603	-38.695	43.388	0.000	-9.631	1.540	130.204
S.D.	4.308	0.119	9.654	3.665	0.797	30.144	0.705	13.606
% R.S.D.	53.870	4.558	24.950	8.447	914779.514	312.998	45.825	10.449

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
	1.223	1.711	3.421	26.167	3.749	-105.058	-1.342	0.237
.D.	0.393	0.780	6.405	38.888	0.201	66.515	1.403	0.205

% R.S.D.	32.143	45.584	187.249	148.612	5.363	63.312	104.513	86.589

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	Tl (ppb)
[illegible]	38.346
[illegible]	10.973
% R.S.D.	28.617

Corrected Counts Statistics 12:05 PM 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	0.080	0.015	
Sr	2	0.125	0.018	
Bi	3	0.046	0.017	
Ta	5	0.105	0.013	
Hg	6	1.504	0.002	
Sn	7	0.137	0.015	
Si	8	1.186	0.021	
Al	9	18.064	0.061	
[illegible]	10	0.122	0.022	
Zn	11	4.368	0.026	
Cu	12	0.849	0.017	
Li	14	0.161	0.016	
[illegible]	15	1.250	0.008	
Ni	16	1.313	0.027	
La	17	0.001	0.001	
Eu	18	0.012	0.027	
Fe	19	1.910	0.028	
Ga	20	4.748	0.021	
Cr	21	0.826	0.024	
Nd	22	0.416	0.103	
Ce	24	0.143	0.026	
Sm	25	0.080	0.030	
Ba	26	19.772	0.090	
P	27	0.357	0.007	
S	28	8.110	0.082	
Mg	29	0.353	0.002	
As	30	0.921	0.011	
Na	31	370.525	3.400	
Mo	32	0.064	0.003	
Se	33	0.327	0.009	
Ag	34	0.042	0.015	
Pb	35	0.224	0.024	
Ti	36	-0.008	0.017	
Cd	37	0.810	0.014	
B	38	1.122	0.011	
K	39	3.684	0.029	
Mn	40	2.930	0.007	
Sr	42	0.070	0.021	
V	43	0.428	0.007	
Be	44	0.146	0.000	

Tl	45	0.071	0.016

1: R933 Spk 83AP891-1 Identity 2: 10ml-50ml-2ml-12ml 12:05 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)	Mg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	23.623	4.496	96.445	70.874	-3943.396	32.112	754.660	7217.420
S.D.	6.414	0.692	17.059	7.751	113.208	3.309	14.410	25.046
% R.S.D.	27.150	15.384	17.688	10.937	2.871	10.305	1.910	0.347

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-3420.285	342.421	181.441	16.348	281.140	310.855	18.795	5.604
S.D.	666.421	2.191	3.851	1.631	1.780	6.191	4.027	1.788
% R.S.D.	19.484	0.640	2.123	9.979	0.633	1.992	21.427	31.906

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	604.646	741.584	329.791	146.245	264.847	261.905	1178.894	2119.678
S.D.	8.986	3.393	9.381	45.445	72.325	87.405	5.358	40.286
% R.S.D.	1.486	0.458	2.845	31.074	27.308	33.373	0.454	1.901

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
	8725.770	67.886	1104.523	225248.002	13.458	971.635	43.697	387.692
	87.994	0.475	12.874	2067.127	0.920	22.880	4.586	42.233
% R.S.D.	1.008	0.699	1.166	0.918	6.840	2.355	10.494	10.893

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	11.572	35.909	219.442	21754.634	282.242	404.480	271.982	27.334
S.D.	2.164	0.542	2.159	169.910	0.700	110.479	4.732	0.000
% R.S.D.	18.705	1.508	0.984	0.781	0.248	27.314	1.740	0.000

	Tl (ppb)
Mean	938.711
S.D.	115.239
% R.S.D.	12.276

Corrected Counts Statistics 12:10 PM 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
	1	0.017	0.004	
	2	0.015	0.003	
Bi	3	-0.222	0.021	

Ta	5	0.015	0.006
Hg	6	1.525	0.010
Sn	7	0.005	0.012
Si	8	0.760	0.017
Al	9	1.614	0.018
W	10	0.088	0.019
Zn	11	5.931	0.045
Cu	12	2.263	0.010
Li	14	0.004	0.008
Co	15	2.215	0.013
Ni	16	2.101	0.014
La	17	-0.005	0.001
Eu	18	-0.063	0.009
Fe	19	1.582	0.016
Ca	20	3.566	0.018
Cr	21	1.286	0.027
Nd	22	0.001	0.054
Ce	24	0.039	0.004
Sm	25	-0.032	0.003
Ba	26	8.530	0.040
P	27	0.019	0.001
S	28	0.011	0.004
Mg	29	2.449	0.012
As	30	0.404	0.018
Na	31	0.912	0.009
Mo	32	1.625	0.027
Se	33	0.196	0.006
Ag	34	1.593	0.006
Pb	35	0.277	0.003
Ti	36	3.723	0.013
Cd	37	12.427	0.122
B	38	2.416	0.002
K	39	0.806	0.002
Mn	40	5.163	0.031
Sb	42	0.092	0.019
V	43	0.768	0.005
Be	44	2.705	0.011
Tl	45	0.012	0.004

Identity 1: CCV-2 Identity 2: CCV 12:10 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)
Mean	-4.106	0.182	-173.063	17.422	-2735.849	2.939	455.467	478.102
S.D.	1.666	0.119	21.203	3.271	549.766	2.673	12.195	7.558
% R.S.D.	40.585	65.465	12.251	18.775	20.095	90.933	2.677	1.581

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-2387.427	476.555	501.453	0.505	497.471	490.450	-6.711	0.635
S.D.	584.470	3.857	2.268	0.816	2.840	3.192	2.325	0.559
% R..	24.481	0.809	0.452	161.658	0.571	0.651	34.648	87.962

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Mg (ppb)	Ce (ppb)	Sn (ppb)	Ba (ppb)	P (ppb)
Mean	500.572	545.745	512.553	-35.855	-21.821	-65.442	508.596	30.983
	4.961	2.987	10.527	24.004	10.369	8.956	2.391	7.150
	0.991	0.547	2.054	66.946	47.520	13.685	0.470	23.076

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	0.961	498.698	481.488	503.886	483.785	567.928	517.410	480.528
S.D.	4.329	2.466	21.134	5.404	8.181	18.516	1.701	4.408
% R.S.D.	450.555	0.495	4.389	1.073	1.691	3.260	0.329	0.917

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	500.290	498.048	469.929	4949.677	498.111	516.544	500.838	482.457
S.D.	1.730	4.838	0.387	8.921	2.945	97.475	3.565	1.951
% R.S.D.	0.346	0.971	0.082	0.180	0.591	18.871	0.712	0.404

	Tl (ppb)
Mean	517.264
S.D.	31.313
% R.S.D.	6.054

Corrected Counts Statistics 12:12 PM January 22, 1992
Task name : ALL_SIM
Weight : 1.0000 Solution Volume : 1.00
Integrations : 3 Off-Peak Integrations : 1

Analyte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.004	0.011	
Sr	2	-0.014	0.009	
Ni	3	-0.052	0.005	
Ta	5	0.004	0.023	
[illegible]	6	1.531	0.010	
Sn	7	-0.034	0.042	
Si	8	0.087	0.010	
Al	9	0.359	0.054	
W	10	-0.029	0.017	
Zn	11	0.042	0.002	
Cu	12	0.039	0.006	
Li	14	-0.025	0.013	
Co	15	-0.008	0.005	
Ni	16	-0.090	0.015	
La	17	-0.003	0.001	
Eu	18	-0.087	0.014	
Fe	19	0.001	0.019	
Ca	20	0.171	0.002	
Cr	21	-0.007	0.011	
Mg	22	0.048	0.050	
Ce	24	0.002	0.016	
	25	-0.041	0.014	
	26	-0.023	0.016	
P	27	0.017	0.002	

S	28	0.036	0.007
Mg	29	0.006	0.001
As	30	-0.004	0.007
Na	31	0.019	0.031
Mo	32	0.007	0.012
	33	-0.028	0.010
Ag	34	-0.113	0.010
Pb	35	-0.035	0.007
Ti	36	-0.119	0.007
Cd	37	-0.153	0.022
B	38	-0.001	0.016
K	39	-0.055	0.009
Mn	40	-0.003	0.006
Sb	42	-0.011	0.014
V	43	0.017	0.004
Be	44	-0.009	0.001
Tl	45	-0.058	0.010

Identity 1: CCB-2 Identity 2: CCB 12:12 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)	Mg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-9.681	-0.951	-2.352	10.493	-2433.962	-5.585	-17.572	-36.052
S.D.	4.999	0.350	4.764	13.495	572.603	9.178	6.705	22.223
% R.S.D.	51.638	36.834	202.535	128.616	23.526	164.342	38.158	61.640

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	1228.254	-28.721	-2.037	-2.388	-1.047	-9.042	2.686	-0.941
S.D.	528.603	0.131	1.261	1.288	1.129	3.307	4.027	0.911
% R.S.D.	43.037	0.456	61.893	53.946	107.856	36.571	149.924	96.771

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-1.588	-14.494	-0.794	-11.114	-122.246	-93.779	-1.371	16.535
S.D.	5.934	0.260	4.183	22.242	42.782	42.108	0.966	12.384
% R.S.D.	373.644	1.796	526.824	200.127	34.997	44.902	70.420	74.892

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	32.095	-3.357	-9.005	-38.902	-3.615	67.453	-3.756	-65.978
S.D.	7.567	0.206	8.873	18.804	3.665	27.566	3.175	12.303
% R.S.D.	23.578	6.122	98.528	48.336	101.382	40.867	84.534	18.647

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-2.926	-2.400	1.872	-82.855	-0.473	-22.762	-5.385	-0.237
S.D.	0.920	0.883	3.002	54.267	0.566	75.759	2.551	0.178
% R.S.D.	31.450	36.781	160.372	65.497	119.766	332.836	47.373	75.011

	Tl (ppb)
Mean	14.400

S.D. 75.001
% R.S.D. 520.844

Corrected Counts Statistics 12:16 PM 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	0.046	0.005	
Sr	2	0.138	0.004	
Bi	3	-0.049	0.009	
Ta	5	0.029	0.012	
Hg	6	1.562	0.024	
Sn	7	0.034	0.010	
Si	8	2.442	0.025	
Al	9	37.529	0.182	
W	10	0.137	0.020	
Zn	11	0.239	0.005	
Cu	12	0.303	0.002	
Li	14	0.179	0.007	
Co	15	0.001	0.003	
Ni	16	0.012	0.005	
La	17	-0.003	0.001	
Eu	18	-0.045	0.009	
	19	0.309	0.016	
	20	5.917	0.038	
[illegible]	21	1.027	0.015	
Nd	22	0.211	0.076	
Ce	24	0.077	0.011	
Sm	25	0.004	0.009	
Ba	26	0.082	0.007	
P	27	0.734	0.005	
S	28	16.823	0.088	
Mg	29	1.027	0.007	
As	30	-0.005	0.011	
Na	31	764.006	2.986	
Mo	32	0.100	0.005	
Se	33	-0.021	0.005	
Ag	34	-0.085	0.006	
Pb	35	-0.012	0.004	
Ti	36	-0.065	0.004	
Cd	37	0.149	0.057	
B	38	3.376	0.017	
K	39	9.203	0.052	
Mn	40	0.037	0.006	
Sb	42	-0.005	0.015	
V	43	0.026	0.003	
Be	44	-0.007	0.001	
Tl	45	-0.058	0.005	

Identity 1: R934 Sam N3AP891-2 Identity 2: 10ml-50ml 12:24 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)
Mean	8.805	5.018	1.344	25.737	-641.509	9.332	1637.946	15192.074
S.D.	2.017	0.137	8.692	6.884	1341.083	2.103	17.250	74.539
% R.S.D.	22.907	2.737	646.626	26.746	209.051	22.534	1.053	0.491

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-3891.517	-11.847	57.814	18.232	1.047	14.215	1.344	1.839
S.D.	623.491	0.454	0.346	0.716	0.673	1.125	2.325	0.584
% R.S.D.	16.022	3.832	0.598	3.927	64.285	7.912	173.029	31.741

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	96.239	934.617	409.857	54.040	83.169	40.091	4.849	4456.045
S.D.	5.229	6.322	6.103	33.629	28.985	25.612	0.397	32.764
% R.S.D.	5.433	0.676	1.489	62.230	34.851	63.885	8.186	0.735

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	18113.670	206.467	-10.053	464505.115	24.506	-5.646	4.900	-24.523
S.D.	94.683	1.439	13.529	1815.500	1.546	11.387	1.683	6.632
% R.S.D.	0.523	0.697	134.575	0.391	6.309	201.696	34.337	27.042

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	4.061	9.601	655.874	53992.039	2.655	7.005	0.679	0.059
S.D.	0.460	2.269	3.322	303.723	0.564	77.973	1.945	0.103
% R.S.D.	11.329	23.629	0.506	0.563	21.244	1113.096	286.318	173.101

	Tl (ppb)
Mean	16.794
S.D.	32.393
% R.S.D.	192.882

Corrected Counts Statistics 12:26 PM 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	0.004	0.009	
Sr	2	0.192	0.005	
Bi	3	-0.094	0.032	
Ta	5	-0.016	0.010	
Hg	6	1.604	0.028	
[illegible]	7	0.057	0.040	
[illegible]	8	3.068	0.038	
Al	9	150.339	0.496	

W	10	0.429	0.027
Zn	11	3.197	0.046
Cu	12	0.318	0.011
Li	14	0.168	0.016
Co	15	-0.015	0.012
[illegible]	16	0.008	0.009
La	17	-0.006	0.001
Eu	18	-0.093	0.009
Fe	19	0.630	0.010
Ca	20	40.001	0.761
Cr	21	2.448	0.003
Nd	22	0.084	0.080
Ce	24	0.004	0.013
Sm	25	-0.264	0.009
Ba	26	0.085	0.015
P	27	1.435	0.016
S	28	21.779	0.120
Mg	29	1.512	0.004
As	30	-0.004	0.010
Na	31	-22.996	0.000
Mo	32	0.309	0.013
Se	33	0.052	0.018
Ag	34	-0.118	0.007
Pb	35	-0.012	0.012
Ti	36	-0.098	0.009
Cd	37	0.576	0.029
B	38	4.090	0.031
K	39	35.614	0.059
Mn	40	0.157	0.002
Sb	42	-0.016	0.005
[illegible]	43	0.039	0.003
	44	-0.005	0.003
Tl	45	-0.043	0.008

Identity 1: R935 San N3AP119-1 Identity 2: 10ml-50ml 12:29 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)
Mean	-9.828	7.116	-44.358	-1.187	1698.113	14.329	2077.481	61408.770
S.D.	3.795	0.179	32.496	5.849	1601.330	8.719	26.620	203.330
% R.S.D.	38.613	2.518	73.258	492.615	94.301	60.849	1.281	0.331

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-12860.573	241.921	61.135	17.088	-2.616	13.303	-10.738	-1.335
S.D.	817.812	3.973	2.396	1.624	2.768	2.119	2.325	0.610
% R.S.D.	6.359	1.642	3.920	9.504	105.792	15.926	21.653	45.701

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	198.302	6567.713	973.757	-42.853	-115.855	-745.541	5.028	8796.487
	3.197	125.825	1.213	35.750	35.745	27.238	0.897	97.312
% R.S.D.	1.612	1.916	0.125	83.425	30.854	3.653	17.839	1.106

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	23403.990	306.138	-9.037	-14033.433	87.276	68.538	-5.385	-25.107
	130.592	0.896	11.608	0.000	4.012	50.059	2.146	20.201
S.D.	0.558	0.293	128.447	0.000	4.597	73.038	39.847	80.460

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-0.262	26.587	794.122	208244.487	10.293	-50.778	9.436	0.474
S.D.	1.181	1.156	5.912	345.148	0.166	24.825	1.696	0.471
% R.S.D.	450.925	4.347	0.744	0.166	1.617	48.889	17.965	99.208

	Tl (ppb)
Mean	122.156
S.D.	57.019
% R.S.D.	46.677

Corrected Counts Statistics 12:33 PM 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
[illegible]	1	0.020	0.006	
	2	0.042	0.005	
Bi	3	-0.064	0.012	
Ta	5	0.032	0.015	
Hg	6	1.546	0.012	
Sn	7	0.008	0.038	
Si	8	0.866	0.005	
Al	9	25.976	0.114	
W	10	0.087	0.004	
Zn	11	0.753	0.005	
Cu	12	0.109	0.003	
Li	14	0.026	0.010	
Co	15	0.043	0.011	
Ni	16	0.593	0.015	
La	17	-0.004	0.000	
Eu	18	-0.077	0.009	
Fe	19	0.377	0.005	
Ca	20	7.386	0.034	
Cr	21	0.462	0.005	
Nd	22	0.124	0.024	
Ce	24	0.034	0.005	
Sm	25	-0.054	0.004	
Ba	26	0.042	0.007	
P	27	0.269	0.005	
S	28	3.711	0.039	
Mg	29	0.280	0.002	
	30	-0.017	0.007	
	31	403.943	1.943	
Mo	32	0.056	0.005	

Se	33	-0.016	0.008
Ag	34	-0.110	0.003
Pb	35	0.023	0.016
i	36	-0.102	0.004
	37	0.037	0.019
	38	0.836	0.012
K	39	6.182	0.029
Mn	40	0.310	0.005
Sb	42	-0.010	0.019
V	43	0.025	0.003
Be	44	-0.009	0.001
Tl	45	-0.059	0.003

Identity 1: R935 San N3AP119-1 Identity 2: 10ml-50ml-2ml-12ml 12:34 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)
Mean	-2.492	1.238	-14.114	27.122	-1566.038	3.674	530.206	10459.120
S.D.	2.830	0.176	12.388	9.072	667.349	8.401	3.607	46.857
% R.S.D.	113.553	14.240	87.773	33.449	42.614	228.657	0.680	0.448

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-2334.607	32.254	13.888	2.758	10.540	146.612	-1.341	-0.241
	124.101	0.454	0.728	0.994	2.377	3.359	0.000	0.607
S.D.	5.316	1.408	5.241	36.032	22.550	2.291	0.000	252.087

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	117.838	1177.921	185.541	14.032	-33.689	-131.888	2.484	1578.929
S.D.	1.456	5.655	1.790	10.724	12.350	10.295	0.430	28.599
% R.S.D.	1.235	0.480	0.965	76.425	36.659	7.806	17.307	1.811

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	3982.069	52.952	-24.583	245568.104	11.249	59.502	-2.941	36.784
S.D.	41.665	0.356	7.832	1181.418	1.546	22.244	0.769	27.492
% R.S.D.	1.046	0.672	31.860	0.481	13.745	37.383	26.141	74.738

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-0.786	5.159	164.065	36344.108	28.853	-15.758	0.230	-0.178
S.D.	0.545	0.747	2.405	167.687	0.475	97.617	1.783	0.205
% R.S.D.	69.389	14.475	1.466	0.461	1.646	619.482	774.598	115.493

	Tl (ppb)
Mean	7.216
S.D.	19.006
% R.S.D.	263.391

Corrected Counts Statistics 12:39 PM 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	-0.027	0.030	
Sr	2	0.070	0.030	
Bi	3	-0.136	0.020	
Ta	5	-0.083	0.039	
Hg	6	1.518	0.027	
Sn	7	-0.051	0.030	
Si	8	2.661	0.025	
Al	9	50.645	0.735	
W	10	0.103	0.042	
Zn	11	1.663	0.016	
Cu	12	0.345	0.020	
Li	14	0.256	0.031	
Co	15	-0.056	0.025	
Ni	16	-0.020	0.029	
La	17	-0.004	0.001	
Eu	18	-0.129	0.033	
Fe	19	0.136	0.012	
Ca	20	9.661	0.230	
Cr	21	1.695	0.006	
Nd	22	-0.131	0.121	
Ce	24	-0.055	0.051	
Sm	25	-0.156	0.052	
	26	-0.047	0.046	
	27	1.202	0.023	
S	28	28.230	0.518	
Mg	29	1.140	0.013	
As	30	-0.012	0.004	
Na	31	1256.098	21.373	
Mo	32	0.123	0.012	
Se	33	-0.004	0.010	
Ag	34	-0.142	0.023	
Pb	35	-0.019	0.014	
Ti	36	-0.137	0.020	
Cd	37	0.232	0.036	
B	38	3.450	0.039	
K	39	12.463	0.173	
Mn	40	0.027	0.004	
Sb	42	-0.004	0.015	
V	43	0.007	0.013	
Be	44	-0.010	0.003	
Tl	45	-0.104	0.032	

Identity 1: R936 Sam #3AP891-4 Identity 2: 10ml-50ml 12:40 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	Sr	Bi	Ta	Hg	Sn	Si	Al

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-23.179	2.359	-86.699	-40.781	-3150.943	-7.406	1791.408	20565.502
S.D.	12.985	1.156	20.137	23.287	1523.052	6.528	17.577	301.003
% R.S.D.	56.021	49.010	23.227	57.101	48.336	69.408	0.981	1.464

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-2828.364	110.361	67.173	25.968	-11.811	6.843	-2.683	-3.678
S.D.	1294.166	1.330	4.496	3.079	5.540	6.577	4.650	2.170
% R.S.D.	45.757	1.205	6.694	11.857	46.908	96.116	173.293	59.012

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	41.291	1552.956	674.802	-101.790	-279.274	-429.920	-2.842	7353.801
S.D.	3.967	38.045	2.258	54.023	140.761	150.992	2.716	139.967
% R.S.D.	9.608	2.450	0.335	53.073	50.402	35.121	95.549	1.903

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	30399.737	229.758	-19.181	763722.692	31.335	-19.347	-12.615	-37.952
S.D.	557.673	2.737	4.864	12996.083	3.552	28.424	7.046	24.292
% R.S.D.	1.834	1.191	25.360	1.702	11.336	146.916	55.856	64.008

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-5.327	12.889	670.137	73028.052	1.316	14.009	-12.122	-0.415
S.D.	2.630	1.433	7.472	1007.989	0.392	77.381	8.424	0.534
% R.S.D.	49.364	11.117	1.115	1.380	29.766	552.366	69.495	128.583

	Tl (ppb)
Mean	-318.448
S.D.	229.693
% R.S.D.	72.129

Corrected Counts Statistics 12:47 PM 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	0.008	0.004	
Sr	2	0.099	0.004	
Bi	3	-0.099	0.018	
Ta	5	-0.021	0.012	
Hg	6	1.591	0.016	
Sn	7	0.064	0.025	
Si	8	3.294	0.029	
Al	9	112.415	0.829	
W	10	0.342	0.043	
Zn	11	0.892	0.098	
	12	0.516	0.007	
	14	0.215	0.006	
Co	15	-0.023	0.004	

Ni	16	0.014	0.010
La	17	-0.006	0.001
Eu	18	-0.088	0.009
Fe	19	0.212	0.004
[illegible]	20	8.017	0.588
	21	2.250	0.033
[illegible]	22	0.055	0.030
Ce	24	-0.002	0.010
Sm	25	-0.082	0.009
Ba	26	0.020	0.008
P	27	1.495	0.016
S	28	29.895	0.276
Mg	29	1.125	0.016
As	30	-0.010	0.004
Na	31	-20.070	0.000
Mo	32	0.245	0.011
Se	33	0.036	0.007
Ag	34	-0.118	0.006
Pb	35	-0.013	0.012
Ti	36	-0.115	0.009
Cd	37	0.529	0.013
B	38	3.666	0.028
K	39	28.093	0.287
Mn	40	0.026	0.004
Sb	42	-0.017	0.005
W	43	0.020	0.003
Be	44	-0.005	0.001
Tl	45	-0.076	0.004

.ity 1: R937 San #3AP891-5 Identity 2: 10ml-50ml 12:50 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)
Mean	-7.774	3.480	-49.735	-4.355	981.132	15.946	2236.566	45871.878
S.D.	1.666	0.156	18.184	7.160	889.598	5.524	20.274	339.731
% R.S.D.	21.436	4.494	36.561	164.408	90.671	34.645	0.906	0.741

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-10168.264	44.152	105.967	21.865	-4.336	14.519	-9.396	-0.985
S.D.	1330.083	8.446	1.633	0.574	0.809	2.329	4.027	0.602
% R.S.D.	13.081	19.129	1.541	2.624	18.649	16.041	42.863	61.110

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	65.324	1280.787	895.280	-17.426	-134.114	-212.992	1.173	9167.994
S.D.	1.115	97.110	13.215	13.892	27.434	25.046	0.488	98.292
% R.S.D.	1.708	7.582	1.476	79.722	20.456	11.759	41.620	1.072

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
I	32196.279	226.675	-16.690	-12254.272	67.993	42.130	-5.385	-26.858
S.D.	297.010	3.199	4.232	0.000	3.250	20.662	1.790	21.878

% R.S.D.	0.922	1.411	25.356	0.000	4.780	49.044	33.241	81.457

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
[illegible]	-2.489	24.718	712.025	164316.424	1.412	-56.031	-2.914	0.415
S.D.	1.189	0.508	5.491	1678.805	0.271	26.956	2.058	0.205
% R.S.D.	47.757	2.055	0.771	1.022	19.160	48.110	70.635	49.483

	Tl (ppb)
Mean	-129.276
S.D.	31.313
% R.S.D.	24.222

Corrected Counts Statistics 12:55 PM 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	0.016	0.007	
Sr	2	0.021	0.002	
Bi	3	-0.068	0.019	
Ta	5	-0.028	0.010	
[illegible]	6	1.553	0.014	
	7	0.005	0.015	
[illegible]	8	0.710	0.012	
Al	9	19.528	0.072	
W	10	0.007	0.012	
Zn	11	0.291	0.009	
Cu	12	0.125	0.006	
Li	14	0.024	0.009	
Co	15	-0.003	0.010	
Ni	16	0.033	0.011	
La	17	-0.005	0.001	
Eu	18	-0.092	0.003	
Fe	19	0.120	0.008	
Ca	20	2.436	0.006	
Cr	21	0.384	0.007	
Nd	22	0.172	0.066	
Ce	24	0.017	0.012	
Sm	25	-0.056	0.000	
Ba	26	-0.001	0.002	
P	27	0.271	0.005	
S	28	5.112	0.039	
Mg	29	0.213	0.001	
As	30	-0.023	0.010	
Na	31	336.666	0.732	
Mo	32	0.047	0.003	
Se	33	-0.037	0.012	
	34	-0.118	0.002	
	35	0.022	0.003	
Ti	36	-0.113	0.003	
Cd	37	0.022	0.024	

B	38	0.640	0.010
K	39	4.745	0.012
Mn	40	0.049	0.008
[illegible]	42	0.010	0.009
	43	0.015	0.001
Be	44	-0.009	0.001
Tl	45	-0.076	0.005

Identity 1: R937 Sam N3AP891-5 Identity 2: 10ml-50m-2ml-12ml 12:57 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)
Mean	-4.399	0.430	-17.810	-8.116	-1150.943	3.013	420.088	7817.335
S.D.	3.081	0.078	19.163	5.645	764.326	3.197	8.147	29.398
% R.S.D.	70.035	18.182	107.597	69.548	66.409	106.119	1.939	0.376

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	122.049	-7.414	17.511	2.556	0.150	18.927	-6.711	-1.248
S.D.	366.323	0.740	1.383	0.925	2.276	2.466	2.325	0.228
% R.S.D.	300.144	9.978	7.901	36.178	1522.197	13.031	34.648	18.234

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
	36.103	359.735	154.441	40.943	-80.250	-136.774	-0.099	1591.313
	2.567	0.959	2.603	29.393	32.904	0.000	0.091	30.543
% R.S.D.	7.111	0.267	1.686	71.790	41.002	0.000	91.652	1.919

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	5498.921	39.252	-32.218	204659.749	8.537	6.830	-5.283	35.032
S.D.	41.991	0.119	12.510	445.347	0.969	33.074	0.611	4.408
% R.S.D.	0.764	0.302	38.829	0.218	11.345	484.235	11.565	12.583

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-2.227	4.362	125.986	27955.258	4.285	87.551	-6.283	-0.296
S.D.	0.330	0.960	1.881	71.372	0.725	45.794	0.778	0.205
% R.S.D.	14.804	21.044	1.493	0.255	16.919	52.306	12.383	69.290

	Tl (ppb)
Mean	-112.513
S.D.	36.158
% R.S.D.	32.136

[illegible]ected Counts Statistics 1:04 PM January 22, 1992
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	4.675	0.018	
	2	51.072	0.306	
	3	0.543	0.031	
Ta	5	1.506	0.020	
Hg	6	6.441	0.039	
Sn	7	4.291	0.024	
Si	8	5.062	0.010	
Al	9	3.390	0.022	
W	10	6.247	0.079	
Zn	11	23.907	0.104	
Cu	12	4.365	0.017	
Li	14	19.925	0.120	
Co	15	8.560	0.027	
Ni	16	4.293	0.017	
La	17	0.251	0.002	
Eu	18	15.586	0.087	
Fe	19	3.984	0.008	
Ca	20	32.025	0.189	
Cr	21	2.680	0.018	
Nd	22	2.573	0.033	
Ce	24	0.428	0.012	
Sm	25	0.154	0.010	
Ba	26	33.580	0.190	
P	27	0.316	0.008	
S	28	1.077	0.010	
Mg	29	5.666	0.032	
	30	0.829	0.010	
	31	5.918	0.027	
Mo	32	6.545	0.010	
Se	33	0.365	0.017	
Ag	34	3.116	0.012	
Pb	35	0.534	0.014	
Ti	36	7.401	0.040	
Cd	37	46.478	0.407	
B	38	8.973	0.048	
K	39	0.145	0.005	
Mn	40	10.102	0.043	
Sb	42	0.167	0.006	
V	43	2.912	0.017	
Be	44	10.753	0.064	
Tl	45	0.071	0.007	

Identity 1: R938 Dig.STD 10ml-50 Identity 2: 1B48Z,2B48AA,3B48AA 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)
Mean	2046.239	1996.382	597.822	902.546	275490.566	947.790	3479.259	1205.839
	7.737	11.966	31.040	11.613	2190.305	5.184	6.705	8.985
S.D.	0.378	0.599	5.192	1.287	0.795	0.547	0.193	0.745

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-191509.962	2018.893	977.470	2010.863	1920.516	990.170	1026.959	1028.396
S.D.	2425.699	8.937	3.741	12.116	5.973	3.790	8.383	5.683
%S.D.	1.267	0.443	0.383	0.603	0.311	0.383	0.816	0.553

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	1263.500	5249.036	1066.131	1069.203	1043.598	479.810	2002.188	1865.815
S.D.	2.600	31.205	7.061	14.629	31.744	27.862	11.311	50.048
% R.S.D.	0.206	0.594	0.662	1.368	3.042	5.807	0.565	2.682

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	1108.404	1159.885	994.064	3547.595	1966.173	910.643	982.570	931.863
S.D.	10.547	6.577	11.875	16.455	3.136	46.697	3.541	23.846
% R.S.D.	0.952	0.567	1.195	0.464	0.159	5.128	0.360	2.559

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	982.153	1852.611	1739.595	1089.131	971.867	914.019	1945.615	1913.996
S.D.	5.206	16.209	9.287	27.601	4.132	31.663	11.461	11.298
% R.S.D.	0.530	0.875	0.534	2.534	0.425	3.464	0.589	0.590

	Tl (ppb)
Mean	943.501
S.D.	52.952
% R.S.D.	5.612

Corrected Counts Statistics 1:10 PM 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	0.027	0.006	
Sr	2	0.018	0.005	
Bi	3	-0.259	0.011	
Ta	5	0.006	0.020	
Hg	6	1.539	0.014	
Sn	7	-0.012	0.029	
Si	8	0.731	0.017	
Al	9	1.556	0.038	
W	10	0.002	0.009	
Zn	11	5.792	0.018	
Cu	12	2.187	0.003	
Li	14	0.003	0.006	
Co	15	2.153	0.007	
Ni	16	1.998	0.005	
La	17	-0.004	0.001	
	18	-0.073	0.008	
Ce	19	1.528	0.021	
Ca	20	3.471	0.006	

Cr	21	1.222	0.005
Nd	22	0.132	0.059
Ce	24	0.045	0.004
	25	-0.032	0.009
	26	8.214	0.015
	27	0.011	0.001
S	28	0.042	0.002
Mg	29	2.350	0.004
As	30	0.397	0.011
Na	31	0.936	0.017
Mo	32	1.574	0.015
Se	33	0.154	0.016
Ag	34	1.548	0.005
Pb	35	0.262	0.007
Ti	36	3.560	0.008
Cd	37	11.697	0.075
B	38	2.352	0.009
K	39	0.801	0.007
Mn	40	4.949	0.026
Sb	42	0.064	0.010
V	43	0.733	0.003
Be	44	2.584	0.007
Tl	45	0.001	0.007

Identity 1: CCV-3 Identity 2: CCV 1:11 PM January 22, 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	0.589	0.300	-210.364	12.077	-1981.132	-0.735	435.317	454.341
S.D.	2.795	0.193	10.874	11.583	813.074	6.413	11.789	15.375
% R.S.D.	474.560	64.342	5.169	95.909	41.041	872.745	2.708	3.384

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	263.674	464.629	484.320	0.404	483.568	466.889	0.001	-0.022
S.D.	262.353	1.536	0.784	0.591	1.591	1.053	2.325	0.527
% R.S.D.	99.499	0.331	0.162	146.487	0.329	0.226	170166.197	2422.370

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	483.315	530.144	487.011	22.283	-4.475	-66.419	489.715	-22.679
S.D.	6.612	0.920	1.876	26.130	9.875	25.046	0.905	3.575
% R.S.D.	1.368	0.174	0.385	117.267	220.697	37.710	0.185	15.763

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	34.143	478.285	473.053	518.277	468.620	458.010	503.663	455.422
S.D.	2.158	0.831	12.982	10.108	4.533	42.502	1.527	12.303
% R.S.D.	6.321	0.174	2.744	1.950	0.967	9.280	0.303	2.701

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	478.937	468.981	457.537	4916.581	477.450	372.962	477.480	460.993

S.D.	1.001	2.999	1.677	42.251	2.484	52.879	2.166	1.283
% R.S.D.	0.209	0.639	0.366	0.859	0.520	14.178	0.454	0.278

	Tl
	(ppb)
M.	435.848
S.D.	46.741
% R.S.D.	10.724

Corrected Counts Statistics 1:12 PM 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	0.014	0.004	
Sr	2	-0.006	0.004	
Bi	3	-0.095	0.010	
Ta	5	-0.005	0.010	
Hg	6	1.555	0.005	
Sn	7	-0.043	0.030	
Si	8	0.098	0.002	
Al	9	0.398	0.003	
W	10	-0.072	0.010	
Zn	11	0.035	0.004	
Cu	12	0.046	0.002	
Li	14	-0.015	0.003	
Co	15	0.003	0.012	
Ni	16	-0.080	0.009	
La	17	-0.005	0.001	
Eu	18	-0.089	0.004	
Fe	19	0.004	0.003	
Ca	20	0.096	0.000	
Cr	21	-0.025	0.004	
Nd	22	-0.043	0.049	
Ce	24	0.030	0.006	
Sm	25	-0.026	0.006	
Ba	26	-0.005	0.008	
P	27	0.016	0.001	
S	28	0.023	0.004	
Mg	29	0.002	0.001	
As	30	-0.000	0.003	
Na	31	0.069	0.009	
Mo	32	-0.001	0.007	
Se	33	-0.040	0.001	
Ag	34	-0.117	0.004	
Pb	35	-0.004	0.010	
Ti	36	-0.111	0.005	
Cd	37	-0.099	0.024	
B	38	0.003	0.014	
K	39	-0.064	0.007	
Mn	40	-0.002	0.005	
Sb	42	0.007	0.007	
V	43	0.026	0.001	

Be	44	-0.010	0.001
Tl	45	-0.065	0.006

Identity 1: CCB-3 Identity 2: CCB 1:13 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 (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-5.280	-0.639	-45.030	5.346	-1075.472	-7.642	-9.840	-19.938
S.D.	1.587	0.158	9.792	6.028	255.241	6.551	1.217	1.084
% R.S.D.	30.059	24.744	21.744	112.757	23.733	85.717	12.372	5.436

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	2528.188	-29.379	-0.452	-1.379	1.495	-6.838	-4.026	-1.029
S.D.	310.625	0.325	0.453	0.303	2.691	2.027	4.650	0.231
% R.S.D.	12.286	1.106	100.210	21.951	179.998	29.637	115.509	22.419

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	-0.635	-26.822	-8.073	-51.479	-46.470	-47.853	-0.298	8.280
S.D.	0.840	0.003	1.394	21.597	15.085	16.145	0.448	3.575
% R.S.D.	132.299	0.010	17.272	41.952	32.460	33.739	150.111	43.176

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	18.554	-4.110	-4.996	-8.905	-6.026	36.962	-4.876	-11.094
S.D.	4.310	0.119	3.029	5.242	2.173	1.878	1.235	16.892
% R.S.D.	23.231	2.887	60.628	58.873	36.056	5.082	25.322	152.268

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-1.878	-0.252	2.646	-135.419	-0.432	71.792	0.904	-0.356
S.D.	0.619	0.970	2.768	38.888	0.436	36.771	0.674	0.103
% R.S.D.	32.971	385.384	104.594	28.717	100.875	51.219	74.540	28.870

	Tl (ppb)
Mean	-35.887
S.D.	39.998
% R.S.D.	111.456

Corrected Counts Statistics 1:15 PM 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
	1	0.030	0.002	
Sr	2	0.122	0.002	

Bi	3	-0.110	0.011
Ta	5	0.006	0.015
Hg	6	2.009	0.016
Sn	7	6.107	0.040
	8	0.536	0.010
	9	600.045	2.035
W	10	-0.043	0.012
Zn	11	0.282	0.007
Cu	12	0.058	0.006
Li	14	-0.013	0.004
Co	15	-0.004	0.010
Ni	16	-0.036	0.012
La	17	-0.043	0.001
Eu	18	0.074	0.005
Fe	19	305.550	0.410
Ca	20	1147.023	2.650
Cr	21	0.027	0.004
Nd	22	3.624	0.045
Ce	24	0.023	0.005
Sm	25	-8.651	0.005
Ba	26	0.046	0.004
P	27	0.017	0.002
S	28	2.326	0.015
Mg	29	951.072	1.751
Ag	30	0.105	0.017
Na	31	0.122	0.012
Mo	32	-0.004	0.008
Se	33	-0.058	0.019
Ag	34	-0.110	0.001
Pb	35	-0.130	0.008
	36	-0.081	0.004
Cd	37	0.423	0.035
B	38	-0.471	0.008
Ge	39	-0.036	0.004
Mn	40	1.714	0.010
Sb	42	0.011	0.007
V	43	0.029	0.003
Be	44	-0.000	0.003
Tl	45	-0.079	0.008

Identity 1: ICSA-F Identity 2: ICSA 1:15 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)
Mean	1.909	4.366	-60.488	11.879	24641.509	1348.201	298.256	245646.278
S.D.	0.916	0.081	10.669	8.627	884.179	8.736	7.179	833.737
% R.S.D.	47.984	1.864	17.638	72.627	3.588	0.648	2.407	0.339

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
M	1637.602	-8.157	2.341	-1.211	-0.149	3.118	-157.063	9.654
S.	354.571	0.601	1.287	0.354	2.178	2.701	2.325	0.348
% R.S.D.	21.652	7.363	55.006	29.266	1457.011	86.616	1.480	3.600

	Fe	Ca	Cr	Nd	Sr	Ba	P
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
	97047.356	189562.362	12.837	195.041	-63.817	-25333.673	2.723	18.599
	130.203	438.101	1.394	22.978	13.511	13.854	0.238	9.458
% .D.	0.134	0.231	10.861	11.781	21.171	0.055	8.759	50.852

	S	Mg	As	Na	Mo	Se	Ag	Pb
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	837.888	195447.870	121.800	23.727	-7.030	-18.230	-2.737	-231.214
S.D.	12.145	359.824	20.533	7.047	2.340	51.802	0.176	13.606
% R.S.D.	1.449	0.184	16.858	29.702	33.289	284.162	6.443	5.884

	Ti	Cd	B	K	Mn	Sb	V	Be
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	2.052	20.501	-89.003	32.008	31.197	91.053	2.701	1.304
S.D.	0.496	1.407	1.553	23.604	0.952	36.896	1.696	0.448
% R.S.D.	24.166	6.863	1.745	73.744	3.052	40.521	62.786	34.316

	Tl
	(ppb)
Mean	-136.459
S.D.	56.107
% R.S.D.	41.116

Corrected Counts Statistics 1:17 PM January 22, 1992
Name : ALL_SIM
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	0.020	
Sr	2	0.111	0.015	
Bi	3	-0.177	0.028	
Ta	5	-0.018	0.034	
Hg	6	1.999	0.007	
Sn	7	6.129	0.065	
Si	8	0.524	0.022	
Al	9	601.247	3.655	
W	10	-0.003	0.035	
Zn	11	11.729	0.163	
Cu	12	2.232	0.029	
Li	14	-0.023	0.011	
Co	15	2.150	0.050	
Ni	16	4.125	0.074	
La	17	-0.046	0.001	
Eu	18	0.062	0.026	
Fe	19	305.603	4.189	
Ca	20	1146.912	9.848	
Cr	21	1.302	0.026	
Nd	22	3.531	0.167	
	24	0.019	0.029	
--	25	-8.716	0.031	
Ba	26	8.546	0.089	

P	27	0.025	0.004
S	28	2.334	0.061
Mg	29	949.803	11.551
As	30	0.096	0.009
	31	0.106	0.047
[illegible]	32	-0.005	0.012
Se	33	0.003	0.017
Ag	34	3.262	0.043
Pb	35	0.444	0.027
Ti	36	-0.075	0.019
Cd	37	24.517	0.636
B	38	-0.490	0.020
K	39	-0.048	0.022
Mn	40	6.786	0.098
Sb	42	-0.010	0.014
V	43	0.751	0.021
Be	44	2.745	0.038
Tl	45	-0.085	0.018

Identity 1: ICSAB-F Identity 2: ICSAB 1:17 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)
Mean	-4.399	3.936	-127.697	-2.177	24056.604	1353.051	289.821	246138.719
S.D.	8.803	0.587	28.198	20.378	409.482	14.424	15.113	1497.529
R.S.D.	200.099	14.912	22.082	935.968	1.702	1.066	5.215	0.608

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	427.281	973.994	494.585	-2.153	482.970	952.017	-169.145	8.888
S.D.	1081.904	13.986	6.571	1.116	11.300	16.807	2.325	1.714
% R.S.D.	253.207	1.436	1.329	51.846	2.340	1.765	1.375	19.287

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	97064.295	189543.066	518.773	154.283	-76.598	-25523.241	509.511	64.006
S.D.	1330.543	1627.846	10.241	62.500	79.443	89.733	5.307	25.024
% R.S.D.	1.371	0.859	1.974	40.510	103.714	0.352	1.042	39.096

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	846.318	195187.149	111.158	13.593	-7.131	36.865	1027.375	774.217
S.D.	52.117	2373.868	11.035	28.838	3.492	45.817	13.261	46.881
% R.S.D.	6.158	1.216	9.927	212.150	48.973	124.285	1.291	6.055

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	2.795	979.003	-92.682	-38.078	521.143	-15.758	489.384	489.690
S.D.	2.530	25.305	3.922	131.291	8.315	73.791	13.825	6.762
% R.S.D.	90.531	2.585	4.232	344.798	1.595	468.284	2.825	1.381

	Tl (ppb)

Mean	-179.562
S.D.	125.870
% R.S.D.	70.098

Corrected Counts Statistics 1:19 PM 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	0.024	0.009	
Sr	2	0.044	0.007	
Bi	3	0.002	0.027	
Ta	5	0.006	0.006	
Hg	6	1.530	0.009	
Sn	7	0.016	0.033	
Si	8	0.118	0.008	
Al	9	0.826	0.034	
W	10	0.000	0.016	
Zn	11	0.335	0.004	
Cu	12	0.060	0.009	
Li	14	0.002	0.009	
Co	15	0.009	0.016	
Ni	16	-0.034	0.016	
La	17	-0.004	0.001	
	18	-0.067	0.009	
	19	0.269	0.023	
[illegible]	20	9.134	0.027	
Cr	21	0.003	0.002	
Nd	22	0.052	0.102	
Ce	24	0.048	0.011	
Sm	25	-0.064	0.015	
Ba	26	0.027	0.011	
P	27	0.011	0.003	
S	28	0.033	0.003	
Mg	29	0.862	0.018	
As	30	-0.013	0.003	
Na	31	0.096	0.021	
Mo	32	0.003	0.006	
Se	33	-0.036	0.014	
Ag	34	-0.101	0.005	
Pb	35	-0.006	0.016	
Ti	36	-0.089	0.008	
Cd	37	-0.049	0.033	
B	38	0.012	0.014	
K	39	-0.049	0.007	
Mn	40	0.027	0.004	
Sb	42	-0.022	0.018	
V	43	0.026	0.003	
Be	44	-0.004	0.001	
Tl	45	-0.055	0.010	

Identity 1: XXX Identity 2: Rinse 1:20 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)
Mean	-0.878	1.342	52.087	11.681	-2452.830	5.364	4.217	155.407
S.D.	3.912	0.277	27.076	3.377	494.541	7.187	5.753	14.091
% R.S.D.	445.508	20.664	51.983	28.912	20.162	133.988	136.423	9.067

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	327.518	-3.639	2.794	0.303	2.841	3.574	-2.683	0.416
S.D.	476.693	0.325	2.042	0.904	3.481	3.622	4.650	0.610
% R.S.D.	145.547	8.928	73.098	298.763	122.559	101.328	173.293	146.658

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	83.429	1467.156	3.044	-20.109	2.829	-159.249	1.610	-20.615
S.D.	7.383	4.500	0.917	45.243	29.541	44.779	0.659	21.449
% R.S.D.	8.850	0.307	30.122	224.986	1044.170	28.119	40.965	104.043

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	15.868	172.626	-19.837	7.513	-4.921	44.559	-0.090	-14.013
S.D.	2.723	3.729	3.475	12.817	1.914	38.376	1.400	28.800
% R.S.D.	17.160	2.160	17.515	170.607	38.883	86.124	1560.272	205.523

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	0.917	1.724	4.453	-47.812	1.377	-82.295	0.904	0.712
S.D.	0.983	1.320	2.690	41.436	0.337	94.164	1.783	0.103
% R.S.D.	107.222	76.559	60.402	86.664	24.487	114.421	197.214	14.433

	Tl (ppb)
Mean	38.346
S.D.	74.771
% R.S.D.	194.992

Corrected Counts Statistics 1:22 PM 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	0.015	0.001	
Sr	2	0.004	0.001	
Bi	3	-0.031	0.011	
Ta	5	0.001	0.006	
	6	1.543	0.027	
--	7	-0.030	0.023	
Si	8	0.110	0.004	

Al	9	0.356	0.046
W	10	0.021	0.057
Zn	11	0.514	0.005
Cu	12	0.264	0.003
[illegible]	14	-0.016	0.009
	15	0.442	0.014
[illegible]	16	0.259	0.014
La	17	-0.001	0.001
Eu	18	-0.069	0.003
Fe	19	0.017	0.013
Ca	20	0.155	0.001
Cr	21	0.047	0.011
Nd	22	0.029	0.036
Ce	24	0.037	0.002
Sm	25	-0.013	0.004
Ba	26	-0.002	0.003
P	27	0.018	0.003
S	28	0.021	0.008
Mg	29	0.008	0.001
As	30	0.010	0.012
Na	31	0.053	0.016
Mo	32	0.010	0.012
Se	33	-0.059	0.002
Ag	34	-0.050	0.003
Pb	35	-0.006	0.004
Ti	36	-0.108	0.002
Cd	37	0.102	0.052
B	38	0.005	0.015
K	39	-0.043	0.009
Mn	40	0.305	0.007
	42	0.032	0.007
	43	0.160	0.001
Be	44	0.046	0.001
Tl	45	-0.077	0.006

Identity 1: CRI-F Identity 2: CRI 1:22 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)
Mean	-4.693	-0.222	19.155	8.909	-1754.717	-4.850	-1.640	-37.145
S.D.	0.254	0.023	10.669	3.613	1545.328	5.029	2.661	18.846
% R.S.D.	5.415	10.189	55.700	40.550	88.067	103.685	162.255	50.735

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-317.402	11.748	48.833	-1.514	100.018	70.533	12.083	0.263
S.D.	1761.794	0.393	0.654	0.882	3.045	3.275	2.325	0.228
% R.S.D.	555.067	3.347	1.338	58.246	3.044	4.643	19.243	86.555

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
	3.388	-17.069	20.777	-19.363	-26.385	-10.721	-0.139	22.727
	4.145	0.097	4.245	15.911	5.478	12.778	0.158	18.575

Co	15	42.052	0.395
Ni	16	20.789	0.219
La	17	-0.006	0.001
Eu	18	-0.078	0.010
	19	15.010	0.128
	20	56.897	0.439
Cr	21	12.281	0.107
Nd	22	0.256	0.038
Ce	24	0.067	0.013
Sm	25	-0.357	0.010
Ba	26	163.213	1.219
P	27	0.207	0.008
S	28	0.137	0.005
Mg	29	23.184	0.194
As	30	0.010	0.016
Na	31	16.152	0.008
Mo	32	0.015	0.009
Se	33	0.403	0.022
Ag	34	1.094	0.011
Pb	35	0.001	0.008
Ti	36	-0.121	0.010
Cd	37	231.510	2.654
B	38	24.340	0.146
K	39	0.814	0.007
Mn	40	48.812	0.460
Sb	42	0.903	0.019
V	43	0.018	0.005
Be	44	-0.008	0.002
Tl	45	-0.060	0.005

Identity 1: SST1 STD 1B48AC Identity 2: Direct 1:29 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)
Mean	-28.020	9653.347	-78.970	-7.522	-528.302	4762.465	-32.567	-144.619
S.D.	2.931	67.007	13.613	8.322	457.523	33.290	1.074	10.302
% R.S.D.	10.459	0.694	17.238	110.626	86.603	0.699	3.297	7.124

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-20566.982	9586.985	4741.830	9771.255	9431.174	4751.562	-8.053	-0.350
S.D.	1199.506	76.955	27.398	20.336	88.469	49.937	4.650	0.658
% R.S.D.	5.832	0.803	0.578	0.208	0.938	1.051	57.745	187.890

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	4765.705	9353.341	4877.786	12.942	56.693	-1020.122	9731.463	1195.038
S.D.	40.539	72.438	42.518	16.539	35.745	28.772	72.690	51.927
% R.S.D.	0.851	0.774	0.872	127.797	63.050	2.820	0.747	4.345

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	59.493	4759.830	9.696	9770.607	-1.205	156.022	365.073	-2.335

% R.S.D.	122.353	0.570	20.432	82.173	20.760	119.184	113.389	81.732

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
[illegible]	16.672	-3.014	7.854	-18.228	-2.611	-21.852	15.592	-14.013
S.D.	8.088	0.119	14.952	9.754	3.466	4.757	0.769	6.632
% R.S.D.	48.513	3.936	190.367	53.511	132.739	21.767	4.931	47.324

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-1.528	7.744	3.033	-12.769	29.216	203.116	90.964	9.546
S.D.	0.227	2.054	2.854	52.347	0.685	36.771	0.389	0.178
% R.S.D.	14.846	26.520	94.099	409.954	2.345	18.103	0.428	1.863

	Tl (ppb)
Mean	-119.697
S.D.	43.302
% R.S.D.	36.176

Corrected Counts Statistics 1:24 PM January 22, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

[illegible]rte	Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
[illegible]	1	0.011	0.007	
Sr	2	0.005	0.006	
Bi	3	-0.233	0.006	
Ta	5	0.042	0.016	
Hg	6	1.546	0.004	
Sn	7	0.029	0.025	
Si	8	0.728	0.004	
Al	9	1.493	0.010	
[illegible]	10	0.057	0.008	
Zn	11	5.818	0.022	
Cu	12	2.202	0.015	
Li	14	-0.013	0.003	
Co	15	2.153	0.012	
Ni	16	2.096	0.019	
La	17	-0.003	0.001	
Eu	18	-0.084	0.010	
Fe	19	1.540	0.047	
Ca	20	3.516	0.028	
Cr	21	1.252	0.006	
Nd	22	-0.007	0.084	
Ce	24	0.031	0.016	
Sm	25	-0.041	0.013	
Ba	26	8.264	0.050	
P	27	0.013	0.003	
[illegible]	28	0.040	0.018	
	29	2.373	0.015	
[illegible]	30	0.394	0.017	
Na	31	0.859	0.021	

Mo	32	1.578	0.013
Se	33	0.169	0.006
Ag	34	1.552	0.003
[illegible]	35	0.276	0.020
	36	3.587	0.017
Cd	37	11.936	0.075
B	38	2.376	0.020
K	39	0.803	0.005
Mn	40	5.006	0.033
Sb	42	0.074	0.007
V	43	0.741	0.003
Be	44	2.612	0.022
Tl	45	0.009	0.005

Identity 1: CCV-4 Identity 2: CCV 1:24 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)	Mg (ppm)	Sn (ppb)	Si (ppb)	Al (ppb)
Mean	-6.453	-0.195	-184.488	33.457	-1547.170	8.230	433.209	428.530
S.D.	2.931	0.235	6.132	9.656	235.660	5.538	2.841	3.894
% R.S.D.	45.413	120.001	3.324	28.861	15.232	67.285	0.656	0.909

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-1425.230	466.859	487.641	-1.177	483.717	489.310	1.344	-0.744
S.D.	245.639	1.900	3.299	0.303	2.694	4.260	2.325	0.624
% R.S.D.	17.235	0.407	0.677	25.714	0.557	0.871	173.029	83.879

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	487.338	537.615	499.054	-39.340	-43.732	-93.779	492.697	-10.296
S.D.	14.953	4.557	2.211	37.276	42.460	36.887	2.996	15.582
% R.S.D.	3.068	0.848	0.443	94.753	97.092	39.334	0.608	151.347

	S (ppb)	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	32.282	483.148	469.446	471.660	469.624	497.527	504.987	479.944
S.D.	19.589	3.146	20.721	12.999	3.815	16.708	0.769	34.250
% R.S.D.	60.680	0.651	4.414	2.756	0.812	3.358	0.152	7.136

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	482.518	478.515	462.248	4928.262	482.983	425.492	482.646	465.914
S.D.	2.164	2.979	3.845	29.396	3.192	35.756	1.783	3.837
% R.S.D.	0.449	0.623	0.832	0.596	0.661	8.404	0.369	0.824

	Tl (ppb)
Mean	493.318
S.D.	36.864
% R.S.D.	7.473

Corrected Counts Statistics 1:26 PM January 22, 1992
name : ALL_SIM
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	0.003	
Sr	2	-0.007	0.002	
Bi	3	-0.070	0.017	
Ta	5	-0.008	0.007	
Hg	6	1.525	0.002	
Sn	7	-0.005	0.032	
Si	8	0.107	0.026	
Al	9	0.344	0.016	
W	10	-0.041	0.003	
Zn	11	0.045	0.005	
Cu	12	0.040	0.005	
Li	14	-0.019	0.008	
Co	15	-0.016	0.012	
Ni	16	-0.055	0.004	
La	17	-0.004	0.001	
Eu	18	-0.094	0.004	
Fe	19	0.011	0.012	
Ca	20	0.177	0.001	
Cr	21	-0.006	0.006	
Mo	22	0.017	0.077	
	24	0.021	0.004	
	25	-0.030	0.006	
Ba	26	-0.004	0.005	
P	27	0.015	0.001	
S	28	0.021	0.011	
Mg	29	0.004	0.001	
As	30	-0.010	0.010	
Na	31	0.055	0.014	
Mo	32	0.009	0.005	
Se	33	-0.042	0.005	
Ag	34	-0.123	0.004	
Pb	35	0.001	0.005	
Ti	36	-0.116	0.007	
Cd	37	-0.119	0.060	
B	38	0.002	0.024	
K	39	-0.050	0.007	
Mn	40	0.004	0.005	
Sb	42	0.008	0.004	
V	43	0.016	0.002	
Be	44	-0.008	0.001	
Tl	45	-0.070	0.005	

Identity 1: CCB-4 Identity 2: CCB 1:27 PM January 22, 1992
Task name : ALL_SIM
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	-7.627	-0.665	-20.499	3.762	-2754.717	0.661	-3.514	-42.061
S.D.	1.345	0.078	16.637	4.171	98.041	6.958	18.261	6.439
% R.S.D.	17.630	11.765	81.160	110.889	3.559	1052.171	519.615	15.308

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	1596.727	-28.492	-1.735	-1.749	-2.766	-1.138	0.001	-1.357
S.D.	98.718	0.393	1.140	0.764	2.719	0.994	2.325	0.265
% R.S.D.	6.183	1.380	65.687	43.684	98.306	87.354	170166.349	19.558

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	1.588	-13.502	-0.529	-24.852	-70.207	-59.579	-0.258	6.216
S.D.	3.745	0.091	2.326	34.045	10.955	16.145	0.310	3.575
% R.S.D.	235.789	0.675	439.512	136.992	15.604	27.099	119.911	57.513

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	16.641	-3.699	-16.227	-17.417	-3.013	29.839	-6.709	-2.335
S.D.	12.015	0.237	12.529	8.300	1.594	14.262	1.235	8.027
% R.S.D.	72.202	6.415	77.207	47.654	52.917	49.453	18.403	343.696

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-2.576	-1.047	2.517	-49.759	0.171	77.045	-5.609	-0.119
S.D.	0.917	2.372	4.659	38.888	0.443	21.012	1.029	0.103
% R.S.D.	35.593	226.462	185.095	78.153	259.542	27.272	18.348	86.629

	Tl (ppb)
Mean	-69.411
S.D.	33.180
% R.S.D.	47.803

Corrected Counts Statistics 1:28 PM-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	-0.038	0.007	
Sr	2	246.915	1.714	
Bi	3	-0.128	0.014	
Ta	5	-0.027	0.014	
Hg	6	1.564	0.008	
Sn	7	21.595	0.151	
Si	8	0.066	0.002	
Al	9	0.094	0.025	
W	10	0.680	0.039	
Zn	11	112.114	0.897	
C	12	20.990	0.121	
Li	14	96.827	0.202	

S.D.	5.943	39.918	18.676	4.977	2.574	50.752	3.379	13.681
% R.S.D.	9.990	0.839	192.625	0.051	213.616	32.529	0.926	585.773

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-3.188	9213.408	4714.972	4992.507	4708.141	4780.208	-4.262	-0.119
S.D.	1.325	105.564	28.363	38.000	44.369	101.904	3.038	0.370
% R.S.D.	41.573	1.146	0.602	0.761	0.942	2.132	71.291	312.344

	Tl (ppb)
Mean	-2.362
S.D.	32.393
% R.S.D.	1371.276

Corrected Counts Statistics 1:31 PM 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	-0.140	0.003	
Sr	2	0.005	0.002	
Bi	3	4.958	0.041	
	5	-0.046	0.015	
	6	1.565	0.019	
	7	-0.059	0.024	
Si	8	0.003	0.003	
Al	9	1.249	0.029	
W	10	-0.027	0.025	
Zn	11	0.099	0.005	
Cu	12	0.101	0.002	
Li	14	-0.005	0.009	
Co	15	-0.029	0.008	
Ni	16	-0.070	0.014	
La	17	1.286	0.008	
Eu	18	78.008	0.372	
Fe	19	0.022	0.008	
Ca	20	0.852	0.005	
Cr	21	0.008	0.002	
Nd	22	11.901	0.034	
Ce	24	1.920	0.010	
Sm	25	1.818	0.006	
Ba	26	-0.426	0.006	
P	27	0.018	0.002	
S	28	0.017	0.004	
Mg	29	0.013	0.001	
As	30	0.088	0.005	
Na	31	0.080	0.006	
Mo	32	0.026	0.006	
[illegible]	33	-0.028	0.011	
	34	16.563	0.053	
Pb	35	2.806	0.009	
Ti	36	-0.124	0.003	

Cd	37	-0.119	0.044
B	38	0.009	0.015
K	39	-0.051	0.002
Mn	40	-0.011	0.001
[illegible]	42	-0.027	0.009
	43	0.065	0.002
Be	44	-0.003	0.001
Tl	45	-0.036	0.004

Identity 1: SST2 STD 2B48Ab Identity 2: Direct 1:32 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)
Mean	-72.915	-0.182	5049.062	-19.203	-509.434	-11.169	-76.614	328.567
S.D.	1.415	0.060	41.128	8.695	1083.387	5.350	1.860	11.677
% R.S.D.	1.940	32.733	0.815	45.280	212.665	47.900	2.427	3.554

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	1146.341	-23.830	11.926	-0.404	-5.606	-4.634	5192.512	5128.015
S.D.	770.926	0.405	0.471	0.910	1.698	3.079	30.494	24.444
% R.S.D.	67.251	1.702	3.952	225.463	30.288	66.442	0.587	0.477

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	5.188	98.176	5.029	5238.360	5130.900	5355.810	-25.440	24.791
S.D.	2.384	0.832	0.606	15.154	28.595	17.670	0.359	9.458
% R.S.D.	45.952	0.848	12.059	0.289	0.557	0.330	1.413	38.151

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	11.351	-1.850	100.933	-1.811	2.210	65.225	5090.597	4911.547
S.D.	4.073	0.119	5.427	3.715	1.765	30.323	16.226	15.700
% R.S.D.	35.877	6.415	5.377	205.181	79.899	46.490	0.319	0.320

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	-3.668	-1.074	3.937	-59.493	-1.357	-108.560	27.181	0.771
S.D.	0.330	1.737	2.808	8.921	0.096	47.664	1.348	0.103
% R.S.D.	8.988	161.754	71.326	14.996	7.099	43.906	4.958	13.323

	Tl (ppb)
Mean	170.048
S.D.	29.033
% R.S.D.	17.073

[illegible]rected Counts Statistics 1:33 PM January 22, 1992
[illegible] name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

Lyte	Channel	Mean Kpulses	S.D. Kpulses	2R.S.D. Kpulses
	1	23.822	0.125	
Sr	2	0.013	0.006	
Bi	3	-1.919	0.017	
Ta	5	16.521	0.105	
Hg	6	27.875	0.009	
Sn	7	0.098	0.053	
Si	8	12.878	0.078	
Al	9	11.970	0.072	
W	10	32.581	0.110	
Zn	11	0.051	0.009	
Cu	12	0.062	0.002	
Li	14	-0.008	0.014	
Co	15	-0.089	0.011	
Ni	16	0.310	0.011	
La	17	-0.005	0.001	
Eu	18	-0.157	0.008	
Fe	19	0.037	0.007	
Ca	20	0.223	0.001	
Cr	21	0.003	0.005	
Nd	22	-0.053	0.039	
Ce	24	0.035	0.012	
Sm	25	-0.092	0.013	
Ba	26	0.001	0.009	
P	27	1.557	0.023	
[illegible]	28	4.735	0.020	
	29	0.012	0.001	
[illegible]	30	4.095	0.050	
Na	31	0.092	0.022	
Mo	32	33.045	0.168	
Se	33	1.575	0.025	
Ag	34	-0.106	0.012	
Pb	35	-0.081	0.002	
Ti	36	37.887	0.181	
Cd	37	-0.277	0.039	
B	38	0.038	0.001	
K	39	-0.057	0.011	
Mn	40	0.011	0.003	
Sb	42	0.013	0.009	
V	43	14.794	0.073	
Be	44	55.721	0.272	
Tl	45	0.669	0.001	

Identity 1: SST3 STD 3B48AD Identity 2: Direct 1:34 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)
	10473.560	0.130	-1884.199	9820.509	1488735.849	23.515	8972.974	4720.936
[illegible]	55.151	0.248	16.657	62.475	534.998	11.716	54.703	29.534
2 R.S.D.	0.527	190.523	0.884	0.636	0.036	49.823	0.610	0.626

	W (ppb)	Zn (ppb)	Cu (ppb)	Li (ppb)	Co (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)
Mean	-1000122.841	-28.006	3.171	-0.706	-19.062	82.162	-6.711	-5.495
S.D.	3373.547	0.793	0.453	1.443	2.356	2.512	4.650	0.535
% R.S.D.	0.337	2.830	14.281	204.207	12.358	3.057	69.296	9.735

	Fe (ppb)	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)
Mean	9.846	-5.850	3.176	-55.766	-31.863	-242.307	0.060	9549.821
S.D.	2.083	0.165	2.063	17.462	34.208	38.109	0.534	145.254
% R.S.D.	21.153	2.826	64.951	31.313	107.360	15.728	896.289	1.521

	S (ppb)	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)
Mean	5096.242	-2.055	4924.477	5.486	9950.680	4481.037	-1.617	-145.385
S.D.	21.774	0.119	60.508	13.464	50.624	70.118	3.816	3.646
% R.S.D.	0.427	5.774	1.229	245.436	0.509	1.565	235.941	2.508

	Ti (ppb)	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)
Mean	4975.787	-7.346	9.488	-90.642	0.809	105.061	9950.844	9912.685
S.D.	23.683	1.561	0.194	65.124	0.279	48.808	49.062	48.331
% R.S.D.	0.476	21.245	2.041	71.848	34.463	46.457	0.493	0.488

	Tl (ppb)
Mean	5234.605
S.D.	8.295
% R.S.D.	0.158

Teresa L. Frazier
1-22-92