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ANALYTICAL SERVICES

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Tank: 241-BY-104

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WHC-SD-WM-TI-540, REV. 1

INTRODUCTION

LIST OF TERMS

DQO	data quality objective
DSC	Differential Scanning Calorimetry
EDTA	ethylenediaminetetraacetic acid
IC	Ion Chromatography
ICP	Inductively Coupled Plasma
LOW	liquid observation well
PNL	Pacific Northwest Laboratory
RSST	Reactive System Screening Tool
SST	single-shell tank
TC	total carbon
TBP	tributyl phosphate
TGA	Thermogravimetric Analysis
TIC	total inorganic carbon
TOC	total organic carbon
WHC	Westinghouse Hanford Company

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1.0 INTRODUCTION

This report describes the analysis of the surface crust samples taken from single-shell tank (SST) BY-104, suspected of containing ferrocyanide wastes. This sampling and analysis will assist in ascertaining whether there is any hazard due to combustion (burning) or explosion of these solid wastes. These characteristics are important to future efforts to characterize the salt and sludge in this type of waste tank. This report will outline the methodology and detail the results of analyses performed during the characterization of this material. All analyses were performed by Westinghouse Hanford Company at the 222-S laboratory unless stated otherwise.

1.1 BACKGROUND

Beginning in late 1954, significant quantities of potassium (later sodium), ferrocyanide, and nickel sulfate were added (Sloat 1954) to aqueous liquid wastes that resulted from the uranium recovery process. The uranium recovery process (TriButyl Phosphate process) extracted and decontaminated uranium from the metal waste produced in the Bismuth Phosphate Process (plutonium recovery). A large volume of aqueous waste, approximately equal in volume to the metal waste itself, resulted from this operation. Virtually all the radioactive fission products were present in the TBP process waste stream. Production estimates of the quantity of highly radioactive liquid wastes from this process ranged up to 140 million liters (35 million gallons). This quantity would have exceeded the storage capacity of the existing tanks.

Tests showed (Burns 1954 and Smith 1954) that metal ferrocyanides have a good affinity for cesium. If introduced into slightly basic waste solutions, these compounds cause the cesium to precipitate primarily as sodium nickel cesium ferrocyanide $[\text{NaCsNiFe}(\text{CN})_6]$. An excess of ferrocyanide was added to ensure complete scavenging of the cesium. The resulting supernate was then removed and cribbed to the soil column. Estimates of scavenging efficiency indicated that virtually all the cesium (and remaining strontium) would precipitate in a small sludge volume. A sludge volume of only 10 (or less) percent of the aqueous waste volume would free up large amounts of tank space.

The above process was conducted primarily at the U Plant (TBP Plant) in the 200 West Area, in waste tanks associated with T Plant (200 West Area), and at B Plant (200 East Area). Tanks were only used for precipitation and supernate withdrawal, as all chemical additions were performed in the plants. The ferrocyanide precipitate is currently estimated to be distributed among 24 of the SSTs.

In 1984, work done by Pacific Northwest Laboratory (PNL) reiterated the possibility that potentially explosive mixtures of ferrocyanide, nitrates, and nitrites may reside in these tanks (Burger 1984). Followup work is currently defining these explosive parameters (Burger 1991). None of the known or suspected ferrocyanide tanks, however, is at or near a temperature sufficiently high to cause a reaction. According to the historical records, tank 241-BY-104 has been identified (Borsheim and Simpson 1992) as the tank with the greatest amount of ferrocyanide wastes.

Tank 241-BY-104 has been sampled previously (Horton 1976), and that analysis is also discussed in relationship to the ferrocyanide tank safety issue (Grigsby et al. 1992). As discussed in Grigsby, some of the Horton analysis data are suspect, especially for nitrate.

1.2 ANALYTE PRIORITIES AND DETECTION LIMIT GOALS

The task of characterizing the waste in the SSTs requires a focused effort and a good understanding of the goals of the project. Analyte priorities and proposed detection limit goals are preliminary data quality objectives (DQO) that have been developed for the SST waste characterization effort based on health risk and regulation criteria. Volume 2 of the Preliminary Recommendations Report (Wegend 1990) provides a detailed description and analysis of these DQOs.

The vast number of analytes that are known or suspected to be in SSTs, requires that priorities be set on which analytes to concentrate efforts. The criteria for determining the importance of analytes for these augered crust samples are based on the possibility that this material could burn or explode. This would overwhelm the high-efficiency particulate air filter system, presenting a health risk, as defined by state and Federal regulations, to the public and Hanford Site workers.

1.3 SAMPLING

Augered samples were taken of the surface material (salt cake) under risers 5 and 10B of tank 241-BY-104. Most samples were from the first 15 cm (6 in.). The salt cake in BY-104 exists from the 3.7 m (12 ft) above the bottom of the tank to approximately 1.8 m (6 ft) above the bottom of the tank where the interstitial water level lies (Grigsby et al. 1992). Ferrocyanide is not expected to be present in the salt cake, but is expected to be distributed on the bottom of the tank (Grigsby et al. 1992). See Figure 1.1 for a schematic of the tank.

The augering method of sample collection may partially homogenize the solid sample. Even though some stratification information within the augered depth may have been lost, a top and bottom sample were taken from each auger for differential scanning calorimetry (DSC) and thermogravimetric analysis (TGA) before homogenization of the remaining sample was performed. Before further testing, each sample was thoroughly homogenized by stirring before analysis to ensure the reproducibility of duplicate samples. The required duplicate subsampling (both duplicate samples and spikes) ensures adequate information from which to estimate various components of variability.

The subsampling and analyses performed were done according to the direction found in the test plan (Beck 1992a). The sampling and analyses were performed under the quality assurance requirements found in WHC-SD-CP-QAPP-002 (Moss 1989) and WHC-SD-CP-QAPP-003 (Moss 1990).

Riser Identification

Riser No.	Size	Identification
R-1	4"	Temp. Probe
R-2	4"	Not Usable
R-3	4"	Spare
R-4	4"	Air Filter
R-5	12"	Liquid Level
R-6	12"	Not Usable
R-7	12"	Saltwell Pump
R-8	12"	Not Usable
R-9	42"	Cover PL
R-10	42"	Adapter PL
R-10A	18"	Vent Intake
R-10B	4"	Sludge
R-10C	4"	Low
R-11	42"	Cover PL
R-12	42"	Adapter PL
R-12A	18"	Vent Exhaust
R-12B	4"	Spare
R-13	42"	Cover PL

Figure 1-1. Schematic of Riser Locations in Tank 241-BY-104.

2.0 SAMPLE DIGESTION AND SAMPLE BREAKDOWN

2.1 DIRECT SOLIDS

The auger samples had the appearance of dirty (brown), slightly damp, granular salt. The material was crumbly as it was removed from the augers, but gained a sort of "peanut butter" texture during stirring (for homogenization). Free liquid was not seen while removing the augers from the shipping cask, nor was any seen while performing the sample aliquoting (Jewett 1990). Riser 5 had 221 g of material on the auger, while riser 10B had 85 g on the auger. The material appeared visually similar throughout each auger and between augers. Subsamples denoted "top" and "bottom" for DSC and TGA were taken directly from the augers. All other subsamples were taken from the homogenized composite material from each auger. The analyses performed on the direct solid were: DSC, TGA, adiabatic calorimetry, cyanide, weight percent water, and total organic carbon (TOC). Total organic carbon on the solid material was performed at the PNL. After all sample aliquoting, the only remaining material is from the riser 5 auger. Some riser 10B material may be recovered from the analysis aliquots. Some of the riser 5 material is being used for Raman spectroscopy development tests. The material that is to be archived will be kept at least 1 year.

2.2 FUSION—PROCEDURE LA-549-141

Fusion digestion consists of mixing the sample with potassium hydroxide and heating the mixture. Almost all refractory materials will be broken down in the hot alkaline mixture. The cooled mixture is then dissolved in dilute hydrochloric acid. The alkali fusion was done in a nickel crucible, which renders nickel analyses suspect. The dilute acid mixture constitutes the product of this procedure. The following list of measurements was performed from a fusion digestion for every riser: ^{137}Cs , ^{90}Sr , gamma energy analysis, plutonium, americium, uranium, total alpha, total beta, and inductively coupled plasma (ICP) analyses. These assays are important to assess the hazard associated with any combustion or explosion that may occur within the tank.

2.3 WATER DIGESTION—PROCEDURE LA-504-101

Water digestion consists of combining the sample with an excess of water (0.5 g in 50 mL is typical) and subjecting the mixture to an ultrasonic bath for 1 hour, after which the mixture is left overnight and filtered. The filtrate is then used for further analyses. Ion chromatography (IC) analysis for anions (LA-533-105), ICP for dissolved digestion metals, pH, total inorganic carbon (TIC), and TOC using the 222-S Laboratory method (LA-344-105) were performed from a water digestion of each sample.

2.4 ACID DIGESTION—PROCEDURE LA-505-158

Acid digestion consists of dissolving the sample in nitric acid, partial boildown of the mixture, and addition of hydrochloric acid. An ICP analysis was performed for dissolved metals digestion resulting from an acid digestion.

3.0 ANALYTICAL RESULTS

In the following paragraphs, analytical results are grouped by analysis to facilitate the comparison of the values for the two augers. All values reported here are the average of two replicate values unless otherwise noted. The term duplicate is used synonymously with replicate in this report. The replicate samples were generated at the sample digestion point for those samples digested or at the analysis point for those analyses requiring direct sample. Analytical error is reported as plus or minus the small-sample standard deviation (for $N-1$ degrees of freedom where N is the number of replicate determinations). N is equal to two unless stated otherwise. The small-sample standard deviation corresponds to the error at the 50 percent confidence level at one degree of freedom (the usual number of degrees of freedom, corresponding to two runs). The error at the 95 percent confidence level is equal to 12.7 times the small sample standard deviation. All standards and blanks were within laboratory acceptance criteria unless stated otherwise.

3.1 DIFFERENTIAL SCANNING CALORIMETRY/THERMAL GRAVIMETRIC ANALYSIS

Differential scanning calorimetry is a major tool in determining the actual response of the tank waste to heating. The DSC will show a negative peak (endotherm) if the reaction or physical change requires an external heat source to take place and a positive peak (exotherm) if the reaction or physical change releases heat. Three major features (peaks) were found: water loss, an unidentified peak (hereafter called Endotherm 2), and an exotherm of uncertain cause. Thermal gravimetric analysis (discussed later) helps to identify the peaks by correlating any weight loss with the peak.

Peak assignments were made for water loss on the basis of the known amount of water loss (by gravimetry) and the fact that this peak is seen in all samples as a similar shape at a similar temperature.

The peak assignment for Endotherm 2, a nitrate-melting, organic partial oxidation, and aluminum hydroxide decomposition peak, has been made by comparison with previous waste tank samples (Beck 1992b), synthetic materials, and standards (Bechtold 1992). The implication that some small endotherms (assigned as nitrate melting and aluminum hydroxide decomposition) are the same as some very large endotherms is based on peak location.

The exothermic peak (at $\sim 400^\circ\text{C}$) is not labeled with a specific cause, because of the uncertainty of the chemistry involved. However, it is likely that it involves the oxidation of carbon (probably organic carbon rather than cyanide).

The DSC for water loss was not always integrated, because the reporting system calls for simply reporting the presence or absence and value of exotherms. All water loss endotherms are qualitatively similar (Table 3-1).

Table 3-1. Thermogravimetric Analysis and Differential Scanning Calorimetry for Water Loss.

Analysis--event assignment	Riser 5 Top of auger	Riser 10 Top of auger	Riser 5 Bottom of auger	Riser 10 Bottom of auger	Riser 5 homogenized composite	Riser 10 homogenized composite
TGA--Water Loss						
Temperature range	Ambient-190	35-141	Ambient--160	35-134	Ambient-150	Ambient-145
% Weight loss $\pm \sigma$	20.4 $\pm$ 0.9	20.2 $\pm$ 0.1	17.7 $\pm$ 0.5	22 $\pm$ 3	15.4 $\pm$ 1.5	20 $\pm$ 3
DSC--Water Loss						
Temperature range ($^{\circ}$ C)	45-174	65-165	44-193	70-150	52-179	46-164
Heat added (endotherm) or lost (exotherm) (-) (J/g $\pm \sigma$)	482 $\pm$ 6	Large but not integrated	440 $\pm$ 60	Large but not integrated	412 $\pm$ 57	580 $\pm$ 180

The percent water detected by this method is higher for top and bottom portions than that detected by large-scale gravimetry on the composites. Although one might expect that the small (~20 mg) TGA samples to lose more moisture than on handling, the opposite was found. However, the TGA was measured over a greater temperature range and a higher final temperature than the large scale gravimetry test (percent water, Section 3.5). In addition, the values for the composite samples for TGA match the percent water values obtained from the composite samples used for large scale gravimetric measurement of percent water. The DSC and TGA samples for the top and bottom were taken directly off the auger simultaneously, while the composite sample was taken as much as a day later, after compositing.

Endotherm 2 (Table 3-2) is associated with a large mass loss. A similar endotherm has also been seen in synthetic ferrocyanide tank samples (Bechtold 1992) where carbon dioxide (CO_2) and nitric oxide (NO) evolution was seen coincident with the mass loss (see Appendix D). In those synthetic ferrocyanide sludge samples, the same endotherm preceding an exotherm was seen. The differences in composition between the synthetics (high cyanide) and the tank 241-BY-104 samples (roughly 50 ppm cyanide) may make these comparisons less useful. Endotherm 2 may be because of any one or a combination of the following:

- Decomposition of carbon containing materials (probably organics, considering the low level of cyanide present). This hypothesis is supported by the fact that a large endotherm is followed by a large exotherm, while a small endotherm is followed by a small exotherm. The fact that a mass loss is associated with the endotherm also supports a decomposition hypothesis.
- Melting of nitrates/nitrites. This is possible, but a significant mass loss would be not be expected. Nitrate/nitrite melting could be followed by an exotherm, if the melting changes the reaction environment to one favorable to exothermic activity. The exothermic activity observed in the adiabatic calorimetry study supports this hypothesis, inasmuch as the exothermic activity could be responsible

for the mass loss. Also, the concentrations of nitrate and nitrite are large enough (>10 percent total nitrate/nitrite) to support such an endotherm.

- Decomposition of aluminum hydroxide. The fact of an associated mass loss supports this hypothesis. However, aluminum hydroxide decomposition would not explain the associated exotherm.

All three mechanisms may be occurring. It is known (Bechtold 1992) that nitrate melting causes some carbon source decomposition.

Table 3-2. Thermogravimetric Analysis and Differential Scanning Calorimetry Endotherm 2 Salt Melting or Aluminum Hydroxide or First Part Carbon Decomposition.

Analysis-- event assignment	Riser 5 Top of auger	Riser 10 Top of auger	Riser 5 Bottom of auger	Riser 10 Bottom of auger	Riser 5 Homogenized composite	Riser 10 Homogenized composite
TGA--Endotherm 2						
Temperature range (°C)	N/A	115-292	160-460	127-301	150-635	125-301
% Weight loss ± σ	Very slight, not measurable	3.6 ± 1	23.3 ± 0.2 ^a	2.48 ± .03	19 ± 2 ^b	1.96 ± 0.03
DSC--Endotherm 2						
Temperature range (°C)	240-290	230-280	214-305	N/A	219-311	229-287
Heat gained endotherm or lost exotherm (-) (J/g ± σ)	Not integrated, estimated ~50	Not integrated, estimated ~30	320 ± 150	Not integrated or estimable peaks	310 ± 32	23 ± 13

^aThe TGA was integrated without baseline correction, duplicate analysis was graphically estimated.

^bThe TGA was integrated without baseline correction, over a range that includes the high temperature exotherm.

The conversion between J/g and cal/g is: 4.18J/g = 1 cal/g.

The larger exotherm peaks are those following a large endotherm. This may mean that the two events are related by the same overall cause. The exotherms do not have significant weight losses associated with them, which is surprising, because it could be assumed that this exotherm was related to the oxidation of carbon, and therefore CO₂ should be lost, along with its associated mass (Table 3-3). The DSC and TGA traces are included as Appendix A.

Table 3-3. Thermal Gravimetric Analysis and Differential Scanning Calorimetry Exotherm.

Analysis--event assignment	Riser 5 Top of auger	Riser 10 Top of auger	Riser 5 Bottom of auger	Riser 10 Bottom of auger	Riser 5 Homogenized composite	Riser 10 Homogenized composite
TGA--Exothermic Reaction						
Temperature range (°C)	380-440	292-429	N/A	301-430	N/A	294-433
% Weight loss $\pm \sigma$	2 ± 0.7^a	2.80 ± 0.09	No apparent weight loss	1.93 ± 0.01	Weight loss included with lower temperature endotherm	2 ± 0.5
DSC--Exothermic Reaction						
Temperature range (°C)	311-443	357-443	303-405	358-441	390-454	375-435
Heat gained (endotherm) or lost (exotherm)(-) (J/g $\pm \sigma$)	-103 ± 3	-40 ± 5	-171 ± 70	-31 ± 10	-22 ± 4^b	-18 ± 12

^aEstimated graphically, not integrated.

^bThis value may be as much as 4 times larger, i.e., 100 J/g. This statement is supported by the fact that the TGA shows significant weight loss, with the heating shown in adiabatic calorimetry. The baseline endpoint choice may not be correct because of an improper baseline at lower temperatures. It may be more appropriate to set the baseline at the high temperature end of the endotherm. The conversion between J/g and cal/g is: $4.18\text{J/g} = 1\text{ cal/g}$.

3.1.1 Summary of Differential Scanning Calorimetry/Thermal Gravimetric Analysis Results

The test plan (Beck 1992a) states that DSC and TGA results above 120 J/g would require a run of that sample by adiabatic calorimetry, except composites that were to be run in any case. Composites were to be run regardless of DSC and TGA results. As per H. Babad's telecommunication with M. A. Beck, the decision limit should read 120 cal/g (501 J/g). None of the samples approached this level of thermal activity.

The differences between the top, bottom, and composite subsamples are surprising, especially considering the observed visual homogeneity.

The samples from riser 5 show a significant difference in behavior when compared to those from riser 10B. This is not surprising, given the variation between the two auger samples in all other analyses.

The TGA percent water loss is in general agreement with the gravimetric percent water. However, differences are present.

In all cases, the net exotherm is much smaller than the net endotherm.

There are no sudden, sharp peaks in the DSC, indicating that the samples did not undergo severe self-heating or propagate the exothermic reaction under the conditions of the DSC. Better information about self-heating is available by adiabatic calorimetry.

3.2 ADIABATIC CALORIMETRY

The principal reason for characterizing tank 241-BY-104 crust is the concern that some in-tank activity, such as rotary coring, might ignite it, and the resulting reaction might spread to the entire crust. Adiabatic calorimetry of substantial amounts (~10 g) of the sample helps to address this concern by providing the most direct measurement possible of a material's tendency to self-heat. Furthermore, because the instrument used in this measurement heats the sample and measures its temperature at different spatial locations, the tendency for the sample to propagate its self-heating behavior can also be detected. The test plan (Beck 1992a) called for adiabatic calorimetry on composite samples.

3.2.1 Method

The instrument used for adiabatic calorimetry was the Fauske & Associates, Inc., Reactive System Screening Tool (RSST). It and the procedures for its use are detailed in a test plan (Bechtold 1991). It holds a 5 to 10 mL sample in a heated, insulated, low-heat capacity, spherical glass holder sealed within a sample bomb. The bomb's headspace is monitored by a pressure transducer. The sample temperature is monitored by a rapid-response K-type thermocouple imbedded in the sample. The instrument is calibrated against temperature and pressure calibrators.

Tank waste samples are predried and pulverized, loaded into the holder, and placed in the bomb. The bomb is pressurized with nitrogen to an initial back pressure of approximately 70 lb/in² and sealed before starting a run. The run consists of directing the controller to heat the sample quickly to temperatures where interesting behavior could occur, then slowly to the limit of the instrument's heating capability (nominally 450 °C). During a run, the sample temperature and headspace pressure are digitally logged for subsequent interpretation and analysis. A sample with substantial self-heating capability could very well raise its own temperature beyond the instrument's heating limit, perhaps beyond the limit of K-type thermocouple measurements, about 1,370 °C.

3.2.2 Samples

The tank 241-BY-104 crust material analyzed by adiabatic calorimetry consisted of composites. Material was taken from the top and bottom flutes of each auger and mixed together for this analysis. Two such composites were made, sample R1773 from the riser 5 auger, and sample R1775 from the riser 10B auger. Each sample was pre-dried in a beaker heated by a hot plate, and exposed to the draft in the hot cell. Drying times were at least 48 hours, during which the sample was stirred at least once. The drying temperature of sample R1773 was approximately 57 °C, while that of sample R1775 was approximately 100 °C. After drying, each sample was pulverized in an alumina mortar and pestle sufficiently to be poured into a RSST sample holder. There were sufficient amounts of dried material for each sample to be analyzed in duplicate, using 10 mL of powder in each run.

3.2.3 Results

The results of the adiabatic calorimetry runs, their analysis, and interpretation were similar to those for tank 241-SY-101 waste that are reported in Herting (1992a). The details of the analysis and interpretation that were performed can be found there and will not be repeated here.

For each test run, the automatically logged information (temperature vs. time, pressure vs. time, and pressure vs. temperature) was graphed. These graphs appear in Appendix B. In addition, for each sample, certain data (rate of temperature change vs. temperature, moles gas vs. time, and rate of gas production vs. temperature) calculated from the logged information were also graphed and inserted in Appendix B.

3.2.3.1 Summary. To summarize the adiabatic calorimetry, the crust indeed has self-heating capability, as indicated by the DSC results (see Section 3.1 and Appendix A), but no propagating capability was evident. Both samples exhibited greater self-heating over a wider temperature range than the DSC work suggested. Self-heating was evident in the range 180 °C to 250 °C, after a large endotherm was traversed, and continued through at least two reaction steps to finish at temperatures as high as 520 °C (uncorrected). The composites from riser 5 were definitely more thermally active than those from riser 10B, despite their having more residual water and, thus, greater pre-self-heat endotherms. Gas generation by the samples was also evident. The riser 5 sample generated more noncondensable gas than did the riser 10B sample. The quantitative results are discussed below.

3.2.3.2 Auxiliary Data. The initial and final reading for each test are presented in Table 3-4. The percentage change in sample weight in column 8 reflects the generation of noncondensable gas as well as the loss of residual water from the samples. The riser 5 sample clearly showed the effect of lower drying temperatures. The drying temperature had been lowered deliberately so as not to inadvertently consume any possible low-temperature exotherms that might exist in the range 100 to 160°C. Subsequent analysis shows that there were none. The initial and final temperatures and pressures are used below to calculate total moles of noncondensibles generated by each test.

Table 3-4. Auxiliary Test Data.

Test ID and material	At start of run sample at ambient T			At end of run sample cooled to ambient T				Comment
	P _{O₂} (lb/in ²)	T _O (°C)	w _O (g)	P _f (lb/in ²)	T _f (°C)	w _f (g)	%w (%)	
920831: Tank 241-BY-104 sugar composites riser 108 sample R1778	68.1	20.8	11.4	76.8	21.8	10.81	-6.9	Predried at ~ 100°C
920901: Duplicate of above	66.3	21.8	12.23	74.8	22	11.4	-6.8	same as above
920910: Tank 241-BY-104 sugar composites riser 6 sample R1773	71.3	19.4	9.97	85.0	20.4	8.48	-14.8	Predried at ~ 57°C; more residual water
920814: Duplicate of above	67.5	18.3	12.68	85.5	17.8	10.93	-13.8	same as above

3.2.3.3 Temperature-Related Results. Table 3-5 presents results extracted from the graphs in Appendix B and least squares fits to portions thereof. The listed onset temperatures represent the best judgement of where the self-heating is clearly evident. This determination is generally confounded by the interference of the large endotherm immediately before the self-heating. There is clearly no self-heating below the endotherm, but there could be self-heating masked within it. As an alternative to judging the onset temperature, the fitted parameters E_a and K_{250} can be used to calculate an estimate of the self-heating rate in this region, ignoring the baseline heating rate that is supplied by the instrument, using the formula:

$$\frac{dT}{dt} = K_{250} e^{-\frac{E_a}{R} \left(\frac{1}{T} - \frac{1}{523.15} \right)} \quad (1)$$

where R is the gas constant (1.98719×10^{-3} Kcal/mole/°K), and the temperature is expressed in degrees Kelvin.

The listed quantity ΔT_{true} represents the ultimate temperature rise past the onset temperature attained or attainable by the sample, implicitly corrected for the instrument-imposed heating baseline. The explicit correction factor ϕ removes the parasitic heat capacity of the sample holder (Herting 1992a). It is calculated from the sample specific heat that has not been measured but which is probably at least 0.2 cal/g/°C. Therefore ϕ is no greater than 1.10.

The maximum rate of self-heating observed from the graphs, Max. dT/dt , is not correctable for the baseline because the detailed chemical kinetics of the self-heating process are not known.

The portion of the initial self-heat data that is unaffected by either the endotherm or the later depletion of reactants is fitted by an Arrhenius function to extract the parameters K_{250} (the self-heat rate at 250 °C) and E_a (the activation energy).

The data in its entirety quantify the thermal runaway behavior of the tank 241-BY-104 crust in the adiabatic limit. There is more information in the graphs that could yield parameters for a complete calculation of a thermal runaway in the crust for any heat-transfer situation. However, more work must be done to extract them.

Table 3-5. Calculated Temperature-Related Results.

Test ID and material	T _{onset} (°C)	ΔT _{true} (°C)	Max. dT/dt (uncorr.) (°C/min), at T (°C) or min. from onset	1st stage E _a (Kcal/mole)	1st stage k ₂₅₀ (°C/min)	Comments
920531: Tank 241-BY-104 super composite, riser 108 sample R1773	250	φ × 98	φ × 6 at 370° or 38 min. from onset	12.96	φ × 0.4824	Endotherm masks onset
920901: Duplicate of above	220	φ × 122	φ × 7.1 at 360° or 47 min. from onset	13.22	φ × 0.6078	Endotherm masks onset
920910: Tank 241-BY-104 super composite, riser 5 sample R1773	180	φ × 245	φ × 200 at 470° or 32 min. from onset	23.98	φ × 3.858	Large endotherm induced extra heater offset in baseline
920914: Duplicate of above	210	φ × 245	φ × 80 at 465° or 33 min. from onset	28.00	φ × 1.552	Large endotherm induced extra heater offset in baseline

3.2.3.4 Noncondensible Gas Results. The rates of heating in tank 241-BY-104 samples are sufficiently low that the calculation of gas quantities can be corrected for nonisothermal temperatures within the sample bomb headspace. The procedure for finding the temperature correction factor F from the pressure vs. temperature graph and applying it to the logged data is found in Herting (1992a). The F factors so determined, as well as other gas data, are contained in Table 3-6. The variation in F factors from run to run can be attributed to minor differences in sample packing and holder placement, since F is determined by the materials and geometry of the sample holder bomb environment.

The calculated specific gas production $\Delta H/w_0$ and apparent average molecular weight of the gases $M_{app} = |\Delta w|/\Delta H$ calculated from the logged data can be compared with the same quantities produced from the auxiliary initial and final readings as a check, keeping in mind that the latter data is much more vulnerable to slow leakage. M_{app} is invariably too high by either method, because condensate water influences the change in sample weight but not the final pressure from which moles are calculated.

Table 3-6. Calculated Noncondensable Gas Related Results.

Test ID and material	P ₀	$\Delta N/w_0$ by calc. (mol/g dry)	M_{avg} by calc. (g/mol)	$\Delta N/w_0$ by auxiliary data (mol/g dry)	M_{avg} by auxiliary data (g/mol)	Max. (dN/dt) _{w_0} (mmol/m ² /g) at T (°C) or minutes from onset	Initial dN/dt E ₀ (Kcal/mol)	Initial dN/dt K _{350/w_0} (mmol/m ² /g dry)
920831: Tank 241-BY-104 sugar composite near 108 sample R1775 above	0.2201	5.26 E-4	131	5.8 E-4	120	$\phi \times 3.1 E-5$ at 370° or 38 minutes from onset	25.25	$\phi \times 4.73 E-7$
920901: Duplicate of above	0.2238	8.13 E-4	111	7.1 E-4	88	$\phi \times 4.4 E-5$ at 355° or 47 minutes from onset	18.12	$\phi \times 1.18 E-6$
920910: Tank 241-BY-104 sugar composite near 8 sample R1775 above	0.2078	1.45 E-3	103	1.55 E-3	88	$\phi \times 4.8 E-4$ at 425° or 32 minutes from onset	18.16	$\phi \times 2.41 E-5$
920914: Duplicate of above	0.2039	1.5 E-3	82	1.3 E-3	108	$\phi \times 4.9 E-4$ at 450° or 23 minutes from onset	12.28	$\phi \times 1.71 E-6$

$$P_v = NAT \text{ effective } T_{\text{effective}} = F \times T_{\text{sample}} + (1 - F) \times T_{\text{ambient}} \quad F = (dP/dT)_{T_0} \times T_0/P_0$$

* High because of (condensable) evolved water that contributes weight loss but not pressure.
Noncondensable gases only

The maximum specific gas production rates, $\text{Max. } (dN/dt)/w_0$ (uncorr.), listed in Table 3-6 are observed from the dN/dt vs. T graph. They are useful for determining if the vent for a tank has sufficient capacity to prevent tank rupture in a thermal runaway.

The initial stage of the gas generating events in the samples was fitted by an Arrhenius function to yield an activation energy and a specific gas generation rate at 250 °C. These correlation parameters are also listed. They are useful for calculating the noncondensable gas generation rate in the early stages of a thermal runaway.

3.3 CYANIDE (LA-695-102)

The results of the cyanide analyses are presented in Table 3-7 and discussed below.

Total cyanide analysis was performed on each homogenized sample. This method may not be ideally suited to certain ferrocyanide tank matrices.

As suggested by K. H. Pool of PNL, a rerun was made to visually determine whether ferrocyanide solids remained undissolved. This test was not conclusive (Jewett 1990), as only a very small speck of material remained undissolved in the distillation flask. It was not possible to determine the color of the speck, because of its small size.

A further check on the method was made by running these samples by the same method, but modified (see Appendix C) to use an aqueous ethylenediaminetetraacetic acid (EDTA) and Ethylene diamine solution to attempt to solubilize tightly bound cyanide. The modification was an adaption of a K. H. Pool method.

The modified method did not appear to work as well as the normal method, giving a low standard value (90 percent) and a spike value that was very low. The analyst saw a precipitate form in the riser 5 samples, which may indicate some sort of unwanted reaction. Precipitation was not seen while using the normal method, although small amounts of material may be left undissolved. The modified method gave results on the same order of magnitude as the standard method. The conclusion that can be drawn is that the values for the standard method given above are correct. The iron, nickel (ICP), and TOC results indicate that the maximum possible amount of ferrocyanide in the solid is 3 percent Fe(CN)_6 by weight, assuming a 6:1 ratio of cyanide to iron. Given the consistency of the cyanide data, the conclusion that can be drawn is that the maximum possible ferrocyanide concentrations (based on iron) are not present and that the standard method cyanide values are correct.

Table 3-7. Cyanide Analysis.

	Riser 5 $\mu\text{g/g}$ wet solids	1 σ	Spike recovery %	Riser 10B $\mu\text{g/g}$ wet solids	1 σ	Spike recovery %
Normal method	37	9	114	71	13	Not run
Normal method: rerun for dissolution check	42.9	0.3	103	86	6	73.3
Combined data, normal method: four runs	39	6	N/A	78	12	N/A
Modified method (5% EDTA/5% ethylene diamine)	69	7	69	75.1	0.3	Not run

3.4 TOTAL ORGANIC CARBON

The TOC was performed by the PNL (Appendix D) hot persulfate oxidation method on solids (PNL Procedure 7-40.47) and the Westinghouse Hanford Company (WHC) method on liquids. The PNL methods should measure TOC, while the WHC method should measure only water-soluble organic carbon. The results are given in Table 3-8.

Table 3-8. Total Organic Carbon and Total Inorganic Carbon.

Auger #	TOC-soluble, $\mu\text{g/g}$	TOC-direct sample, $\mu\text{g/g}$	TIC-water soluble (WHC) $\mu\text{g/g}$	TIC-direct sample (PNL) $\mu\text{g/g}$
Riser 5	6,000 $\pm$ 180	9,100 $\pm$ 300	20,000 $\pm$ 1,600	19,000 $\pm$ 200
Riser 10B	10,750 $\pm$ 14	11,000 $\pm$ 300	48,000 $\pm$ 1,300	38,500 $\pm$ 400

TOC = total organic carbon

TIC = total inorganic carbon

PNL = Pacific Northwest Laboratory

WHC = Westinghouse Hanford Company

3.5 TOTAL INORGANIC CARBON

The TIC-soluble results should reflect the amount of soluble carbonate. The analysis was run at the 222-S Laboratory on a water digest. The direct sample analysis was run at PNL (see Appendix D) for TOC and TIC. The TIC as performed by PNL should reflect total carbonate. Cyanide should not interfere in this analysis because its concentration was low, and it should be trapped in the instrument and not analyzed. The discrepancy between the TIC-soluble and the TIC-direct sample can be partially explained by the large error in the TIC-soluble data. Table 3-8 details the TIC results.

3.6 WEIGHT PERCENT WATER, pH

The percent water analysis was performed by the gravimetric method. A key feature of this method is that the sample is heated to only 120 °C, thereby reducing the chance of decomposition or other degradation of the sample. The procedure for weight percent water in tank farm and evaporator samples is LA-564-101. The method for pH entails mixing a portion of solid sample with an equal weight of water and measuring the pH of the resulting slurry. The results of these analyses are given in Table 3-9.

Table 3-9. Weight Percent Water and pH.

Auger #	% Water $\pm 1 \sigma$	pH $\pm 1 \sigma$
Riser 5	17.1 $\pm .1$	13.155 ± 0.005
Riser 10B	15.1 $\pm .3$	11.86 ± 0.01

3.7 INDUCTIVELY COUPLED PLASMA

Inductively coupled plasma optical emission spectroscopy was done for aluminum, sodium, calcium, potassium, phosphorus, and zirconium and catalytically important transition metals copper, cobalt, iron, chromium, nickel, and manganese. Other analytes were included. This analysis (LA-505-151) was done for subsamples prepared by water digestion, acid digestion, and fusion digestion. All values in Table 3-10 are averages of two values and have been rounded to the highest significant figure of the small-sample standard deviation (1σ). The standard deviations are not included because of space limitations in comparing the various digestion results.

3.7.1 Results

Aluminum is probably in the form of aluminum hydroxide ($\text{Al}(\text{OH})_3$), because the water digest value is much lower than the acid or fusion digests. If aluminum was in the form of aluminate, one would expect similar values for all digestions, as sodium aluminate is water soluble. This idea is supported by the X-ray diffraction data, which denotes $\text{Al}(\text{OH})_3$ as the major insoluble polycrystalline species. Aluminum hydroxide is used in the mass balance discussion as $\text{Al}(\text{OH})_3$, because it is not dehydrated at the 120 °C used to determine percent water.

Sodium was diluted a factor of six more than the other analytes. This was necessary because of the very high concentration of sodium in the sample. The large dilution may have contributed to the high error for sodium. The values for sodium measured by the ICP instrument were higher than the highest sodium standard run during the analysis. This is true for even the highest dilution. The out-of-calibration-range error could have contributed to analytical error, and that error is most likely to be biased low, because of detector nonlinearity near the overload point. A low sodium value could contribute to the mass balance problem (see the discussion).

The relatively high (1 percent for riser 5) results for chromium are unusual. The data are consistent over several types of digestions, so the amount is not likely to be an error. The source of such concentrations of chromium is unknown, but two hypotheses include; pipe cleaning reagent and reduction-oxidation processing. Comparison of the water digestion and fusion values shows that the chromium is largely soluble. The proposed soluble chromium species is chromate (CrO_4^{2-}). Chromium (III) hydroxide is amphoteric and could be solubilized by water digestion and dilution. However, it is insoluble (Rai 1987) in the amounts measured by the ICP in the diluted water digest solution. Chromium (III) hydroxide is therefore not likely to be the species in the samples.

Twenty-five other elements were determined by ICP. These elements were not requested, but were automatically analyzed for as part of the analysis protocol. The total concentration of these elements did not exceed 0.7 percent.

Table 3-10. Inductively Coupled Plasma Analyses.

Element	Water Digestion		Acid Digestion		Fusion Digestion	
	Riser 5 μg water soluble element/g wet solids	Riser 108 μg water soluble element/g wet solids	Riser 5 $\mu\text{g/g}$ wet solids	Riser 108 $\mu\text{g/g}$ wet solids	Riser 5 $\mu\text{g/g}$ wet solids	Riser 108 $\mu\text{g/g}$ wet solids
Iron	6.25	4.63	6,000	2,090	7,080	2,500
Aluminum	1,900	300	80,000	18,000	80,700	13,100
Sodium	152,000	272,500	180,000	270,000	160,000	250,000
Phosphorus	2,300	2,800	3,000	3,000	4,100	6,390
Strontium					1,700	614
Zirconium	0.5	1.5	70	36	45	36
Silicon					909	2,080
Cobalt	4.5	1	50	23	67	
Zinc					100	400
Nickel	2.1	3	1,300	540	4,000	5,000
Calcium	<27	45	1,500	710	1,460	780
Chromium	11,900	2,300	14,000	3,900	16,800	4,240
Barium					42	20
Sulfur	9,200	18,000			10,500	18,300
Magnesium	1.2				150	128
Selenium					2,000	523
Copper	<0.3	0.9	20	7	45	400 a
Cadmium					98	41
Manganese	<0.3	<0.3	300	110	367	141
Molybdenum	26.1					
Potassium	3,000	2,100	2900	2400		

^aThis value has a standard deviation larger than the value itself.

3.7.2 Quality Control

All standards and blanks were within acceptable limits, as per (Moss 1989). Spikes were not requested, since these analyses are of lesser importance and fast turnaround times were desired. Some spike analyses were performed, as doing spiked samples is normal protocol for 222-S laboratories. These analyses provide general information about the homogeneity/inhomogeneity of the tank and the homogeneity of the composite. These analyses also provide some basis for speculation on the major species in the tank. For these purposes, spikes are not necessary, since standards, blanks, duplicate analyses are adequate.

Some spikes were done, and those are reported.

The spike results for fusion digestion are as follows: spikes were performed on the riser 5 sample; cobalt had low recovery (89 percent), as did copper (56 percent), while all other recoveries were within ± 7 percent of the known value.

The spike results for ICP with preparation by acid digestion are as follows: spikes were performed on the riser 5 sample; aluminum, nickel, iron, sodium, and potassium had sample concentrations much larger than the spikes, which makes spike recoveries a less useful quality control measure.

Recoveries were within ± 10 percent of the accepted value for all spiked analytes except selenium (which had a low recovery) and copper (which also had a low recovery). No spike analyses were run for silicon, chromium, and manganese.

No spike recoveries were performed for ICP analyses for water digested samples.

3.8 PARTICLE SIZE ANALYSIS OF WATER DIGESTATES

Even though sodium nickel ferrocyanides were not expected to be present in tank 241-BY-104 crust, if they were present they should remain as undissolved solids in a sample that has been stirred in an excess of water. The test plan was prepared without substantial evidence that ferrocyanides were absent from the salt cake, and so particle size analysis was thought to be a prudent analysis. The particle size distribution of ferrocyanides is of interest from a safety analysis standpoint, because it bears on the extent to which aerosols of cesium-containing ferrocyanide could form in a tank accident, and on the thermal reactivity of the ferrocyanide with nitrate and/or nitrite salts. For this purpose, two samples of the solids remaining after water digestion of tank 241-BY-104 crust material were particle-sized.

3.8.1 Samples

Two water digestate samples, R1749 (riser 5) and R1750 (riser 10B), were analyzed in duplicate. A small portion of each sample was removed from the vial and dispersed into water in the sizing cuvette.

3.8.2 Equipment and Method

Each cuvette of dispersed sample was placed in the Brinkmann 2010 particle-size analyzer for analysis. This instrument determines diameters by detecting the interception of a scanning focused laser beam--normally impinging on a photodiode detector on the other side of the cuvette--by a particle in its path. The light beam is scanned continuously in a circular arc at a known speed by a rotating prism; the elapsed time of beam interruption by a particle is proportional to its diameter. Machine software examines the photodiode beam detector's pulse rise time, width, and fall time to determine which events represent a good scan across the full diameter of a particle, and which events are to be rejected because of a tangential interception. The software also rejects events caused by laser light "twinkling through" loosely held agglomerates or transparent particles.

The instrument lightly stirs the cuvette suspension to give all particles an equal probability of encountering the moving laser beam and interrupting its passage to the detector. This can only occur where the beam is brought to a focus in the center of the cuvette, before it rediverges on its way to the detector. The focusing of the laser enables the instrument to better size particles individually in concentrated suspensions.

The events collected over a counting session are sorted into 300 channels that represent steps in particle diameters of 0.2, 0.5, 1.0, or 2.0 μm , depending on which instrumental range is selected. Thus, the particles can be scanned (in separate counts) over ranges from 0.4 to 60 μm , 0.5 to 150 μm , 2 to 300 μm , or 5 to 600 μm . The particles may be viewed while they are being counted with a video microscope and light source aimed at right angles to the laser-photodiode path. For the present analysis, scans from 0.5 to 150 μm and from 0.5 to 60 μm were made, each to a total accumulation of 30,000 "good" particle detections.

The sizer's calibration is fixed by the motor-driven scanning speed. Calibration is checked on a quarterly basis by two or three sizes of spherical particle standards covering its range.

The raw data consists of the counts, which are sorted into count-accumulation channels representing 300 different diameter categories. The instrument can present the data in this form or in any of a multitude of derived forms. For example, the data may be seen as weighted by the cube of the diameter to represent a volume-based distribution. The data as-is or as-derived may be tabulated or plotted. The choices of plots include linear or log diameter scales and linear, normal, log-normal, Rosin-Rammler, frequency, or cumulative distribution scales. Derived statistics are also available.

3.8.3 Results

Each sample and its duplicate was analyzed over the range 0.5 to 60 μm to emphasize the number distribution, and additionally over the range 0.5 to 150 μm to emphasize the volume (mass) distribution. This made for eight analyses in all. For each sample or duplicate, the following graphics were printed out:

0-60 μm count

Statistics

Number density vs. log
Diameter

Cumulative number distribution
vs. log diameter

0.5-150 μm count

Statistics

Volume density vs. log
Diameter

Cumulative volume distribution
vs. log diameter

These may be found in Appendix E.

Examination of the printouts show that the overwhelming number of particles are in sizes less than 10 μm in diameter, and significant numbers probably exist in sizes below 0.5 μm , beyond the low-end counting range of the instrument.

However, the insoluble particulate volume (mass) appears to be bimodal on a log scale, because there is a small local mode in volume at approximately 4 μm , and a larger mode at approximately 50 μm . Most of the mass appears concentrated in particles above 20 μm in diameter. In fact, it appears probable that significant mass resides in particles greater than 150 μm in diameter, a region not scanned.

The disparity in scale between number-based and mass-based distributions of particles in the digestate residues is illustrated by the population means from the statistics printouts, shown for convenience in Table 3-11.

Table 3-11 also indicates that, in general, the sample from riser 10B has a smaller size distribution than does the sample from riser 5.

Table 3-11. Distribution Means.

Sample	0.5-60 μm count number, length mean $= \Sigma(L_i \cdot N_i) / \Sigma N_i$	0.5-150 μm count volume, moment mean $= \Sigma(L_i \cdot L_i^3 \cdot N_i) / \Sigma(L_i^3 \cdot N_i)$
Riser 5	1.34 μm	40.15 μm
Riser 5 duplicate	1.32 μm	53.67 μm
Riser 10B	1.17 μm	34.66 μm
Riser 10B duplicate	1.14 μm	23.20 μm

3.9 RADIOCHEMICAL ANALYSES

All radiochemical analyses were performed with the fusion dissolution solution. The results (Table 3-12) are given in terms of microcuries of radionuclide per gram of solids as delivered to the lab (wet, as compared to a treated, dried sample). However, uranium results are presented as micrograms of uranium per gram wet solids.

The ^{137}Cs values can be compared to those found by a cadmium telluride (CdTe) gamma detector (Keele 1991) in the drywell in riser 10C (which is approximately 0.6 m (2 ft) from riser 10B). The riser 10C (CdTe detector) values range from 40 $\mu\text{Ci/g}$ wet solids at the solid surface to 75 $\mu\text{Ci/g}$ wet solids at approximately 3 ft below the surface. The values gathered by the CdTe method and the gamma energy analysis agree, given that the values for the CdTe method are probably biased low, since the collimation into the detector was not optimum.

Table 3-12. Radiochemical Analysis.

Analysis	Riser 5 $\mu\text{Ci/g}$ wet solids* $\pm 1 \sigma$	Riser 10 $\mu\text{Ci/g}$ wet solids $\pm 1 \sigma$
Total alpha	0.24 ± 0.07	0.14 ± 0.03
Total beta	613 ± 17	288 ± 7
Gamma energy analysis	^{137}Cs 115.6 ± 0.6 four other nuclides reported, all at less-than levels ($<10 \text{ E-1 } \mu\text{Ci/g}$)	^{137}Cs 76 ± 3 four other nuclides reported, all at less-than levels ($<10 \text{ E-1 } \mu\text{Ci/g}$)
Uranium	3725 ± 64 $\mu\text{g/g}$ wet solids	1640 ± 28 $\mu\text{g/g}$ wet solids
$^{239/240}\text{Pu}$	0.07 ± 0.02	0.025 ± 0.003
^{90}Sr	143 ± 14	60 ± 2
^{241}Am	0.103 ± 0.004	0.043 ± 0.002

*unless otherwise noted.

3.10 SPECIATION

X-ray diffraction (Procedure LA 507-151, Revision B3), particle size analysis, and polarized light microscopy (method described in Herting 1992b) were conducted for all residues from water digestion to identify insolubles (such as ferrocyanides, if present) in the salt cake.

3.10.1 X-Ray Diffraction

The X-ray diffraction patterns clearly show $\text{Al}(\text{OH})_3$ to be the dominant insoluble crystalline species in both auger samples. No evidence of ferrocyanides can be seen. That is not surprising considering the low (<5 percent) concentration of cyanide, iron, and nickel. X-ray powder diffraction is insensitive to minor fractions (<5 percent), amorphous

materials, or materials with a low atomic number. Note that the samples for X-ray diffraction consist of the residues of the water digestion procedure, and so any species seen must be water-insoluble. Also included are X-ray fluorescence scans that show the presence of iron, chromium, uranium, strontium, and a number of minor constituents. These results are strictly qualitative.

3.10.2 Polarized Light Microscopy

Slide preparations for polarized light microscopy were made from subsamples from riser 5 and 10B. A polymeric resin called Cytoseal[®], which hermetically seals the sample between the slide and coverslip, was used as the mounting medium. The refractive index of Cytoseal was unknown so the refractive index of crystals was not determined.

The two samples appeared to possess the same chemistry. The size and color of crystals, particle size distribution, and crystal habits were very similar between the two samples. For the most part, the crystals adhered to each other in large (50 to 500 μm) agglomerates, which were dark and opaque. The interstitial liquid was also dark and opaque.

Several types of particles were present in these samples: very small (<1 to 2 μm) opaque crystals like iron oxides, isotropic crystals like sodium chloride, and birefringent crystals such as sodium nitrite.

The bulk of the sample seemed to be made up of very small opaque particles. The particle size distribution of this material extended from about 1 μm to below the limit of detection by light microscopy (about 0.5 μm). The high extinction coefficient of these particles for visible light may have contributed significantly to the color of the sample, which was dark reddish brown. The interstitial liquid seemed to be saturated with these opaque crystals as well, because it too possessed a reddish brown color.

Sodium nitrite crystals were seen that ranged in size between 20 and 75 μm in length. These crystals were highly distorted and probably contained considerable amounts of sodium nitrate and sodium carbonate in their crystal structures.

There were other crystals present whose identity is still unknown. Some crystals were birefringent shards that looked like sodium carbonate crystals, but possessed a positive optic sign instead of the negative optic sign that is representative of sodium carbonate. Also present were plate-like crystals, which looked like sodium nitrite but possessed low birefringence instead of sodium nitrate's high birefringence characteristic.

3.11 ION CHROMATOGRAPHY

IC was performed on the aqueous portion of the water digestion material. IC detects only those anions that are soluble in water and are free to dissolve during the digestion. This means that any anions bound tightly in an insoluble material will not be detected. The anions measurable by this method include fluoride, chloride, nitrite, nitrate, phosphate, and sulfate.

The analytes that could interfere with this method include carbonate, which in high concentrations could give a spuriously high reading for fluoride. The effect of carbonate on this analysis is not known at this time, but given the high dilution and the fact that carbonate is used as an eluant and suppressed in the detector, little effect is expected. The anion values would seem to be low, but thorough checking of the data and numerous reruns confirm the concentration values given in Table 3-13.

Table 3-13. Ion Chromatography Results.

Analyte	Riser 5 $\mu\text{g/g}$ wet solids $\pm 1 \sigma$	Riser 10B $\mu\text{g/g}$ wet solids $\pm 1 \sigma$
Fluoride	6,735 $\pm$ 120	12,100 $\pm$ 1,400
Chloride	1,945 $\pm$ 60	1,170 $\pm$ 100
Nitrite	11,900 $\pm$ 1,000	15,700 $\pm$ 850
Nitrate	49,050 $\pm$ 1,200	74,500 $\pm$ 4,400
Phosphate	5,785 $\pm$ 220	3,840 $\pm$ 820
Sulfate	26,500 $\pm$ 1,700	44,600 $\pm$ 3,800
Total anion	101,900 $\mu\text{g/g}$ wet solids	152,000 $\mu\text{g/g}$ wet solids

4.0 DISCUSSION

4.1 NONHOMOGENEITY

The vertical nonhomogeneity observed between the top, bottom, and composite samples does not prove a layering of material. The differences may be caused by pockets of differing material, rather than thin layers. Differences between the two augers implies that any horizontal layers of distinctly differing material are smaller than the distance between the two sampling points.

When the set of radionuclide data of riser 5 is plotted and regressed against the data from riser 10B, the best fit line shows a factor of 3 difference between the two auger sample values and an R-squared of 0.99985, that indicates that riser 5 values are greater than riser 10B radionuclide values and that the differences seen are true among a wide variety of radionuclides. The difference in values (for all radionuclides) between the two auger samples indicates nonhomogeneity. However, the average ratio (riser 5/riser 10B) of the seven radionuclide concentrations is 2.17 ± 0.40 , which implies that the regression is influenced by the large numeric value of uranium concentration. The standard deviation value implies that at the 90 percent confidence level, the concentrations of radionuclides are different for the two auger samples.

Riser 10B is about 22 inches from riser 10C, so it might be expected that analytical values should be similar. Riser 10C, the location of the gamma scan ^{137}Cs values, is the location of a liquid observation well (LOW). Space for the LOW in the tank material is made by using a water lance to wash material away. This may be a cause of the differences that are seen in most analyses which exist between riser 5 and riser 10B. Riser 5 is about 21 ft from riser 10B and is nearer the center of the tank. See Figure 1.1 for a schematic drawing of the tank and relative location of risers.

The last project ("Bottoms Loop") that added or removed material from this tank, both input to and output from the tank was performed from riser 9. The "Bottoms Loop" project's was source of the last large material movement in the tank. This means that the "Bottoms Loop" project probably has a greater effect on the analysis results than earlier material movement to or from the tank, including the ferrocyanide material additions.

4.2 MASS AND CHARGE BALANCE CHECKS

Mass and charge balance checks can help determine the overall accuracy of the chemical analyses. The total mass balance is calculated by adding the concentrations of the metals, anions, TOC, TIC, and water and comparing that value to 1,000,000 $\mu\text{g/g}$ sample (100 percent mass balance).

The mass contribution of the metals is found by adding the concentrations of the fusion digest ICP metals analyses. Some metals have concentration multipliers to reflect the unanalyzed oxygen in oxide [CrO_3], hydroxide [$\text{Al}(\text{OH})_3$], or uranyl (UO_2^{+2}) compounds in which those metals may be. Only metals of percent range concentration have concentration multipliers, as the

other metals values are lost in the error of the major constituents (sodium, aluminum, and chromium.).

$$\langle \text{Zr} \rangle + 2.9 \langle \text{Al} \rangle + \langle \text{Co} \rangle + \langle \text{Cu} \rangle + \langle \text{Na} \rangle + \langle \text{Fe} \rangle + \langle \text{Ni} \rangle + \langle \text{Ca} \rangle + 1.7 \langle \text{Cr} \rangle + \langle \text{K} \rangle + \langle \text{Mo} \rangle + 1.1 \langle \text{U} \rangle = \text{total metals mass } (\mu\text{g/g sample})$$

The mass contribution of the anions is determined by adding the concentrations of the anions.

$$\langle \text{F}^- \rangle + \langle \text{Cl}^- \rangle + \langle \text{NO}_2^- \rangle + \langle \text{NO}_3^- \rangle + \langle \text{PO}_4^{3-} \rangle + \langle \text{SO}_4^{2-} \rangle + 3 \langle \text{TOC} \rangle + 5 \langle \text{TIC} \rangle = \text{total anion mass } (\mu\text{g/g sample})$$

$$\text{Mass balance} = \text{total metals mass} + \text{total anion mass}$$

These calculations are similar (except for some concentration multipliers) to those found in the 101-SY Window "E" Report (Herting 1992a).

The total found mass (mass balance) for riser 10B is 866,000 $\mu\text{g/g}$ wet solids. The total found mass (mass balance) for riser 5 is 840,000 $\mu\text{g/g}$ wet solids.

The concentrations used for the oxyanions are those from IC, which are limited to water-soluble anions. The only available comparisons between water-soluble and water-insoluble anions are for phosphate, which indicate that a small amount of phosphorus (assumed to be phosphate) is insoluble. The difference is not enough to significantly affect the mass balance calculation. The TOC and TIC results are from the solid sample and should be indicative of both soluble and insoluble material.

Visual inspection of the residue from the water digest (as samples R1749 and R1750) showed that it is on the same order of magnitude as the amount of solid samples (about 0.5 g) used in the water digest. No gravimetric measurement was performed on the residue and no estimate of loss in sample generation is available. Water insoluble material makes up a significant portion of the water digest, implying that insoluble anions would not be seen by Ion Chromatography and may contribute to the unanalyzed (missing) mass.

The charge balance is calculated by finding the ratio of the charge equivalents of the cations and anions. The charge equivalents are found by dividing the concentrations of each species by its atomic mass.

$$\begin{aligned} & \langle \text{F}^- \rangle / 19 + \langle \text{Cl}^- \rangle / 35 + \langle \text{NO}_2^- \rangle / 46 + \langle \text{NO}_3^- \rangle / 62 + 3 \langle \text{PO}_4^{3-} \rangle / 95 + 2 \langle \text{SO}_4^{2-} \rangle / 96 + \\ & 2 \langle 5 \text{ TIC} \rangle / 60 + \langle \text{TOC} \rangle / 36 = \text{total anion charge equivalent} \\ & = 5887 \text{ for riser 5 and } 10056 \text{ for riser 10B.} \end{aligned}$$

$$\begin{aligned} & \langle \text{Na} \rangle / 23 + \langle \text{K} \rangle / 39.1 = \text{total cation charge equivalent} \\ & = 7725 \text{ for riser 5 and } 11799 \text{ for riser 10B.} \end{aligned}$$

The cation/anion charge equivalent ratio should equal 1.

The charge balance ratio for riser 5 is: 1.31

The charge balance ratio for riser 10B is: 1.17

Several hypotheses can be formulated to explain the mass balance problem. One hypothesis is that some of the missing mass may be an anion (because of the sign of the charge imbalance) of large mass to charge ratio (because of the small amount of charge imbalance and large mass imbalance). An alternative hypothesis suggests that the remaining charge imbalance is made up of hydroxide; some neutral species provides the rest of the missing mass. A third hypothesis suggests the missing mass is a combination of sodium (which has a demonstrably large analytical error) and hydroxide.

4.3 COMPARISON ANALYSES

Comparisons between the different analyses is only possible for sulfate/sulfur and phosphate/phosphorus (for IC and ICP). The phosphate (IC)/phosphorus (ICP) results indicate that either the ICP results are biased low, or the IC results are biased high. However, the results are essentially the same at the 95 percent confidence level. A correction factor for the extra oxygens of phosphate is necessary to compare the two sets of results. The sulfate (IC)/sulfur (ICP) results, after correction for the mass of oxygen in sulfate, are the same within experimental error (at the 95 percent confidence limit).

5.0 CONCLUSIONS

The thermal response of tank 241-BY-104 auger samples is generally mild. The material has the ability to self-heat when heated to *circa* 180 °C, but shows no tendency to propagate self-heating to adjacent material. This is consistent with the findings that tank 241-BY-104 auger material contains only about 1 percent TOC. The 15 to 20 percent water content serves to further decrease the chemical reactivity of the material.

The level of cyanide and iron, and therefore of ferrocyanides, is very low.

The tank shows evidence of considerable inhomogeneity, both in the horizontal and vertical dimensions. The present set of tests present evidence for inhomogeneity in the horizontal dimension, which is much stronger than the evidence for inhomogeneity in the vertical dimension. Horizontal inhomogeneity can be seen in the differences between riser 5 and riser 10B results of chemical constituents. Vertical inhomogeneity is implied in the DSC and TGA results. Because of limitations of the sampling method, any conclusions presented in this report are strictly valid only for the surface solid material in the tank to a depth of approximately 0.15 m (6 in.) from the surface.

The low results for the mass balance indicate that either some constituent(s) were not analyzed for, or that significant errors exist in the concentrations found in one or more of the major constituents. Several hypotheses have been proposed in the discussion section. The comparable values obtained for phosphorus by ICP and IC indicate that the dilution factors were correctly determined and calculated for IC. This eliminates IC dilution errors as a cause of the mass and charge balance problem. The ¹³⁷Cs values determined by gamma energy analysis are comparable to the results derived from previously obtained direct gamma scans (CdTe method).

The concentrations found for the major constituents, except chromium, are in line with the expectations.

6.0 ACKNOWLEDGMENTS

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WHC-SD-WM-TI-540, REV. 1

**DIFFERENTIAL SCANNING CALORIMETRY AND
THERMOGRAVIMETRIC ANALYSES WITH TRACES OF
ASSOCIATED STANDARDS**

Table A-1. Sample and Sample Number Correspondence.

	Riser 5	Riser 10B
Top of auger	R1740	R1744
Bottom of auger	R1741	R1745
Composite	R1742	R1746

Samples R1739 and 1743 are standards.

00710941994

0 0 0 0 0 4 1 5 5

DSC R1746 Riser 10B - composite duplicate/

WHC-SD-WM-TI-540, REV.1

R-1739-5512 STD
29.350 mg
File: 00038.001
Ident: _____
TG METTLER
222-S Laboratory

Rate: 10.0 °C/min

TGA STD

Step Analysis
Height-16.85 mg
-57.41 %
Resid. 12.50 mg
42.59 %
Dpeak 91.7°C

Lead Analyst 8/2/92

0 0 0 0 0 4 7 1 5 1

DSC R1745 - bottom of auger duplicate |

00300040102

TGA R1746 Riser 10B - composite

26/02/2

[Handwritten signature]

00300 4717

DSC R1744 Riser 10B - top of auger duplicate

0 0 3 0 0 2 4 7 1 4 8

TGA Riser 10B - bottom of auger

00300747143

26/92/2 *[Signature]*

R-1744-5712
15.516 mg

File: 00151.001 TG METTLER 23-JUL-92
Ident: 222-S Laboratory

Rate: 10.0 °C/min

DSC R1742 Riser 5 - composite dup
WHC-SD-WM-TI-540, REV.1

0 0 0 0 0 4 1 1 4

00000004139

TGA R1744 Riser 10B - top of auger/

Loss of weight 8/24/92

00300747140

TGA Riser 5 - composite

WHC-SD-WM-TI-540, REV.1

R-1472 DUP
24.181 mg

File: 00044.001

TG METTLER 30-Jul-92

222-S Laboratory

Ident: _____

Rate: 10.0 °C/min

Step Analysis
Height -3.98 mg
-16.45 %
Dpeak 85.0 °C

Step Analysis
Height -4.20 mg
-17.37 %
Dpeak 246.7 °C

See attached plot

00000750135

DSC R1740 Riser 5 - top of auger duplicate (data not used)

Paul McCallum 8/21/92

00300740136

TGA R1741 Riser 5 - bottom of auger

WHC-SD-WM-TI-540, REV.1

R-1471-5812 DUP

File: 00042.001

TG

Ident: 0

222-S Laboratory

Rate: 10.0 °C/min

21.340 mg

Step Analysis

Height -3.85 mg

-18.06 %

Dpeak 83.3°C

21.340 mg

21.340 mg

21.340 mg

Lead mGall 1 2/21/92

00000034117

26/92/2 *[Signature]*

WHC-SD-WM-TI-540, REV.1 |

File: 00450.001 TG METTLER 23-Jul-92
Ident: 222-S Laboratory

Rate: 10.0 °C/min

R 1743-5512

Step Analysis
Height--10.67 mg
--59.74 %
Resic. 7.19 mg
40.27 %
Dpeak 98.3 °C

17.859 mg

mg

15.

10.

48

°C

400.

300.

200.

100.

00300743118

TGA STD
17.519 mg

Rate: 10.0 °C/min

File: 00155.001

TG METTLER

24-Jul-92

Ident: 222-S Laboratory

TGA STD

TGA Standard R1743
WHC-SD-WM-TI-540, REV.1

Step Analysis
Height-10.47 mg
-59.77 %
ResidC. 7.04 mg
40.16 %
Dpeak 96.7 °C

Std Value = 59.5%

% Recovery = 101

00300043119

TGA Standard

WHC-SD-WM-TI-540, REV.1

File: 00110.001 TG METTLER 15-JUL-92
Ident: 222-S Laboratory

Rate: 10.0 °C/min

5.077 mg

TGA CALIB. STD

50

0 0 0 0 0 4 1 2 9

R-1740-5712

16.758 mg

Rate: 10.0 °C/min

File: 00039.001

TG

METTLER

30-JUL-92

Ident:

222-S Laboratory

Step Analysis
Height -3.52 mg
-20.99 %
Dpeak 103.3 °C

WMC-SD-WM-TI-540, REV.1

DSC Standard

Lead Analyst: J. W.

WHC-SD-WM-TI-540, REV.1

File: 00040.001

TG METTLER

30-Jul-92

222-S Laboratory

Ident:

Rate: 10.0 °C/min

R-1740-5812 DUP

8.859 mg

Step Analysis
Height -1.75 mg
-19.75 %
Dpeak 98.3 °C

6.859 mg 8/21/92

0030034132

DSC R1740 Riser 5 - top of auger

25-11-92
[Signature]

00300343133

File: 00122.001
DSC METTLER 23-Jul-92
222-S Laboratory

Rate: 10.0 °C/min

11.741 mg

10. mW
exo

R1740 Riser 5 - top of auger duplicate
WHC-SD-WM-TI-540, REV.1

Integration
Delta H 930 mJ
79.2 J/g
Peak 413.9 °C
3.3 mW

Integration
Delta H 252 mJ
21.5 J/g
Peak 240.3 °C
1.3 mW

R 1740 BY-104

100. 200. 300. 400. °C

00300742134

File: 00123.001 DSC METTLER 23-Jul-92

Ident: 222-S Laboratory

Rate: 10.0 °C/min

15.218 mg

exo
10. mW

Integration
Delta H 1383 mJ
90.9 J/g
Peak 413.5°C
4.5 mW

Integration
Delta H 342 mJ
22.5 J/g
Peak 239.2°C
1.9 mW

R 1740 DUP. BY-104

DSC R1740 Riser 5 - top of auger (data not used)
WHC-SD-WM-TI-540, REV.1

WHC-SD-WM-TI-540, REV.11

File: 00017.001 DSC METTLER 12 14-Aug-92
 Ident: 222-S Laboratory 8-16-92

Rate: 10.0 °C/min

12.810 mg

Integration
 Delta H 70 mJ
 5.5 J/g
 Peak 201.6°C
 -0.9 mW

Integration
 Delta H 6139 mJ
 479.2 J/g
 Peak 123.2°C
 -18.9 mW

Integration
 Delta H 159 mJ
 122.5 J/g
 Peak 730.4°C
 5.3 mW

Integration
 Delta H 5460 mJ
 425.9 J/g
 Peak 300.7°C
 -20.1 mW

0 0 3 0 0 4 3 1 3 8

DSC R1741 Riser 5 - bottom of auger

WHC-SD-WM-TI-540, REV.1

R 1741 SAMPLE DUP
17.935 mg
Rate: 10.0 °C/min
File: 00017.001 DSC METTLER
Ident: 222-S Laboratory
12-18-AUG-92
DHA 6-18-92

Integration
Delta H 3935 mJ
219.4 J/g
Peak 327.8°C
14.8 mW

R 1741 SAMPLE DUP

300. 200. 100. °C
Signature: *gull* 8/18/92

000000047141

TGA Riser 5 - composite

File: 00019.001 DSC METTLER 12-AUG-92

Ident: 222-S Laboratory

Rate: 10.0 °C/min

R 1742 SAMPLE

14.761 mg

WHC-SD-WM-TI-540, REV.1

R 1742 SAMPLE

400 °C
Will stop run

WHC-SD-WM-TI-540, REV.1

R 1742 SAMPLE DUP

12.583 mg

Rate: 10.0 °C/min

File: 00020.001

DSC METTLER

12-Aug-92

Ident:

222-S Laboratory

390 °C

Integration

Delta H 4710 mJ

371.4 J/g

Peak 119.0 °C

-20.1 mW

458 °C

217 °C

311 °C

454 °C

Integration
 Delta H 305 mJ
 24.2 J/g
 Peak 423.2 °C
 1.8 mW

Integration
 Delta H 4215 mJ
 332.4 J/g
 Peak 263.8 °C
 -15.7 mW

R 1742 SAMPLE DUP

10. mW

100.

200.

300.

°C

Willard 8/18/97

00300347145

TGA R1744 Riser 10B - top of auger duplicate
WHC-SD-WM-TI-540, REV.1

0000047146

DSC R1744 Riser 10B - top of auger

WHC-SD-WM-TI-540, REV.1

File: 00063.001 DSC METTLER 10-Jul-92
Ident: 222-S Laboratory

R1744 ID RSA426 BY104
Rate: 10.0 °C/min
21.117 mg

00300040149

TGA Riser 10B - bottom of auger duplicate

WHC-SD-WM-TI-540, REV.11

File: 00062.001 DSC METTLER 10-Jul-92
 Ident: 222-S Laboratory

R1745 ID RSA426 BY104
 19.705 mg Rate: 10.0 °C/min

R1745 ID RSA426 BY104

Integration
 Delta H 463 mJ
 23.5 J/g
 Peak 443.9°C
 3.4 mK

100. 200. 300. 400. °C

0 2 3 0 0 7 4 1 5 0

DSC R1745 Riser 10B - bottom of auger

WHC-SD-WM-TI-540, REV.1

R1745 ID RSA426 BY104DUP
17.392 mg

Rate: 10.0 °C/min

File: 00064.001

Ident:

DSC METTLER 10-Jul-92
222-S Laboratory

ΔOXa

50 mW

R1745 DUPLICATE

Integration
Delta H 664 mJ
38.2 J/g
Peak 410.5°C
4.8 mW

100. 200. 300. 400. °C

WHC-SD-WM-TI-540, REV.1

R 1746 SAMPLE File: 00018.001 DSC METTLER 12-AUG-92

12.147 mg

Rate: 10.0 °C/min

Ident:

222-S Laboratory
391 C 3 435 C

400. °C
8/18/97

00000040154

DSC Riser 10B - composite /

WHC-SD-WM-TI-540, REV.1

R 1746 SAMPLE DUP

7.272 mg

File: 00013.001 DSC METTLER 11-Aug-92

Ident: 222-S Laboratory

Rate: 10.0 °C/min

00000343121

DSC Standard

Handwritten signature
9-11-92

WHC-SD-WM-TI-540, REV.1!

CALIB STD
7.610 mg

File: 00120.001
DSC METTLER 23-Jul-92
Rate: 10.0 °C/min
Ident: 222-S Laboratory

00000040128

DSC Indium Standard
WHC-SD-WM-TI-540, REV.1

R1743 DSC STD
12.117 mg
Rate: 10.0 °C/min
File: 00060.001 DSC METTLER 10-Jul-92
Ident: 222-S Laboratory

Handwritten: 07-10-92

0000047131

R-1740-5711

11.741 mg

File: 00122.001 DSC METTLER 23-Jul-92

Ident: 222-S Laboratory

Rate: 10.0 °C/min

R1740 Riser 5 - top of auger duplicate
WHC-SD-WM-TI-540, REV.1

exov

26-11-6
R1740 Riser 5 - top of auger duplicate
WHC-SD-WM-TI-540, REV.1

00000747120

TGA Standard

WHC-SD-WM-TI-540, REV.1

Handwritten signature and date 23-11-92

DSC STD
11.499 mg
File: 00121.001
DSC METTLER
222-S Laboratory

Rate: 10.0 °C/min

exo >

50. mW

100. 200. 300. 400. °C

0000040122

DSC Calibration Standard I

WHC-SD-WM-TI-540, REV.1

Std R 1741 LMCS 27C11BW File: 00010.001 DSC METTLER 11-AUG-92
11.348 mg Rate: 10.0 °C/min Ident: 222-S Laboratory

R 1741 STD

300. 400. °C
JLK/pt SLD 8-11-92

00300741123

DSC Standard |

WHC-SD-WM-TI-540, REV. 11

12
File: 00014.001 DSC METTLER 11-Aug-92
Ident: 0 222-S Laboratory DLT 8-16-92

Rate: 10.0 °C/min

STD LMCS 27C11BW

12.200 mg

Exo

50. mW

Integration
Delta H 3277 mJ
258.6 J/g
Peak 249.8°C
8.1 mW

STD LMCS 27C11BW

100. 200. 300.

109
WLC-8-16-92 818.0°C

00000040124

In STD
7.610 mg

Rate: 10.0 °C/min

File: 00015.001 DSC METTLER 11-Aug-92
Ident: J 222-S Laboratory

Exo

Integration
Delta H 234 mJ
30.7 J/g
Peak 160.6°C
-9.5 mW

In STD

DSC Standard
WHC-SD-WM-TI-540, REV.1

120. 140. 160. 180. °C
Willis

00300341125

DSC Indium Standard
WHC-SD-WM-TI-540, REV.11

File: 00120.001 DSC METTLER 23-JUL-92
Ident: 222-S Laboratory

Rate: 10.0 °C/min

7.610 mg

exo
mW

Integration
Delta H 228 mJ
30.0 J/g
Peak 161.7 °C
-9.2 mW

105 % RECOVERY

DSC CALIB. STD

120. 140. 160. 180. °C

[Signature]
8-20-92

00000347126

File: 00124.001 DSC METTLER 23-JUL-92
Ident: 222-S Laboratory

Rate: 10.0 °C/min

11.499 mg

EXO >
mW

Integration

Delta H 2704 mJ

234.9 J/g

Peak 242.7 °C

7.6 mW

DSC STD

DSC Standard
WHC-SD-WM-TI-540, REV. 11

John Miller
8-20-92

00000740127

DSC Standard

WHC-SD-WM-TI-540,REV.1

File: 00059.001

DSC METTLER 10-Jul-92

Ident:: 222-S Laboratory

Rate: 10.0 °C/min

7.610 mg

INDIUM STD

WHC-SD-WM-TI-540, REV. 1

ADIABATIC CALORIMETRY WORKING GRAPHS

WHC-SD-WM-TI-540, REV. 1

FIGURE LISTING FOR ADIABATIC CALORIMETRY WORKING GRAPHS

Figure B-1	Sample # R-1775	Temperature vs. Time
Figure B-2	Sample # R-1775	Pressure vs. Time
Figure B-3	Sample # R-1775	Pressure vs. Temperature
Figure B-4	Sample # R-1775	Heat Rate vs. Temperature
Figure B-5	Sample # R-1775	Moles Noncondensable Gas vs. Time
Figure B-6	Sample # R-1775	Gas Production Rate vs. Temperature
Figure B-7	Sample # R-1775	Duplicate Temperature vs. Time
Figure B-8	Sample # R-1775	Duplicate Pressure vs. Time
Figure B-9	Sample # R-1775	Duplicate Pressure vs. Temperature
Figure B-10	Sample # R-1775	Duplicate Heat Rate vs. Temperature
Figure B-11	Sample # R-1775	Duplicate Moles Noncondensable Gas vs. Time
Figure B-12	Sample # R-1775	Duplicate Gas Prod. Rate vs. Temperature
Figure B-13	Sample # R-1773	Temperature vs. Time
Figure B-14	Sample # R-1773	Pressure vs. Time
Figure B-15	Sample # R-1773	Pressure vs. Temperature
Figure B-16	Sample # R-1773	Heat Rate vs. Temperature
Figure B-17	Sample # R-1773	Moles Noncondensable Gas vs. Time
Figure B-18	Sample # R-1773	Gas Prod. Rate vs. Temperature
Figure B-19	Sample # R-1773	Duplicate Temperature vs. Time
Figure B-20	Sample # R-1773	Duplicate Pressure vs. Time
Figure B-21	Sample # R-1773	Duplicate Pressure vs. Temperature
Figure B-22	Sample # R-1773	Duplicate Heat Rate vs. Temperature
Figure B-23	Sample # R-1773	Duplicate Moles Noncondensable Gas vs. Time
Figure B-24	Sample # R-1773	Duplicate Gas Prod. Rate vs. Temperature

Figure B-1. Sample #R1775 Temperature vs. Time.

0.710041305

Figure B-2. Sample #R1775 Pressure vs. Time.

Figure B-3. Sample #R1775 Pressure vs. Temperature.

Figure B-4. Sample #R1775 Heat Rate vs: Temperature:

0 2 7 4 0 3 4 1 7 3 9

Figure B-5: Sample #R1775 Moles Noncondensable Gas vs. Time.

BEST AVAILABLE COPY

0 2 7 4 0 2 4 1 3 2 7

TEST 920901: TANK BY-104 AUGER RISER 108
Dried, Ground, 12.23 grams, Po=66.3 psig

◇ T vs t

WMC-SD-WM-TI-540, REV. 1

Figure B-7. Sample #R1775 Duplicate Temperature vs. Time.

Figure B-8. Sample #R1775 Duplicate Pressure vs. Time.

Figure B-9. Sample #R1775 Duplicate Pressure vs. Temperature.

Figure B-10. Sample #R1775 Duplicate Heat Rate vs. Temperature.

Figure B-11. Sample #R1775 Duplicate Moles Noncondensable Gas vs. Time.

Figure B-12. Sample #R1775 Duplicate Gas Prod. Rate vs. Temperature.

Figure B-13. Sample #R1773 Temperature vs. Time.

TEST 920910: TANK BY-104 AUGER RISER 3
Dried, Ground, 9.97 grams, Pos=71.3 psi

Figure B-14. Sample #R1773 Pressure vs. Time.

Figure B-15. Sample #R1773 Pressure vs. Temperature.

Figure B-16. Sample #R1773 Heat Rate vs. Temperature.

00740-40777

Figure B-17. Sample #R1773 Moles Noncondensable Gas vs. Time. /

Figure B-18. Sample #R1773 Gas Production Rate vs. Temperature.

0 1 2 3 4 5 6 7 8 9

Figure B-19. Sample #R1773 Duplicate Temperature vs. Time.

00740041931

Figure B-20. Sample #R1773 Duplicate Pressure vs. Time.

Figure B-21. Sample #R1773 Duplicate Pressure vs. Temperature.

0 0 7 1 0 0 4 1 3 0 3

Figure B-22. Sample #R1773 Duplicate Heat Rate vs. Temperature.

0 0 7 4 0 1 4 1 9 3 4

Figure B-23. Sample #R1773 Duplicate Moles Noncondensable Gas vs. Time.

Figure B-24. Sample #R1773 Duplicate Gas Prod. Rate vs. Temperature.

WHC-SD-WM-TI-540, REV. 1

MODIFICATION OF 222-S CYANIDE PROCEDURE

PROCEDURE CHANGE AUTHORIZATION		Impact Level 4	PCA No. SL-00094	Page 1 of <u> </u>
PROCEDURE <div style="display: flex; justify-content: space-between;"> <div>LA-695-102 No.</div> <div>B-0 Rev/Mod</div> <div>Type</div> </div> Microdistillation and Spectrophotometric Determination of Cyanide <small>Title</small>		PCA EFFECTIVE DATE <div style="font-size: 1.5em;">8-31-92</div>		
FACILITY 222-S Laboratory Controlled Location Codes Where PCA does <u>not</u> apply. Applies only to BY-104 samples		PCA EXPIRATION DATE <div style="font-size: 1.5em;">10-1-92</div>		
		PCA TYPE <div style="display: flex; justify-content: space-between;"> <div> ☐ Supersedeure ☒ Temporary ☐ Permanent </div> <div> ☐ PCA continuation sheet attached ☒ Annotated pages attached ☐ Annotated document attached </div> </div>		
INITIATED BY Mark A. Beck <i>Mark A. Beck</i> <small>Name</small> Scientist/Process Chemistry Lab 3-2182 <small>Title/Organization</small> <small>Phone</small>		REASON FOR CHANGE Current method may not be entirely suitable for certain ferrocyanide waste tank samples. This change provides a way of checking the sample preparation adequacy of this method. The change consist of substituting a 5%(w/w) EDTA, 5%(w/w) Ethylenediamine solution in water for the water normally used. This PCA is a reissue, adding MSDS information. <div style="font-family: cursive;"> EDTA MSDS # 13 1206 Ethylenediamine MSDS # 15 1205 an is attached </div>		
APPROVAL <div style="display: flex; justify-content: space-between;"> <div> <i>J.S. Lachut</i> Cognizant Engineer J.S. Lachut <i>J.H. Tillman</i> Cognizant Engineer's Manager <i>[Signature]</i> Technical N/A Quality Assurance N/A Safety </div> <div> <div style="font-size: 1.5em;">8/31/92</div> <small>Date</small> <div style="font-size: 1.5em;">8/31/92</div> <small>Date</small> <div style="font-size: 1.5em;">8/31/92</div> <small>Date</small> <div style="font-size: 1.5em;">8/31/92</div> <small>Date</small> </div> </div>
OPTIONAL APPROVAL <div style="display: flex; justify-content: space-between;"> <div> ☐ Safeguards Material Control ☐ Operations Support Services </div> <div> <small>Date</small> <small>Date</small> </div> </div>				
FINAL APPROVAL <div style="display: flex; justify-content: space-between;"> <div> <i>[Signature]</i> Approval Authority </div> <div> <div style="font-size: 1.5em;">8/31/92</div> <small>Date</small> </div> </div>		WORK COMPLETION/CANCELLATION DUE TO <div style="display: flex; justify-content: space-between;"> <div> ☐ Work Completed (prior to expiration) ☐ Other - Explain: </div> </div>		
		SIGNATURES <div style="display: flex; justify-content: space-between;"> <div> Operational/Title Technical/Title </div> <div> Date Date </div> </div>		
DISTRIBUTION: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> Engineering Configuration Management (for SOPs, JPAs, POPs only) Manager, Technical Component QA Representative </div> <div> R.P. Marshall T6-14 J.H. Tillman T6-30 W.A. Hendricksen S1-52 </div> <div> J.S. Lachut T6-30 J.R. Jewett T6-50 M.A. Beck T6-50 P.J. Noakes T6-16 D.A. Conners T6-10 </div> </div>				

REAGENTS

NOTE: ASTM Type II Water will be used whenever the procedure calls for water. The refrigeration temperature is $4^{\circ} \pm 2^{\circ}\text{C}$.

ASTM Type II Water (MSDS #1848)Sodium Phosphate, ($\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$) 1 M (MSDS #1886)

Dissolve 138 g of $\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$ in 800 mL of water. Dilute to 1 L with water. Store in 2 x 500 mL amber bottles and refrigerate. Shelf life is 6 months.

Chloramine-T, 10 g/L (MSDS #1994)

Dissolve 1 g of chloramine-T powder (white) in 80 mL of water and dilute to 100 mL with water. Store in a 250-mL amber bottle and refrigerate. Shelf life is 1 week.

Pyridine-Barbituric Acid (MSDS #1455) (MSDS #1983) (MSDS #1250)

Place 15 g of barbituric acid in a 250-mL volumetric flask and add just enough water to wash the sides of the flask and wet the barbituric acid. Add 75 mL of pyridine and mix. Add 15 mL of concentrated hydrochloric acid (HCl), mix, and cool to room temperature (white precipitate). Dilute to 250 mL with water and mix (precipitate dissolves). Store in a 250-mL amber glass bottle and refrigerate. Shelf life is 1 month.

Sodium Hydroxide (NaOH), 0.125 M (MSDS #1105)

Dissolve 5 g of NaOH in 900 mL of water and dilute to 1 L with water. Store in a 1-L plastic bottle. Shelf life is 1 year.

Combination Releasing Reagent (MSDS #1529) (MSDS #1316)

Add 111 mL of water into a 400-mL beaker. Add 39 g of $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ into this solution and stir until dissolved for one hour. Add slowly while stirring 76 mL of concentrated sulfuric acid (H_2SO_4). Allow to cool for 2 hours. Do not dilute with water. Store in a 250-mL amber glass bottle. Shelf life is 6 months.

5% (w/w) EDTA (MSDS #1206), 5% (w/w) Ethylenediamine (MSDS #1205)

To 45 g of water (ASTM Type II) add 2.5 g EDTA and 2.5 g

Ethylenediamine (MSDS #1205). ^{Stir} ~~stir~~ until dissolved.

shelf life ends upon expiration of this Procedure Change Authorization.

PROCEDURE STEPS

A. Sample and Collector Tube Startup

1. Set the temperature knob on the heater block to 120°C.
2. Plug in main power cord.
3. Turn on the main power switch of the heater block and allow to warm up for 40 minutes.
4. Remove a polypropylene collector tube from its foil package and place in a support rack. Reseal the foil package for future use of tubes.
5. Place a polypropylene sample tube into a second rack.
6. Pipet or weigh an appropriate liquid or solid sample, as specified on the analytical card, in to the sample tube.
7. Dispense 4.0 mL of ~~water~~ ^{5% w/v EDTA and 5% Ethylenediamine in deionized water} into the sample tube.
8. Dispense 0.75 mL of Combination Releasing Reagent into the sample tube.
9. Push immediately the uncapped bottom end of the collector tube over the end of the sample tube to start a seal.
10. Place the entire tube assembly in the red press with the sample tube through the hole in the white base.
11. Press down on the press handle until the stop ring on the sample tube hits the bottom of the collector tube.

B. Distillation Procedure

NOTE: Employ a minimum of 1 blank per sample batch or SDG to determine if contamination or any memory effects are occurring.

NOTE: Every 15 samples, verify apparatus operation with an independently prepared check standard.

NOTE: Run 1 spike duplicate sample for every 10 samples. A duplicate sample is an aliquot of the original sample brought through the whole sample preparation process. (Use [100 μ L to 10 mL] - 500 μ L dilution of 1000 ppm LMCS standard plus sample aliquot.)

1. Put on the heat-resistant gloves.
2. Push the tube into the heater block until the collector stop ring touches the block.
3. Remove the gloves.

WHC-SD-WM-TI-540, REV. 1

PARTICLE SIZE ANALYSES PRINT-OUTS

<p style="text-align: center;">B r i n k m a n n</p> <p style="text-align: center;">Particle Size Analyzer</p>
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PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010
STATISTICS

SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O SBK WHC-SD-WM-TI-540, REV. 1
 FILE NAME : R1750.001

DATE	: 28/08/1992	ACQ. RANGE	: 0.5-150	COUNTS	: 417500
TIME	: 13:23	ACQ. MODE	: SAMPLE	S.N.F.	: 0.99
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 2739 SEC	S.D.U.	: 1320
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 2.1E+06 #/l
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 2.7E-03 %

	MEAN Diameter	S.D.
Number, Length :	1.29 μ m	1.15 μ m
Number, Area :	1.73 μ m	1.23 μ m
Number, Volume :	2.88 μ m	1.96 μ m
Length, Area :	2.31 μ m	3.63 μ m
Length, Volume :	4.30 μ m	4.14 μ m
Area, Volume :	8.00 μ m	14.61 μ m
Volume, Moment :	34.66 μ m	34.00 μ m

	MEDIAN Diameter	MODE	CONFIDENCE
Number :	0.95 μ m	0.75 μ m	100.00%
Area :	3.45 μ m	4.75 μ m	99.70%
Volume :	25.76 μ m	41.61 μ m	100.00%

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SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O SBK
FILE NAME : R1750.001

DATE : 28/08/1992 | ACQ. RANGE : 0.5-150 | COUNTS : 417500
TIME : 13:23 | ACQ. MODE : SAMPLE | S.N.F. : 0.99
CONFIG. : 1 (0.7 S1) | ACQ. TIME : 2739 SEC | S.D.U. : 1320
CELL TYPE : MAGNETIC (3) | SAMPLE SIZE : 5 | CONCENTR.: 2.1E+04 #/l
SAMPLE TYPE : REGULAR | REQ. CONF. : None | SOLIDS : 2.7E-03 %

WHC-SD-WM-TI-540, REV. 1

PROBABILITY VOLUME DENSITY GRAPH

Name: R1750 BY104 RESIDUE SAMPLE H2O SBK

2.7E-05 cc/ml(100.0%)

Mean(nv): 2.88µm

Mode at 41.61 µm

S.D.(nv): 1.96µm

Median : 25.76µm

Mean(vm): 34.66µm

S.D.(vm): 34.88µm

Conf(vm): 100.00 %

<< SCALE RANGE (µm): ADJUSTED >>

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B r i n k m a n n

Particle Size Analyzer

PROCESS CHEMISTRY LABS PARTICLE ANALYSIS VIA BRINKMANN 2010

SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O SBK

FILE NAME : R1750.001

WHC-SD-WM-TI-540, REV. 1

DATE	: 28/08/1992	ACQ. RANGE	: 0.5-150	COUNTS	: 417500
TIME	: 13:23	ACQ. MODE	: SAMPLE	S.N.F.	: 0.99
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 2739 SEC	S.D.U.	: 1320
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 2.1E+06 #/m
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 2.7E-03 %

PROBABILITY-VOLUME DISTRIBUTION GRAPH

Name: R1750 BY104 RESIDUE SAMPLE H2O SBK

2.7E-05 cc/ml(100.0%)

Mean(nv): 2.88µm

S.D.(nv): 1.96µm

Median : 25.76µm

Mean(vv): 34.66µm

S.D.(vv): 34.88µm

Conf(vv):100.00 %

<< SCALE RANGE (µm): ADJUSTED >>

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<p style="text-align: center;">B r i n k m a n n</p> <p style="text-align: center;">Particle Size Analyzer</p>
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PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010
STATISTICS

SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O SBK WHC-SD-WM-TI-540, REV. 1
FILE NAME : R1750.002

DATE	: 31/08/1992	ACQ. RANGE	: 0.5-60	COUNTS	: 328636
TIME	: 07:12	ACQ. MODE	: SAMPLE	S.N.F.	: 0.98
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 1834 SEC	S.D.U.	: 1719
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: .5	CONCENTR.	: 3.9E+06 #/n
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 3.1E-03 %

	MEAN Diameter	S.D.
Number, Length :	1.17 μ m	1.06 μ m
Number, Area :	1.58 μ m	1.14 μ m
Number, Volume :	2.47 μ m	1.68 μ m
Length, Area :	2.14 μ m	2.89 μ m
Length, Volume :	3.59 μ m	3.23 μ m
Area, Volume :	6.03 μ m	9.02 μ m
Volume, Moment :	19.50 μ m	16.47 μ m

	MEDIAN Diameter	MODE	CONFIDENCE
Number :	0.86 μ m	0.55 μ m	100.00%
Area :	3.35 μ m	4.86 μ m	99.63%
Volume :	13.55 μ m	41.93 μ m	100.00%

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SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O SBK
FILE NAME : R1750.002

DATE : 31/08/1992 : ACQ. RANGE : 0.5-60 : COUNTS : 328636
TIME : 07:12 : ACQ. MODE : SAMPLE : S.N.F. : 0.98
CONFIG. : 1 (0.7 S1) : ACQ. TIME : 1834 SEC : S.D.U. : 1719
CELL TYPE : MAGNETIC (3) : SAMPLE SIZE : 5 : CONCENTR.: 3.9E+06 #/
SAMPLE TYPE : REGULAR : REQ. CONF. : None : SOLIDS : 3.1E-03 %

PROBABILITY NUMBER DENSITY GRAPH

WHC-SD-WM-TI-540, REV. 1

Name: R1750 BY104 RESIDUE SAMPLE H2O SBK

Median : 0.86 μ m

3.9E+06 #/ml(100.0%)

Mean(n1): 1.17 μ m

Mode at 0.55 μ m

S.D.(n1): 1.06 μ m

Conf(n1):100.00 %

<< SCALE RANGE (μ m): ADJUSTED >>

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B r i n k m a n n
Particle Size Analyzer

PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010
STATISTICS

SAMPLE NAME : R1749 BY104 RESIDUE SAMOLE H2O DUP SHWC-SD-WM-TI-540, REV. 1
FILE NAME : R1749.003

DATE : 03/09/1992 | ACQ. RANGE : 0.5-150 | COUNTS : 445210
TIME : 07:45 | ACQ. MODE : SAMPLE | S.N.F. : 0.93
CONFIG. : 1 (0.7 S1) | ACQ. TIME : 2857 SEC | S.D.U. : 2182
CELL TYPE : MAGNETIC (3) | SAMPLE SIZE : 5 | CONCENTR.: 3.7E+06 #/
SAMPLE TYPE : REGULAR | REQ. CONF. : None | SOLIDS : 1.1E-02 %

	MEAN Diameter	S.D.
Number, Length :	1.29 μ m	1.43 μ m
Number, Area :	1.93 μ m	1.57 μ m
Number, Volume :	3.89 μ m	2.96 μ m
Length, Area :	2.88 μ m	6.09 μ m
Length, Volume :	6.74 μ m	7.21 μ m
Area, Volume :	15.79 μ m	24.46 μ m
Volume, Moment :	53.67 μ m	39.18 μ m

	MEDIAN Diameter	MODE	CONFIDENCE
Number :	0.94 μ m	0.75 μ m	100.00%
Area :	4.91 μ m	4.75 μ m	99.48%
Volume :	45.54 μ m	107.67 μ m	100.00%

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DATE	: 03/09/1992	ACQ. RANGE	: 0.5-150	COUNTS	: 445210
TIME	: 07:45	ACQ. MODE	: SAMPLE	S.N.F.	: 0.93
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 2857 SEC	S.D.U.	: 2182
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 3.7E+06 #/r
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 1.1E-02 %

WHC-SD-WM-TI-540, REV. 1

Median : 45.54µm

Mean(nv): 3.89µm

Mean(v_m): 53.67 μ m

S.D. (nv): 2.96 μm

S.D. (v_m): 39.18 μm

<< SCALE RANGE (μm): ADJUSTED >>

Conf(ym): 100.00 %

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SAMPLE NAME : R1749 BY104 RESIDUE SAMOLE H2O DUP SBK
 FILE NAME : R1749.003

DATE	: 03/09/1992	ACQ. RANGE	: 0.5-150	COUNTS	: 445210
TIME	: 07:45	ACQ. MODE	: SAMPLE	S.N.F.	: 0.93
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 2857 SEC	S.D.U.	: 2182
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 3.7E+06 #/
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 1.1E-02 %

PROBABILITY VOLUME DISTRIBUTION GRAPH

WHC-SD-WM-TI-540, REV. 1

Name: R1749 BY104 RESIDUE SAMOLE H2O DUP SBK
 1.1E-04 cc/ml(100.0%)

Mean(nv): 3.89 μ m
 S.D.(nv): 2.96 μ m

Median : 45.54 μ m
 Mean(vm): 53.67 μ m
 S.D.(vm): 39.18 μ m
 Conf(vm):100.00 %

<< SCALE RANGE (μ m): ADJUSTED >>

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B r i n k m a n n
Particle Size Analyzer

PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010
STATISTICS

SAMPLE NAME : R1749 BY104 RESIDUE SAMOLE H2O DUF SBK
FILE NAME : R1749.004

WHC-SD-WM-TI-540, REV. 1

DATE	: 03/09/1992	ACQ. RANGE	: 0.5-60	COUNTS	: 302143
TIME	: 08:44	ACQ. MODE	: SAMPLE	S.N.F.	: 0.98
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 1730 SEC	S.D.U.	: 3594
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 5.8E+06 #/l
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 7.5E-03 %

	MEAN Diameter	S.D.
Number, Length :	1.32 μ m	1.29 μ m
Number, Area :	1.85 μ m	1.39 μ m
Number, Volume :	2.92 μ m	2.05 μ m
Length, Area :	2.58 μ m	3.49 μ m
Length, Volume :	4.34 μ m	3.91 μ m
Area, Volume :	7.31 μ m	10.12 μ m
Volume, Moment :	21.32 μ m	17.11 μ m

	MEDIAN Diameter	MODE	CONFIDENCE
Number :	0.93 μ m	0.55 μ m	100.00%
Area :	3.88 μ m	4.15 μ m	99.82%
Volume :	16.72 μ m	41.93 μ m	100.00%

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<p style="text-align: center;">B r i n k m a n n</p> <p style="text-align: center;">Particle Size Analyzer</p>
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PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010
STATISTICS

SAMPLE NAME : R1749 BY104 RESIDUE SAMPLE H2O SBK WHC-SD-WM-TI-540, REV. 1
FILE NAME : R1749.002

DATE	: 28/08/1992	ACQ. RANGE	: 0.5-60	COUNTS	: 257027
TIME	: 12:39	ACQ. MODE	: SAMPLE	S.N.F.	: 0.79
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 1820 SEC	S.D.U.	: 3948
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 5.8E+06 #/n
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 1.2E-02 %

0
0
7
4
0
7
4
1
9
3
3

	MEAN Diameter	S.D.	
Number, Length :	1.34 µm	1.46 µm	
Number, Area :	1.98 µm	1.60 µm	
Number, Volume :	3.42 µm	2.54 µm	
Length, Area :	2.93 µm	4.60 µm	
Length, Volume :	5.46 µm	5.25 µm	
Area, Volume :	10.16 µm	12.97 µm	
Volume, Moment :	26.71 µm	17.43 µm	

	MEDIAN Diameter	MODE	CONFIDENCE
Number :	0.93 µm	0.55 µm	100.00%
Area :	4.57 µm	4.86 µm	99.93%
Volume :	26.58 µm	41.93 µm	100.00%

B r i n k m a n n
Particle Size Analyzer

**PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010**

SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O DUP SBK
FILE NAME : R1750.004

WHC-SD-WM-TI-540, REV. 1

DATE	: 03/09/1992	ACQ. RANGE	: 0.5-60	COUNTS	: 255782
TIME	: 10:13	ACQ. MODE	: SAMPLE	S.N.F.	: 0.96
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 1231 SEC	S.D.U.	: 3792
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 7.7E+06 #/l
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 4.2E-03 %

PROBABILITY NUMBER DISTRIBUTION GRAPH

Name: R1750 BY104 RESIDUE SAMPLE H2O DUP SBK
7.7E+06 #/ml(100.0%)

Median : 0.88 μ m
Mean(nl): 1.14 μ m
S.D.(nl): 0.96 μ m
Conf(nl):100.00 %

<< SCALE RANGE (μ m): ADJUSTED >>

SAMPLE NAME : R1749 BY104 RESIDUE SAMOLE H2O DUP SBK
 FILE NAME : R1749.004

WHC-SD-WM-TI-540, REV. 1

DATE : 03/09/1992 : ACQ. RANGE : 0.5-60 : COUNTS : 302143
 TIME : 08:44 : ACQ. MODE : SAMPLE : S.N.F. : 0.98
 CONFIG. : 1 (0.7 S1) : ACQ. TIME : 1730 SEC : S.D.U. : 3594
 CELL TYPE : MAGNETIC (3) : SAMPLE SIZE : 5 : CONCENTR.: 5.8E+06 #/r
 SAMPLE TYPE : REGULAR : REQ. CONF. : None : SOLIDS : 7.5E-03 %

PROBABILITY NUMBER DENSITY GRAPH

Name: R1749 BY184 RESIDUE SAMOLE H2O DUP SBK

5.8E+06 #/ml(100.0%)

Mode at 0.55 μ m

<< SCALE RANGE (μ m): ADJUSTED >>

Median : 0.93 μ m

Mean(nl): 1.32 μ m

S.D.(nl): 1.29 μ m

Conf(nl):100.00 %

<p style="text-align: center;">B r i n k m a n n</p> <p style="text-align: center;">Particle . Size Analyzer</p>
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PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010
STATISTICS

SAMPLE NAME : R1749 BY104 RESIDUE SAMOLE H2O SBK
 FILE NAME : R1749.001 WHC-SD-WM-TI-540, REV. 1

DATE	: 28/08/1992	ACQ. RANGE	: 0.5-150	COUNTS	: 327438
TIME	: 11:54	ACQ. MODE	: SAMPLE	S.N.F.	: 0.83
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 2224 SEC	S.D.U.	: 3541
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 4.3E+06 #/l
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 1.6E-02 %

00740
A1250

	MEAN Diameter	S.D.
Number, Length :	1.49 μ m	1.67 μ m
Number, Area :	2.24 μ m	1.83 μ m
Number, Volume :	4.12 μ m	3.12 μ m
Length, Area :	3.36 μ m	5.97 μ m
Length, Volume :	6.86 μ m	6.92 μ m
Area, Volume :	13.98 μ m	19.13 μ m
Volume, Moment :	40.15 μ m	29.96 μ m

	MEDIAN Diameter	MODE	CONFIDENCE
Number :	1.00 μ m	0.75 μ m	100.00%
Area :	5.27 μ m	4.75 μ m	99.84%
Volume :	38.33 μ m	55.35 μ m	100.00%

SAMPLE NAME : R1749 BY104 RESIDUE SAMOLE H2O SBK
 FILE NAME : R1749.001

DATE	: 28/08/1992	ACQ. RANGE	: 0.5-150	COUNTS	: 327438
TIME	: 11:54	ACQ. MODE	: SAMPLE	S.N.F.	: 0.83
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 2224 SEC	S.D.U.	: 3541
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 4.3E+06 #/g
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 1.6E-02 %

WHC-SD-WM-TI-540, REV. 1

PROBABILITY VOLUME DENSITY GRAPH

Name: R1749 BY104 RESIDUE SAMOLE H2O SBK

Median : 38.33 μ m

1.6E-04 cc/ml(100.0%)

Mean(nv): 4.12 μ m

Mean(vm): 40.15 μ m

Mode at 55.35 μ m

S.D.(nv): 3.12 μ m

S.D.(vm): 29.96 μ m

<< SCALE RANGE (μ m): ADJUSTED >>

Conf(vm):100.00 %

B r i n k m a n n
Particle Size Analyzer

PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010

SAMPLE NAME : R1749 BY104 RESIDUE SAMOLE H2O SBK

FILE NAME : R1749.001

WHC-SD-WM-TI-540, REV. 1

DATE	: 28/08/1992	ACQ. RANGE	: 0.5-150	COUNTS	: 327438
TIME	: 11:54	ACQ. MODE	: SAMPLE	S.N.F.	: 0.83
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 2224 SEC	S.D.U.	: 3541
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 4.3E+06 #/r
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 1.6E-02 %

PROBABILITY VOLUME DISTRIBUTION GRAPH

Name: R1749 BY104 RESIDUE SAMOLE H2O SBK

Median : 38.33 μ m

1.6E-04 cc/ml(100.0%)

Mean(nv): 4.12 μ m

Mean(vv): 48.15 μ m

S.D.(nv): 3.12 μ m

S.D.(vv): 29.96 μ m

Conf(vv):100.00 %

<< SCALE RANGE (μ m): ADJUSTED >>

SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O DUF SBK
 FILE NAME : R1750.003

DATE : 03/09/1992 | ACQ. RANGE : 0.5-150 | COUNTS : 276496
 TIME : 09:46 | ACQ. MODE : SAMPLE | S.N.F. : 0.96
 CONFIG. : 1 (0.7 S1) | ACQ. TIME : 1440 SEC | S.D.U. : 3453
 CELL TYPE : MAGNETIC (3) | SAMPLE SIZE : 5 | CONCENTR.: 6.4E+06 #/g
 SAMPLE TYPE : REGULAR | REQ. CONF. : None | SOLIDS : 5.0E-03 %

PROBABILITY VOLUME DENSITY GRAPH

WHC-SD-WM-TI-540, REV. 1

Name: R1750 BY104 RESIDUE SAMPLE H2O DUF SBK

Median : 11.48 μ m

5.0E-05 cc/ml(100.0%)

Mean(nv): 2.46 μ m

Mean(vm): 23.20 μ m

Mode at 37.84 μ m

S.D.(nv): 1.59 μ m

S.D.(vm): 25.18 μ m

<< SCALE RANGE (μ m): ADJUSTED >>

Conf(vm): 99.99 %

SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O DUP SBK
 FILE NAME : R1750.003

DATE	: 03/09/1992	ACQ. RANGE	: 0.5-150	COUNTS	: 296496
TIME	: 09:46	ACQ. MODE	: SAMPLE	S.N.F.	: 0.96
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 1440 SEC	S.D.U.	: 3453
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 6.4E+06 #/l
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 5.0E-03 %

PROBABILITY VOLUME DISTRIBUTION GRAPH

WHC-SD-WM-TI-540, REV. 1

Name: R1750 BY104 RESIDUE SAMPLE H2O DUP SBK

5.0E-05 cc/ml(100.0%)

Mean(nv): 2.46µm

S.D.(nv): 1.59µm

Median : 11.48µm

Mean(vv): 23.20µm

S.D.(vv): 25.18µm

Conf(vv): 99.99 %

<< SCALE RANGE (µm): ADJUSTED >>

PROCESS CHEMISTRY LABS PARTICLE ANALYSIS

VIA BRINKMANN 2010

SAMPLE NAME : R1749 BY104 RESIDUE SAMPLE H20 DUF SBK

FILE NAME : R1749.004

WMC-SD-WM-TI-540, REV. 1

DATE : 03/09/1992 : ACQ. RANGE : 0.5-60 : COUNTS : 302143
 TIME : 08:44 : ACQ. MODE : SAMPLE : S.N.F. : 0.98
 CONFIG. : 1 (0.7 SI) : ACQ. TIME : 1730 SEC : S.D.U. : 3594
 CELL TYPE : MAGNETIC (3) : SAMPLE SIZE : 5 : CONCENTR. : 5.8E+06 #/l
 SAMPLE TYPE : REGULAR : REQ. CONF. : None : SOLIDS : 7.5E-03 %

PROBABILITY NUMBER DISTRIBUTION GRAPH

Name: R1749 BY104 RESIDUE SAMPLE H20 DUF SBK

Median : 0.93µm
 Mean(n1) : 1.32µm
 S.D.(n1) : 1.29µm
 Conf(n1):100.00 %

<< SCALE RANGE (µm): ADJUSTED >>

SAMPLE NAME : R1749 BY104 RESIDUE SAMPLE H2O SBK
FILE NAME : R1749.002

DATE : 28/08/1992 | ACQ. RANGE : 0.5-60 | COUNTS : 257027
TIME : 12:39 | ACQ. MODE : SAMPLE | S.N.F. : 0.79
CONFIG. : 1 (0.7 S1) | ACQ. TIME : 1820 SEC | S.D.U. : 3948
CELL TYPE : MAGNETIC (3) | SAMPLE SIZE : 5 | CONCENTR.: 5.8E+06 #/n
SAMPLE TYPE : REGULAR | REQ. CONF. : None | SOLIDS : 1.2E-02 %

WHC-SD-WM-TI-540, REV. 1

PROBABILITY NUMBER DENSITY GRAPH

Name: R1749 BY104 RESIDUE SAMPLE H2O SBK

5.8E+06 #/ml(100.0%)

Mode at 0.55 μm

<< SCALE RANGE (μm): ADJUSTED >>

Median : 0.93 μm

Mean(nl): 1.34 μm

S.D.(nl): 1.46 μm

Conf(nl):100.00 %

<p style="text-align: center;">B r i n k m a n n</p> <p style="text-align: center;">Particle Size Analyzer</p>
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PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010
STATISTICS

SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O DUP SBK

FILE NAME : R1750.004

WHC-SD-WM-TI-540, REV..1

DATE	: 03/09/1992	ACQ. RANGE	: 0.5-60	COUNTS	: 255782
TIME	: 10:13	ACQ. MODE	: SAMPLE	S.N.F.	: 0.96
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 1231 SEC	S.D.U.	: 3792
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 7.7E+06 #,
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 4.2E-03 %

0 0 7 4 0 3 4 1 3 5 6

	MEAN Diameter	S.D.
Number, Length :	1.14 μ m	0.96 μ m
Number, Area :	1.50 μ m	1.02 μ m
Number, Volume :	2.19 μ m	1.42 μ m
Length, Area :	1.95 μ m	2.31 μ m
Length, Volume :	3.03 μ m	2.55 μ m
Area, Volume :	4.68 μ m	6.89 μ m
Volume, Moment :	14.83 μ m	15.73 μ m

	MEDIAN Diameter	MODE	CONFIDENCE
Number :	0.88 μ m	0.55 μ m	100.00%
Area :	2.91 μ m	4.86 μ m	99.67%
Volume :	6.65 μ m	38.72 μ m	100.00%

SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O DUP SBK
FILE NAME : R1750.004

DATE : 03/09/1992 | ACQ. RANGE : 0.5-60 | COUNTS : 255782
TIME : 10:13 | ACQ. MODE : SAMPLE | S.N.F. : 0.96
CONFIG. : 1 (0.7 S1) | ACQ. TIME : 1231 SEC | S.D.U. : 3792
CELL TYPE : MAGNETIC (3) | SAMPLE SIZE : 5 | CONCENTR. : 7.7E+06 #/
SAMPLE TYPE : REGULAR | REQ. CONF. : None | SOLIDS : 4.2E-03 %

PROBABILITY NUMBER DENSITY GRAPH

WHC-SD-WM-TI-540, REV. 1

Name: R1750 BY104 RESIDUE SAMPLE H2O DUP SBK

7.7E+06 #/ml(100.0%)

Mode at 0.55 μ m

<< SCALE RANGE (μ m): ADJUSTED >>

Median : 0.88 μ m

Mean(n1): 1.14 μ m

S.D.(n1): 0.96 μ m

Conf(n1):100.00 %

<p style="text-align: center;">B r i n k m a n n</p> <p style="text-align: center;">Particle Size Analyzer</p>
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PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010
STATISTICS

SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H20 DUP SBK

FILE NAME : R1750.003

WHC-SD-WM-TI-540, REV. 1

DATE	: 03/09/1992	ACQ. RANGE	: 0.5-150	COUNTS	: 296496
TIME	: 09:46	ACQ. MODE	: SAMPLE	S.N.F.	: 0.96
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 1440 SEC	S.D.U.	: 3453
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 6.4E+06 #/l
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 5.0E-03 %

	MEAN Diameter	S.D.
Number, Length :	1.25 μ m	1.02 μ m
Number, Area :	1.61 μ m	1.09 μ m
Number, Volume :	2.46 μ m	1.59 μ m
Length, Area :	2.09 μ m	2.75 μ m
Length, Volume :	3.45 μ m	3.07 μ m
Area, Volume :	5.71 μ m	9.99 μ m
Volume, Moment :	23.20 μ m	25.18 μ m

	MEDIAN Diameter	MODE	CONFIDENCE
Number :	0.93 μ m	0.75 μ m	100.00%
Area :	3.07 μ m	4.75 μ m	100.00%
Volume :	11.48 μ m	37.84 μ m	99.99%

B r i n k m a n n
Particle Size Analyzer

PROCESS CHEMISTRY LABS PARTICLE ANALYSIS
VIA BRINKMANN 2010

SAMPLE NAME : R1750 BY104 RESIDUE SAMPLE H2O SBK
FILE NAME : R1750.002

DATE	: 31/08/1992	ACC. RANGE	: 0.5-60	COUNTS	: 329636
TIME	: 07:12	ACC. MODE	: SAMPLE	S.N.F.	: 0.98
CONFIG.	: 1 (0.7 S1)	ACC. TIME	: 1834 SEC	S.D.U.	: 1719
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 3.9E+06 #/ml
SAMPLE TYPE	: REGULAR	RED. CONF.	: None	SOLIDS	: 3.1E-03 %

PROBABILITY NUMBER DISTRIBUTION GRAPH

Name: R1750 BY104 RESIDUE SAMPLE H2O SBK
3.9E+06 #/ml(100.0%)

Median : 0.86µm
Mean(n1): 1.17µm
S.D.(n1): 1.06µm
Conf(n1):100.00 %

<< SCALE RANGE (µm): ADJUSTED >>

SAMPLE NAME : R1749 BY104 RESIDUE SAMPLE H20 SBK
FILE NAME : R1749.002

DATE	: 28/08/1992	ACQ. RANGE	: 0.5-60	COUNTS	: 257027
TIME	: 12:39	ACQ. MODE	: SAMPLE	S.N.F.	: 0.79
CONFIG.	: 1 (0.7 S1)	ACQ. TIME	: 1820 SEC	S.D.U.	: 3948
CELL TYPE	: MAGNETIC (3)	SAMPLE SIZE	: 5	CONCENTR.	: 5.8E+06 #/ml
SAMPLE TYPE	: REGULAR	REQ. CONF.	: None	SOLIDS	: 1.2E-02 %

PROBABILITY NUMBER DISTRIBUTION GRAPH

Name: R1749 BY104 RESIDUE SAMPLE H20 SBK
5.8E+06 #/ml(100.0%)

Median : 0.93 μ m
Mean(nl): 1.34 μ m
S.D.(nl): 1.46 μ m
Conf(nl):100.00 %

<< SCALE RANGE (μ m): ADJUSTED >>

0.0740341721

WHC-SD-WM-TI-540, REV. 1

GRAPHS AND PHOTOGRAPHS

0 0 3 6 0 9 4 1 3 6 6

GREEN= ALUMINUM HYDROXIDE AL (OH) 3 PDF# 29-41

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0 0 3 5 0 2 4 1 3 7 1

GREEN= ALUMINUM HYDROXIDE AL(OH)3 PDF# 29-41

00860741300

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WHC-SD-WM-TI-540, REV. 1

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WHC-SD-WM-TI-540, REV. 1

SAMPLE STATUS REPORTS

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)

AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540,REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R	METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
7	1712	6700	BY-104	FUSION	0	LA-549-141	25	RSA#418	71492	1	
R	1713	6700	BY-104	FUSION	0	LA-549-141	25	RSA#418	71492	1	
	EXTENSION COUNT =			2							
R	1712	6800	BY-104	FUSION	0	LA-549-141	25	RSA#418	71492	1	
R	1713	6800	BY-104	FUSION	0	LA-549-141	25	RSA#418	71492	1	
	EXTENSION COUNT =			2							
	FAMILY EXT. COUNT =			4		COMPLETED (SUM TYPE)					4
	METHOD COUNT =										4

000004763

REPORT ON INC AND COMPL ANALYSIS. (MULTIPLE RESULTS COUNTED ONCE)
AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540,REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
R	1739	5512	BY-104	TGA	0	LA-560-112	25 STD	82892	1	
R	1743	5512	BY-104	TGA	0	LA-560-112	25 STD	72992	1	
EXTENSION COUNT =				2						
R	1740	5712	BY-104	TGA	0	LA-560-112	25 RSA#426	82892	1	
R	1741	5712	BY-104	TGA	0	LA-560-112	25 RSA#426	8 592	1	
R	1742	5712	BY-104	TGA	0	LA-560-112	25 RSA#426	8 592	1	
R	1744	5712	BY-104	TGA	0	LA-560-112	25 RSA#426	72992	1	
R	1745	5712	BY-104	TGA	0	LA-560-112	25 RSA#426	8 792	1	
R	1746	5712	BY-104	TGA	0	LA-560-112	25 RSA#426	8 792	1	
EXTENSION COUNT =				6						
R	1740	5812	BY-104	TGA	0	LA-560-112	25 RSA#426	82892	1	
R	1741	5812	BY-104	TGA	0	LA-560-112	25 RSA#426	8 592	1	
R	1742	5812	BY-104	TGA	0	LA-560-112	25 RSA#426	8 592	1	
R	1744	5812	BY-104	TGA	0	LA-560-112	25 RSA#426	8 792	1	
R	1745	5812	BY-104	TGA	0	LA-560-112	25 RSA#426	8 792	1	
R	1746	5812	BY-104	TGA	0	LA-560-112	25 RSA#426	8 792	1	
EXTENSION COUNT =				6						
FAMILY EXT. COUNT =				14	COMPLETED (SUM TYPE)				14	

METHOD COUNT =

14

WHC-SD-WM-TI-540, REV. 1

SERIAL		WHC-SD-WM-TI-540,REV.1							DATE	CHRG		
GRP	#	EXTN	SAMPLE	PT	DET	R	METHOD	PRI	CUST. ID	DONE	TYPE	TECH
?	1721	5510	BY-104		% H2O	0	LA-564-101	25	STD	8 792	1	
X	1736	5510	BY-104		% H2O	0	LA-564-101	25	STD	71492	1	
EXTENSION COUNT =					2							
R	1722	5710	BY-104		% H2O	0	LA-564-101	25	RSA#421	72192	1	
R	1723	5710	BY-104		% H2O	0	LA-564-101	25	RSA#421	72192	1	
R	1737	5710	BY-104		% H2O	0	LA-564-101	25	RSA#425	71492	1	
R	1738	5710	BY-104		% H2O	0	LA-564-101	25	RSA#425	71492	1	
EXTENSION COUNT =					4							
R	1722	5810	BY-104		% H2O	0	LA-564-101	25	RSA#421	72192	1	
R	1723	5810	BY-104		% H2O	0	LA-564-101	25	RSA#421	72192	1	
R	1737	5810	BY-104		% H2O	0	LA-564-101	25	RSA#425	71492	1	
R	1738	5810	BY-104		% H2O	0	LA-564-101	25	RSA#425	71492	1	
EXTENSION COUNT =					4							
FAMILY EXT. COUNT =					10	COMPLETED (SUM TYPE)					10	
METHOD COUNT =						10						

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)

AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540,REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
R	1732	5578	BY-104	CN	2	LA-695-102	25	STD	0	
R	1728	5578	BY-104	CN	0	LA-695-102	25	STD	8 792	1
R	1732	5578	BY-104	CN	0	LA-695-102	25	STD	72192	1
R	1732	5578	BY-104	CN	1	LA-695-102	25	STD	73092	1
EXTENSION COUNT = 4										
R	1733	5678	BY-104	CN	2	LA-695-102	25	BLK	0	
R	1729	5678	BY-104	CN	0	LA-695-102	25	BLK	8 792	1
R	1733	5678	BY-104	CN	1	LA-695-102	25	BLK	73092	1
R	1733	5678	BY-104	CN	0	LA-695-102	25	BLK	72192	1
EXTENSION COUNT = 4										
R	1734	5778	BY-104	CN	2	LA-695-102	25	RSA#424	0	
R	1735	5778	BY-104	CN	2	LA-695-102	25	RSA#424	0	
R	1730	5778	BY-104	CN	1	LA-695-102	25	RSA#423	72192	1
R	1730	5778	BY-104	CN	0	LA-695-102	25	RSA#423	72192	1
R	1731	5778	BY-104	CN	0	LA-695-102	25	RSA#423	72192	1
R	1731	5778	BY-104	CN	1	LA-695-102	25	RSA#423	72192	1
R	1734	5778	BY-104	CN	1	LA-695-102	25	RSA#424	73092	1
R	1734	5778	BY-104	CN	0	LA-695-102	25	RSA#424	72192	1
R	1735	5778	BY-104	CN	0	LA-695-102	25	RSA#424	72192	1
R	1735	5778	BY-104	CN	1	LA-695-102	25	RSA#424	73092	1
EXTENSION COUNT = 10										
R	1734	5878	BY-104	CN	2	LA-695-102	25	RSA#424	0	
R	1735	5878	BY-104	CN	2	LA-695-102	25	RSA#424	0	
R	1730	5878	BY-104	CN	1	LA-695-102	25	RSA#423	72192	1
R	1730	5878	BY-104	CN	0	LA-695-102	25	RSA#423	72192	1
R	1731	5878	BY-104	CN	0	LA-695-102	25	RSA#423	72192	1
R	1731	5878	BY-104	CN	1	LA-695-102	25	RSA#423	72192	1
R	1734	5878	BY-104	CN	1	LA-695-102	25	RSA#424	73092	1
R	1734	5878	BY-104	CN	0	LA-695-102	25	RSA#424	72192	1
R	1735	5878	BY-104	CN	0	LA-695-102	25	RSA#424	72192	1
R	1735	5878	BY-104	CN	1	LA-695-102	25	RSA#424	73092	1
EXTENSION COUNT = 10										
R	1734	5978	BY-104	CN	2	LA-695-102	25	RSA#424	0	
R	1730	5978	BY-104	CN	0	LA-695-102	25	RSA#423	72192	1
R	1730	5978	BY-104	CN	1	LA-695-102	25	RSA#423	72192	1
R	1731	5978	BY-104	CN	0	LA-695-102	25	RSA#423	72192	1
R	1731	5978	BY-104	CN	1	LA-695-102	25	RSA#423	72192	1
R	1734	5978	BY-104	CN	1	LA-695-102	25	RSA#424	73092	1
R	1734	5978	BY-104	CN	0	LA-695-102	25	RSA#424	72192	1
R	1735	5978	BY-104	CN	0	LA-695-102	25	RSA#424	72192	1
R	1735	5978	BY-104	CN	1	LA-695-102	25	RSA#424	73092	1
EXTENSION COUNT = 9										
FAMILY EXT. COUNT =				37	COMPLETED (SUM TYPE)				30	
METHOD COUNT =				37						

Standard received
7/2/02

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)

AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540,REV.1

SERIAL	GRP	#	EXTN	SAMPLE	PT	DET	R	METHOD	PRI	CUST.	ID	DATE	CHRG	TECH
												DONE	TYPE	
1717		5540	BY-104			U		0 LA-925-106	25	STD		8 792	1	
EXTENSION COUNT = 1														
1718		5640	BY-104			U		0 LA-925-106	25	BLK		8 792	1	
EXTENSION COUNT = 1														
1719		5740	BY-104			U		0 LA-925-106	25	RSA#420		72192	1	
1720		5740	BY-104			U		0 LA-925-106	25	RSA#420		72192	1	
EXTENSION COUNT = 2														
1719		5840	BY-104			U		0 LA-925-106	25	RSA#420		72192	1	
1720		5840	BY-104			U		0 LA-925-106	25	RSA#420		72192	1	
EXTENSION COUNT = 2														
FAMILY EXT. COUNT = 6 COMPLETED (SUM TYPE) 6														
1712		6740	BY-104			U		0 LA-925-106	25	RSA#418		71692	1	
1713		6740	BY-104			U		0 LA-925-106	25	RSA#418		71692	1	
EXTENSION COUNT = 2														
1712		6840	BY-104			U		0 LA-925-106	25	RSA#418		71692	1	
1713		6840	BY-104			U		0 LA-925-106	25	RSA#418		71692	1	
EXTENSION COUNT = 2														
FAMILY EXT. COUNT = 4 COMPLETED (SUM TYPE) 4														
METHOD COUNT = 10														

AT 222-5 FOR DAN THORNTON

WHC-SD-WM-TI-540,REV.1

00000458

WHC-SD-WM-TI-540, REV. 1

00000000

SERIAL

264 = TOTAL COUNT FOR PREVIOUS GROUP

TOTAL COMPLETE FOR 222-S 264

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SAMPLE POINT SERIAL NUMBER LIST
SAMPLE POINT NAME: BY-1048/19/92 PAGE 1
WHC-SD-WM-TI-540,REV.1

R 1710.	DISPATCHED:	6/17/92	11:43	HAS NO INCOMPLETE ANALYSES
R 1711.	DISPATCHED:	6/17/92	11:47	HAS NO INCOMPLETE ANALYSES
R 1712.	DISPATCHED:	6/17/92	11:53	HAS NO INCOMPLETE ANALYSES
R 1713.	DISPATCHED:	6/17/92	11:54	HAS NO INCOMPLETE ANALYSES
R 1714.	DISPATCHED:	6/17/92	11:56	HAS NO INCOMPLETE ANALYSES
R 1715.	DISPATCHED:	6/17/92	12: 4	HAS NO INCOMPLETE ANALYSES
R 1716.	DISPATCHED:	6/17/92	12:31	HAS NO INCOMPLETE ANALYSES
R 1717.	DISPATCHED:	6/17/92	14:11	HAS NO INCOMPLETE ANALYSES
R 1718.	DISPATCHED:	6/17/92	14:13	HAS NO INCOMPLETE ANALYSES
R 1719.	DISPATCHED:	6/17/92	14:16	HAS NO INCOMPLETE ANALYSES
R 1720.	DISPATCHED:	6/17/92	14:25	HAS NO INCOMPLETE ANALYSES
R 1721.	DISPATCHED:	6/17/92	14:38	HAS NO INCOMPLETE ANALYSES
R 1722.	DISPATCHED:	6/17/92	14:40	HAS NO INCOMPLETE ANALYSES
R 1723.	DISPATCHED:	6/17/92	14:41	HAS NO INCOMPLETE ANALYSES
R 1724.	DISPATCHED:	6/17/92	14:55	HAS NO INCOMPLETE ANALYSES
R 1725.	DISPATCHED:	6/17/92	14:57	HAS NO INCOMPLETE ANALYSES
R 1726.	DISPATCHED:	6/17/92	15: 1	HAS NO INCOMPLETE ANALYSES
R 1727.	DISPATCHED:	6/17/92	15: 3	HAS NO INCOMPLETE ANALYSES
R 1728.	DISPATCHED:	6/18/92	8: 0	HAS NO INCOMPLETE ANALYSES
R 1729.	DISPATCHED:	6/18/92	8: 2	HAS NO INCOMPLETE ANALYSES
R 1730.	DISPATCHED:	6/18/92	8: 4	HAS NO INCOMPLETE ANALYSES
R 1731.	DISPATCHED:	6/18/92	8: 5	HAS NO INCOMPLETE ANALYSES
R 1732.	DISPATCHED:	6/18/92	8:15	HAS NO INCOMPLETE ANALYSES
R 1733.	DISPATCHED:	6/18/92	8:16	HAS NO INCOMPLETE ANALYSES
R 1734.	DISPATCHED:	6/18/92	8:17	HAS NO INCOMPLETE ANALYSES
R 1735.	DISPATCHED:	6/18/92	8:18	HAS NO INCOMPLETE ANALYSES
R 1736.	DISPATCHED:	6/18/92	8:35	HAS NO INCOMPLETE ANALYSES
R 1737.	DISPATCHED:	6/18/92	8:38	HAS NO INCOMPLETE ANALYSES
R 1738.	DISPATCHED:	6/18/92	8:39	HAS NO INCOMPLETE ANALYSES
R 1739.	DISPATCHED:	6/18/92	8:48	HAS INCOMPLETE ANALYSES
R 1740.	DISPATCHED:	6/18/92	8:49	HAS INCOMPLETE ANALYSES
R 1741.	DISPATCHED:	6/18/92	8:50	HAS INCOMPLETE ANALYSES
R 1742.	DISPATCHED:	6/18/92	8:51	HAS INCOMPLETE ANALYSES
R 1743.	DISPATCHED:	6/18/92	8:52	HAS NO INCOMPLETE ANALYSES
R 1744.	DISPATCHED:	6/18/92	8:52	HAS NO INCOMPLETE ANALYSES
R 1745.	DISPATCHED:	6/18/92	8:53	HAS NO INCOMPLETE ANALYSES
R 1746.	DISPATCHED:	6/18/92	8:54	HAS INCOMPLETE ANALYSES
R 1747.	DISPATCHED:	6/18/92	10:28	HAS INCOMPLETE ANALYSES
R 1748.	DISPATCHED:	6/18/92	10:28	HAS INCOMPLETE ANALYSES
R 1749.	DISPATCHED:	6/18/92	11: 2	HAS INCOMPLETE ANALYSES
R 1750.	DISPATCHED:	6/18/92	11: 4	HAS INCOMPLETE ANALYSES
R 1751.	DISPATCHED:	6/18/92	13:19	HAS INCOMPLETE ANALYSES
R 1752.	DISPATCHED:	6/18/92	13:20	HAS INCOMPLETE ANALYSES
R 1753.	DISPATCHED:	6/18/92	13:22	HAS INCOMPLETE ANALYSES
R 1754.	DISPATCHED:	6/18/92	13:23	HAS INCOMPLETE ANALYSES
R 1755.	DISPATCHED:	6/18/92	13:35	HAS NO INCOMPLETE ANALYSES
R 1756.	DISPATCHED:	6/18/92	13:36	HAS NO INCOMPLETE ANALYSES
R 1757.	DISPATCHED:	6/18/92	13:37	HAS NO INCOMPLETE ANALYSES

SAMPLE POINT SERIAL NUMBER LIST
SAMPLE POINT NAME: BY-104

8/19/92. PAGE 2

WHC-SD-WM-TI-540,REV.1

R 1758.	DISPATCHED:	6/18/92	13:38	HAS NO INCOMPLETE ANALYSES
R 1772.	DISPATCHED:	6/23/92	8:12	HAS INCOMPLETE ANALYSES
R 1773.	DISPATCHED:	6/23/92	8:13	HAS INCOMPLETE ANALYSES
R 1774.	DISPATCHED:	6/23/92	8:13	HAS INCOMPLETE ANALYSES
R 1775.	DISPATCHED:	6/23/92	8:14	HAS INCOMPLETE ANALYSES
R 1776.	DISPATCHED:	6/24/92	14:15	HAS NO INCOMPLETE ANALYSES
R 1777.	DISPATCHED:	6/24/92	14:16	HAS NO INCOMPLETE ANALYSES
R 1778.	DISPATCHED:	6/24/92	14:17	HAS NO INCOMPLETE ANALYSES
R 1779.	DISPATCHED:	6/24/92	14:20	HAS NO INCOMPLETE ANALYSES
R 1787.	DISPATCHED:	6/29/92	8: 4	HAS INCOMPLETE ANALYSES
R 1788.	DISPATCHED:	6/29/92	8: 5	HAS INCOMPLETE ANALYSES
R 2146.	DISPATCHED:	7/27/92	7:52	HAS NO INCOMPLETE ANALYSES

END OF LIST

SAMPLE STATUS REPORT FOR R 1710. BY-104 STD TIME: 8/20/92 12:50
 DISPATCHED: 6/17/92 11:43 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/15/92 19: 5

WHC-SD-WM-TI-540.REV.1;

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
6520	TB	1.00100E 02 % RECOVERY	N	Y	N233L
6525	AT	OUT FOR RERUN			N233L
6525	AT	1.02000E 02 % RECOVERY	N	Y	N233L
6530	GEA	1.02500E 02 % RECOVERY Cs-137	N	Y	N233L
6530	GEA	1.01200E 02 % RECOVERY Co-60	N	Y	N233L
6540	U	8.83000E 01 % RECOVERY	N	Y	N233L
6550	ICP	LMCS UNDIGESTED STDS			N233L
6550	ICP	1.01400E 02 % RECOVERY Zr	N	Y	N233L
6550	ICP	9.72000E 01 % RECOVERY Sr	N	Y	N233L
6550	ICP	9.50000E 01 % RECOVERY Si	N	Y	N233L
6550	ICP	9.34000E 01 % RECOVERY Al	N	Y	N233L
6550	ICP	9.91000E 01 % RECOVERY Co	N	Y	N233L
6550	ICP	9.80000E 01 % RECOVERY Cu	N	Y	N233L
6550	ICP	1.00200E 02 % RECOVERY Zn	N	Y	N233L
6550	ICP	9.98000E 01 % RECOVERY Ni	N	Y	N233L
6550	ICP	9.88000E 01 % RECOVERY Fe	N	Y	N233L
6550	ICP	9.94000E 01 % RECOVERY Ca	N	Y	N233L
6550	ICP	1.03600E 02 % RECOVERY Cr	N	Y	N233L
6550	ICP	9.71000E 01 % RECOVERY Ba	N	Y	N233L
6550	ICP	1.01200E 02 % RECOVERY P	N	Y	N233L
6550	ICP	9.78000E 01 % RECOVERY S	N	Y	N233L
6550	ICP	9.88000E 01 % RECOVERY Mg	N	Y	N233L
6550	ICP	9.51000E 01 % RECOVERY Na	N	Y	N233L
6550	ICP	91.8000E 01 % RECOVERY Se			N233L
6550	ICP	1.02000E 02 % RECOVERY Pb	N	Y	N233L
6550	ICP	1.01000E 02 % RECOVERY Cd	N	Y	N233L
6550	ICP	9.62000E 01 % RECOVERY K	N	Y	N233L
6550	ICP	9.60000E 01 % RECOVERY Mn	N	Y	N233L
6550	ICP	9.44000E 01 % RECOVERY Li	N	Y	N233L
6550	ICP	1.01600E 02 % RECOVERY Ca	N	Y	N233L
6581	PU239/40	9.95000E 01 % RECOVERY	N	Y	N233L
6582	AM241	9.77000E 01 % RECOVERY	N	Y	N233L
6586	SR90	1.06800E 02 % RECOVERY	N	Y	N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1711. BY-104 BLK TIME: 8/20/92. 12:51
DISPATCHED: 6/17/92 11:47 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/14/92 13:15 WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS		OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****		***	***	*****
6600	FUSION	COMPLETED				N233L
6620	TB	< 1.14000E 01 uCI/L		N	Y	N233L
6625	AT	OUT FOR RERUN				N233L
6625	AT	< 1.25000E-01 uCI/L		N	Y	N233L
6630	GEA	< 5.82000E-01 uCI/L	Am-241	N	Y	N233L
6630	GEA	< 1.44000E-01 uCI/L	Cs-137	N	Y	N233L
6630	GEA	< 2.57000E-01 uCI/L	Eu-155	N	Y	N233L
6630	GEA	< 3.19000E-01 uCI/L	Eu-154	N	Y	N233L
6630	GEA	< 1.35000E-01 uCI/L	Co-60	N	Y	N233L
6640	U	< 6.36000E-04 G/L		N	Y	N233L
6650	ICP	< 8.00000E 00 ug/L	Zr	N	Y	N233L
6650	ICP	3.60000E 00 ug/L	Sr	N	Y	N233L
6650	ICP	1.02000E 03 ug/L	Si	N	Y	N233L
6650	ICP	1.15000E 02 ug/L	Al	N	Y	N233L
6650	ICP	< 8.00000E 00 ug/L	Co	N	Y	N233L
6650	ICP	1.15000E 01 ug/L	Cu	N	Y	N233L
6650	ICP	< 4.00000E 00 ug/L	Li	N	Y	N233L
6650	ICP	2.47000E 01 ug/L	Zn	N	Y	N233L
6650	ICP	< 1.70000E 01 ug/L	Ni	N	Y	N233L
6650	ICP	< 1.00000E 01 ug/L	Fe	N	Y	N233L
6650	ICP	1.66000E 02 ug/L	Ca	N	Y	N233L
6650	ICP	< 9.00000E 00 ug/L	Cr	N	Y	N233L
6650	ICP	< 3.00000E 00 ug/L	Ba	N	Y	N233L
6650	ICP	1.30000E 02 ug/L	P	N	Y	N233L
6650	ICP	< 2.70000E 01 ug/L	S	N	Y	N233L
6650	ICP	< 3.00000E 00 ug/L	Mg	N	Y	N233L
6650	ICP	5.25000E 03 ug/L	Na	N	Y	N233L
6650	ICP	< 7.60000E 01 ug/L	Se			N233L
6650	ICP	6.95000E 00 ug/L	Ag	N	Y	N233L
6650	ICP	< 6.20000E 01 ug/L	Pb	N	Y	N233L
6650	ICP	< 4.00000E 00 ug/L	Cd	N	Y	N233L
6650	ICP	8.76000E 06 ug/L	K	N	Y	N233L
6650	ICP	< 2.00000E 00 ug/L	Mn	N	Y	N233L
6681	PU239/40	< 6.78000E-03 uCI/L		N	Y	N233L
6682	AM241	4.88000E-03 uCI/L		N	Y	N233L
6686	SR90	1.36000E-02 uCI/L		N	Y	N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1712. BY-104 RSA#418 TIME: 8/20/92 12:51
 DISPATCHED: 6/17/92 11:53 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/14/92 13:15

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
6700	FUSION	2.00520E 00 G/L	N	Y	N233L
6720	TB	6.01000E 02 uCI/g rec	N	Y	N233L
6725	AT	OUT FOR RERUN			N233L
6725	AT	2.96000E-01 uCI/g rec	N	Y	N233L
6730	GEA	< 7.20000E-01 uCI/g rec Am-241	N	Y	N233L
6730	GEA	1.16200E 02 uCI/g rec Cs-137	N	Y	N233L
6730	GEA	< 3.10000E-01 uCI/g rec Eu-155	N	Y	N233L
6730	GEA	< 1.90000E-01 uCI/g rec Eu-154	N	Y	N233L
6730	GEA	< 6.70000E-02 uCI/g rec Co-60	N	Y	N233L
6740	U	3.68000E 03 ug/g rec	N	Y	N233L
6755	ICP-SOL	3.89000E 01 ug/g rec Zr	N	Y	N233L
6755	ICP-SOL	1.65000E 03 ug/g rec Sr	N	Y	N233L
6755	ICP-SOL	8.38000E 02 ug/g rec Si	N	Y	N233L
6755	ICP-SOL	7.50000E 04 ug/g rec Al	N	Y	N233L
6755	ICP-SOL	6.55000E 01 ug/g rec Co	N	Y	N233L
6755	ICP-SOL	4.15000E 01 ug/g rec Cu	N	Y	N233L
6755	ICP-SOL	9.88000E 01 ug/g rec Zn	N	Y	N233L
6755	ICP-SOL	3.46000E 03 ug/g rec Ni	N	Y	N233L
6755	ICP-SOL	6.01000E 03 ug/g rec Fe	N	Y	N233L
6755	ICP-SOL	1.43000E 03 ug/g rec Ca	N	Y	N233L
6755	ICP-SOL	1.64000E 04 ug/g rec Cr	N	Y	N233L
6755	ICP-SOL	4.06000E 01 ug/g rec Ba	N	Y	N233L
6755	ICP-SOL	4.87000E 03 ug/g rec P	N	Y	N233L
6755	ICP-SOL	1.09000E 04 ug/g rec S	N	Y	N233L
6755	ICP-SOL	1.41000E 02 ug/g rec Mg	N	Y	N233L
6755	ICP-SOL	1.72000E 05 ug/g rec Na	N	Y	N233L
6755	ICP-SOL	1.96000E 03 ug/g rec Se			N233L
6755	ICP-SOL	3.36000E 01 ug/g rec Ag	N	Y	N233L
6755	ICP-SOL	3.29000E 02 ug/g rec Pb	N	Y	N233L
6755	ICP-SOL	9.20000E 01 ug/g rec Cd	N	Y	N233L
6755	ICP-SOL	3.89000E 06 ug/g rec K	N	Y	N233L
6755	ICP-SOL	3.44000E 02 ug/g rec Mn	N	Y	N233L
6781	PU239/40	8.27000E-02 uCI/g rec	N	Y	N233L
6782	AM241	1.00000E-01 uCI/g rec	N	Y	N233L
6786	SR90	1.33000E 02 uCI/g rec	N	Y	N233L
6800	FUSION	2.02640E 00 G/L	N	Y	N233L
6820	TB	6.26000E 02 uCI/g rec	N	Y	N233L
6825	AT	OUT FOR RERUN			N233L
6825	AT	1.91000E-01 uCI/g rec	N	Y	N233L
6830	GEA	< 7.20000E-01 uCI/g rec Am-241	N	Y	N233L
6830	GEA	1.15000E 02 uCI/g rec Cs-137	N	Y	N233L
6830	GEA	< 3.10000E-01 uCI/g rec Eu-155	N	Y	N233L
6830	GEA	< 2.10000E-01 uCI/g rec Eu-154	N	Y	N233L
6830	GEA	< 7.09999E-02 uCI/g rec Co-60	N	Y	N233L
6840	U	3.77000E 03 ug/g rec	N	Y	N233L
6855	ICP-SOL	5.28000E 01 ug/g rec Zr	N	Y	N233L
6855	ICP-SOL	1.80000E 03 ug/g rec Sr	N	Y	N233L
6855	ICP-SOL	9.81000E 02 ug/g rec Si	N	Y	N233L
6855	ICP-SOL	8.63999E 04 ug/g rec Al	N	Y	N233L
6855	ICP-SOL	6.93000E 01 ug/g rec Co	N	Y	N233L
6855	ICP-SOL	4.86000E 01 ug/g rec Cu	N	Y	N233L

6855 ICP-SOL 1.38000E 02 ug/g rec Zn

N Y N233L

REPORT CONTINUED ON NEXT PAGE

WHC-SD-WM-TI-540,REV.1

000000947308

SAMPLE STATUS REPORT FOR R 1712. BY-104 RSA#418 TIME: 8/20/92 12:51
 DISPATCHED: 6/17/92 11:53 SAMPLE HAS NOT BEEN SLURPED

EXT.	DETER.	RESULTS OR STATUS	WHC-SD-WM-TI-540,REV.1	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****		***	***	*****
6855	ICP-SOL	5.33000E 03 ug/g rec Ni		N	Y	N233L
6855	ICP-SOL	8.15000E 03 ug/g rec Fe		N	Y	N233L
6855	ICP-SOL	1.48000E 03 ug/g rec Ca		N	Y	N233L
6855	ICP-SOL	1.72000E 04 ug/g rec Cr		N	Y	N233L
6855	ICP-SOL	4.43000E 01 ug/g rec Ba		N	Y	N233L
6855	ICP-SOL	3.33000E 03 ug/g rec P		N	Y	N233L
6855	ICP-SOL	1.00000E 04 ug/g rec S		N	Y	N233L
6855	ICP-SOL	1.57000E 02 ug/g rec Mg		N	Y	N233L
6855	ICP-SOL	1.53000E 05 ug/g rec Na		N	Y	N233L
6855	ICP-SOL	2.20000E 03 ug/g rec Se				N233L
6855	ICP-SOL	2.72000E 01 ug/g rec Ag		N	Y	N233L
6855	ICP-SOL	4.63000E 02 ug/g rec Pb		N	Y	N233L
6855	ICP-SOL	1.04000E 02 ug/g rec Cd		N	Y	N233L
6855	ICP-SOL	2.88000E 06 ug/g rec K		N	Y	N233L
6855	ICP-SOL	3.89000E 02 ug/g rec Mn		N	Y	N233L
6881	PU239/40	5.53000E-02 uCI/g rec		N	Y	N233L
6882	AM241	1.06000E-01 uCI/g rec		N	Y	N233L
6886	SR90	1.53000E 02 uCI/g rec		N	Y	N233L
6950	ICP	1.04500E 02 % RECOVERY Zr		N	Y	N233L
6950	ICP	9.52000E 01 % RECOVERY Sr		N	Y	N233L
6950	ICP	8.96000E 01 % RECOVERY Co		N	Y	N233L
6950	ICP	5.69000E 01 % RECOVERY Cu		N	Y	N233L
6950	ICP	9.80000E 01 % RECOVERY Zn		N	Y	N233L
6950	ICP	9.38000E 01 % RECOVERY Ca		N	Y	N233L
6950	ICP	9.36000E 01 % RECOVERY Ba		N	Y	N233L
6950	ICP	9.44000E 01 % RECOVERY P		N	Y	N233L
6950	ICP	9.73000E 01 % RECOVERY Mg		N	Y	N233L
6950	ICP	1.66000E 01 % RECOVERY Se				N233L
6950	ICP	1.02500E 02 % RECOVERY Ag		N	Y	N233L
6950	ICP	1.06500E 02 % RECOVERY Pb		N	Y	N233L
6950	ICP	1.02600E 02 % RECOVERY Cd		N	Y	N233L
6950	ICP	FLAG: Si,Cr,Mn NO SPIKE RECOVERY				N233L
6950	ICP	FLAG: Al,Ni,Fe,Na,K SAMP > 4 X SPK CONC.				N233L
6950	ICP	9.66000E 01 % RECOVERY S		N	Y	N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1713. BY-104 RSA#418 TIME: 8/20/92 12:52
DISPATCHED: 6/17/92 11:54 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/14/92 13:16

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
6700	FUSION	2.03120E 00 G/L	N	Y	N233L
6720	TB	2.83000E 02 uCI/g rec	N	Y	N233L
6725	AT	OUT FOR RERUN			N233L
6725	AT	1.12000E-01 uCI/g rec	N	Y	N233L
6730	GEA	< 5.90000E-01 uCI/g rec Am-241	N	Y	N233L
6730	GEA	7.40000E 01 uCI/g rec Cs-137	N	Y	N233L
6730	GEA	< 2.40000E-01 uCI/g rec Eu-155	N	Y	N233L
6730	GEA	< 1.70000E-01 uCI/g rec Eu-154	N	Y	N233L
6730	GEA	< 6.70000E-02 uCI/g rec Co-60	N	Y	N233L
6740	U	1.62000E 03 ug/g rec	N	Y	N233L
6755	ICP-SOL	5.97000E 02 ug/g rec Sr	N	Y	N233L
6755	ICP-SOL	3.39000E 01 ug/g rec Zr	N	Y	N233L
6755	ICP-SOL	1.55000E 03 ug/g rec Si	N	Y	N233L
6755	ICP-SOL	1.35000E 04 ug/g rec Al	N	Y	N233L
6755	ICP-SOL	8.27000E 02 ug/g rec Co	N	Y	N233L
6755	ICP-SOL	< 1.97000E 00 ug/g rec Li	N	Y	N233L
6755	ICP-SOL	6.06000E 02 ug/g rec Zn	N	Y	N233L
6755	ICP-SOL	4.94000E 03 ug/g rec Ni	N	Y	N233L
6755	ICP-SOL	2.65000E 03 ug/g rec Fe	N	Y	N233L
6755	ICP-SOL	7.40000E 02 ug/g rec Ca	N	Y	N233L
6755	ICP-SOL	4.22000E 03 ug/g rec Cr	N	Y	N233L
6755	ICP-SOL	1.95000E 01 ug/g rec Ba	N	Y	N233L
6755	ICP-SOL	8.50000E 03 ug/g rec P	N	Y	N233L
6755	ICP-SOL	1.73000E 04 ug/g rec S	N	Y	N233L
6755	ICP-SOL	1.10000E 02 ug/g rec Mg	N	Y	N233L
6755	ICP-SOL	2.39000E 05 ug/g rec Na	N	Y	N233L
6755	ICP-SOL	5.35000E 02 ug/g rec Se			N233L
6755	ICP-SOL	2.89000E 01 ug/g rec Ti	N	Y	N233L
6755	ICP-SOL	4.03000E 01 ug/g rec Cd	N	Y	N233L
6755	ICP-SOL	1.43000E 02 ug/g rec Mn	N	Y	N233L
6755	ICP-SOL	5.57000E 06 ug/g rec K	N	Y	N233L
6781	PU239/40	2.28000E-02 uCI/g rec	N	Y	N233L
6782	AM241	4.48000E-02 uCI/g rec	N	Y	N233L
6786	SR90	5.97000E 01 uCI/g rec	N	Y	N233L
6800	FUSION	1.99160E 00 G/L	N	Y	N233L
6820	TB	2.93000E 02 uCI/g rec	N	Y	N233L
6825	AT	OUT FOR RERUN			N233L
6825	AT	1.67000E-01 uCI/g rec	N	Y	N233L
6830	GEA	< 5.90000E-01 uCI/g rec Am-241	N	Y	N233L
6830	GEA	7.80000E 01 uCI/g rec Cs-137	N	Y	N233L
6830	GEA	< 2.60000E-01 uCI/g rec Eu-155	N	Y	N233L
6830	GEA	< 1.60000E-01 uCI/g rec Eu-154	N	Y	N233L
6830	GEA	< 7.60000E-02 uCI/g rec Co-60	N	Y	N233L
6840	U	1.66000E 03 ug/g rec	N	Y	N233L
6855	ICP-SOL	3.97000E 01 ug/g rec Zr	N	Y	N233L
6855	ICP-SOL	6.32000E 02 ug/g rec Sr	N	Y	N233L
6855	ICP-SOL	2.60000E 03 ug/g rec Si	N	Y	N233L
6855	ICP-SOL	1.27000E 04 ug/g rec Al	N	Y	N233L
6855	ICP-SOL	3.15000E 01 ug/g rec Cu	N	Y	N233L
6855	ICP-SOL	5.06000E 01 ug/g rec Li	N	Y	N233L
6855	ICP-SOL	1.14000E 02 ug/g rec Zn	N	Y	N233L

6855 ICP-SOL 5.10000E 03 ug/g rec Ni

N Y N233L

REPORT CONTINUED ON NEXT PAGE

WHC-SD-WM-TI-540,REV.1

0080040311

SAMPLE STATUS REPORT FOR R 1713. BY-104 RSA#418 TIME: 8/20/92 12:52.
DISPATCHED: 6/17/92 11:54 SAMPLE HAS NOT BEEN SLURPED

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
6855	ICP-SOL	2.35000E 03 ug/g rec Fe	N	Y	N233L
6855	ICP-SOL	8.13000E 02 ug/g rec Ca	N	Y	N233L
6855	ICP-SOL	4.26000E 03 ug/g rec Cr	N	Y	N233L
6855	ICP-SOL	2.04000E 01 ug/g rec Ba	N	Y	N233L
6855	ICP-SOL	4.28000E 03 ug/g rec P	N	Y	N233L
6855	ICP-SOL	1.93000E 04 ug/g rec S	N	Y	N233L
6855	ICP-SOL	1.46000E 02 ug/g rec Mg	N	Y	N233L
6855	ICP-SOL	2.57000E 05 ug/g rec Na	N	Y	N233L
6855	ICP-SOL	5.10000E 02 ug/g rec Se			N233L
6855	ICP-SOL	1.20000E 02 ug/g rec Ti	N	Y	N233L
6855	ICP-SOL	4.19000E 01 ug/g rec Cd	N	Y	N233L
6855	ICP-SOL	1.39000E 02 ug/g rec Mn	N	Y	N233L
6855	ICP-SOL	6.73000E 06 ug/g rec K	N	Y	N233L
6881	PU239/40	2.75000E-02 uCI/g rec	N	Y	N233L
6882	AM241	4.14000E-02 uCI/g rec	N	Y	N233L
6886	SR90	6.20000E 01 uCI/g rec	N	Y	N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1714. BY-104 STD TIME: 8/20/92 12:52
 DISPATCHED: 6/17/92 11:56 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/22/92 11:47

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
6550	ICP	1.04300E 02 % RECOVERY Zr	N	Y	N233L
6550	ICP	9.32000E 01 % RECOVERY Sr	N	Y	N233L
6550	ICP	9.66000E 01 % RECOVERY Si	N	Y	N233L
6550	ICP	9.28000E 01 % RECOVERY Al	N	Y	N233L
6550	ICP	9.75000E 01 % RECOVERY Co	N	Y	N233L
6550	ICP	9.42000E 01 % RECOVERY Cu	N	Y	N233L
6550	ICP	9.93000E 01 % RECOVERY Zn	N	Y	N233L
6550	ICP	9.78000E 01 % RECOVERY Na	N	Y	N233L
6550	ICP	9.62000E 01 % RECOVERY Fe	N	Y	N233L
6550	ICP	9.49000E 01 % RECOVERY Ca	N	Y	N233L
6550	ICP	1.01400E 02 % RECOVERY Cr	N	Y	N233L
6550	ICP	9.26000E 01 % RECOVERY Ba	N	Y	N233L
6550	ICP	9.98000E 01 % RECOVERY P	N	Y	N233L
6550	ICP	9.64000E 01 % RECOVERY S	N	Y	N233L
6550	ICP	9.72000E 01 % RECOVERY Mg	N	Y	N233L
6550	ICP	9.17000E 01 % RECOVERY Na	N	Y	N233L
6550	ICP	9.62000E 01 % RECOVERY Se			N233L
6550	ICP	1.03800E 02 % RECOVERY Ag	N	Y	N233L
6550	ICP	1.10000E 02 % RECOVERY Pb	N	Y	N233L
6550	ICP	9.96000E 01 % RECOVERY Cd	N	Y	N233L
6550	ICP	1.03400E 02 % RECOVERY K	N	Y	N233L
6550	ICP	9.38000E 01 % RECOVERY Mn	N	Y	N233L
6550	ICP	9.02000E 01 % RECOVERY Li	N	Y	N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1715. BY-104 RSA#419. TIME: 8/20/92 12:53
DISPATCHED: 6/17/92 12: 4 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/21/92 8:16

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5750	ICP-LIQ	DELETED			N233L
5850	ICP-LIQ	DELETED			N233L.

END OF REPORT

03800943314

SAMPLE STATUS REPORT FOR R 1716. BY-104 RSA#419 TIME: 8/20/92 12:53
 DISPATCHED: 6/17/92 12:31 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/21/92 8:16

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5750	ICP-LIQ	DELETED			N233L
5850	ICP-LIQ	DELETED			N233L

END OF REPORT

00800040315

SAMPLE STATUS REPORT FOR R 1717. BY-104. STD TIME: 8/20/92 12:53
DISPATCHED: 6/17/92 14:11 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/ 7/92 8:28

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5520	TB	DELETED BY CUSTOMER			N233L
5525	AT	DELETED BY CUSTOMER			N233L
5530	GEA	DELETED BY CUSTOMER			N233L
5540	U	DELETED BY CUSTOMER			N233L
5581	PU239/40	DELETED BY CUSTOMER			N233L
5582	AM241	DELETED BY CUSTOMER			N233L
5586	SR90	DELETED BY CUSTOMER			N233L

END OF REPORT

0080024316

SAMPLE STATUS REPORT FOR R 1718. BY-104 BLK TIME: 8/20/92 12:53
 DISPATCHED: 6/17/92 14:13 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 8/ 7/92 8:28

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD RANGE?	CHARGE ANS?	CODE
****	*****	*****	***	***	*****
5620	TB	DELETED BY CUSTOMER			N233L
5625	AT	DELETED BY CUSTOMER			N233L
5630	GEA	DELETED BY CUSTOMER			N233L
5640	U	DELETED BY CUSTOMER			N233L
5681	PU239/40	DELETED BY CUSTOMER			N233L
5682	AM241	DELETED BY CUSTOMER			N233L
5686	SR90	DELETED BY CUSTOMER			N233L

END OF REPORT

00800040317

SAMPLE STATUS REPORT FOR R 1719. BY-104 RSA#420 TIME: 8/20/92, 12:53
DISPATCHED: 6/17/92 14:16 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/21/92 8:19

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5720	TB	DELETED, NO LIQUID			N233L
5725	AT	DELETED			N233L
5730	GEA	DELETED			N233L
5740	U	DELETED			N233L
5781	PU239/40	DELETED			N233L
5782	AM241	DELETED			N233L
5786	SR90	DELETED			N233L
5820	TB	DELETED			N233L
5825	AT	DELETED			N233L
5830	GEA	DELETED			N233L
5840	U	DELETED			N233L
5881	PU239/40	DELETED			N233L
5882	AM241	DELETED			N233L
5886	SR90	DELETED			N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1720. BY-104 RSA#420 TIME: 8/20/92 13:23
 DISPATCHED: 6/17/92 14:25 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/21/92 8:16

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5720	TB	DELETED			N233L
5725	AT	DELETED			N233L
5730	GEA	DELETED			N233L
5740	U	DELETED			N233L
5781	PU239/40	DELETED			N233L
5782	AM241	DELETED			N233L
5786	SR90	DELETED			N233L
5820	TB	DELETED			N233L
5825	AT	DELETED			N233L
5830	GEA	DELETED			N233L
5840	U	DELETED			N233L
5881	PU239/40	DELETED			N233L
5882	AM241	DELETED			N233L
5886	SR90	DELETED			N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R.1721. BY-104 STD TIME: 8/20/92 12:53
DISPATCHED: 6/17/92 14:38 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/ 7/92 8:48

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5510	% H2O	DELETED BY CUSTOMER			N233L

END OF REPORT

003300947320

SAMPLE STATUS REPORT FOR R 1722. BY-104 RSA#421 TIME: 8/20/92 12:53
 DISPATCHED: 6/17/92 14:40 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/21/92 8:15

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5710	% H2O	DELETED, NO LIQUID			N233L
5810	% H2O	DELETED, NO LIQUID			N233L

END OF REPORT

00300047321

WHC-SD-WM-TI-540, REV. 1

N233L

00000472

SAMPLE STATUS REPORT FOR R 1724. BY-104 STD TIME: 8/20/92 12:53
 DISPATCHED: 6/17/92 14:55 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 8/ 7/92 8:48

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5513	PH	DELETED BY CUSTOMER			N233L
5526	TOC	DELETED BY CUSTOMER			N233L

END OF REPORT

003004323

SAMPLE STATUS REPORT FOR R 1725. BY-104 BLK. TIME: 8/20/92 12:53
DISPATCHED: 6/17/92 14:57 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/ 7/92 8:48

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE
****	*****	*****	RANGE? ANS? CODE
5626	TOC	DELETED BY CUSTOMER	*** ** N233L

END OF REPORT

003000947324

SAMPLE STATUS REPORT FOR R 1726. BY-104 RSA#422 TIME: 8/20/92 12:53
 DISPATCHED: 6/17/92 15: 1 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/21/92 8:17

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5713	PH	DELETED			N233L
5726	TOC	DELETED			N233L
5813	PH	DELETED			N233L
5826	TOC	DELETED			N233L

END OF REPORT

00300040325

SAMPLE STATUS REPORT FOR R 1727. BY-104 RSA#422 TIME: 8/20/92. 12:53
DISPATCHED: 6/17/92 15: 3 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/21/92 8:17

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5713	PH	DELETED			N233L
5726	TOC	DELETED			N233L
5813	PH	DELETED			N233L
5826	TOC	DELETED			N233L

END OF REPORT

0 0 3 0 0 7 4 7 3 2 6

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)
 AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540,REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
R	1717	5530	BY-104	GEA	0	LA-548-121	25	STD	8 792	1
	EXTENSION COUNT =			1						
R	1718	5630	BY-104	GEA	0	LA-548-121	25	BLK	8 792	1
	EXTENSION COUNT =			1						
R	1719	5730	BY-104	GEA	0	LA-548-121	25	RSA#420	72192	1
R	1720	5730	BY-104	GEA	0	LA-548-121	25	RSA#420	72192	1
	EXTENSION COUNT =			2						
R	1719	5830	BY-104	GEA	0	LA-548-121	25	RSA#420	72192	1
R	1720	5830	BY-104	GEA	0	LA-548-121	25	RSA#420	72192	1
	EXTENSION COUNT =			2						
	FAMILY EXT. COUNT =			6	COMPLETED (SUM TYPE)					6
R	1712	6730	BY-104	GEA	0	LA-548-121	25	RSA#418	8 492	1
R	1713	6730	BY-104	GEA	0	LA-548-121	25	RSA#418	8 492	1
	EXTENSION COUNT =			2						
R	1712	6830	BY-104	GEA	0	LA-548-121	25	RSA#418	8 492	1
R	1713	6830	BY-104	GEA	0	LA-548-121	25	RSA#418	8 492	1
	EXTENSION COUNT =			2						
	FAMILY EXT. COUNT =			4	COMPLETED (SUM TYPE)					4
	METHOD COUNT =				10					

00300940362

SAMPLE STATUS REPORT FOR R 1728. BY-104 STD TIME: 8/20/92. 12:53
 DISPATCHED: 6/18/92 8: 0 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 8/ 7/92 8:48

WHC-SD-WM-TI-540.REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5578	CN	DELETED BY CUSTOMER			N233L

END OF REPORT

00300047327

SAMPLE STATUS REPORT FOR R 1729. BY-104 BLK TIME: 8/20/92 12:53
 DISPATCHED: 6/18/92 8: 2 SAMPLE HAS NOT BEEN SLURPED
 CEIVED: 8/ 7/92 8:48

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE
			RANGE? ANS? CODE
****	*****	*****	*** **
5678	CN	DELETED BY CUSTOMER	N233L

WHC-SD-WM-TI-540,REV.1

END OF REPORT

0030047328

SAMPLE STATUS REPORT FOR R 1730. BY-104 RSA#423 TIME:- 8/20/92. 12:53.
DISPATCHED: 6/18/92 8: 4 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/21/92 8:16

WHC-SD-WM-TI-540,REV.1			OUT OF GOOD CHARGE		
EXT.	DETER.	RESULTS OR STATUS	RANGE?	ANS?	CODE
****	*****	*****	***	***	*****
5778	CN	DELETED, NO LIQUID			N233L
5778	CN	DELETED			N233L
5878	CN	DELETED			N233L
5878	CN	DELETED			N233L
5978	CN	DELETED			N233L
5978	CN	DELETED			N233L

END OF REPORT

0 0 3 0 0 9 4 1 3 2 9

WHC-SD-WM-TI-540, REV. 1

END OF REPORT

176

SAMPLE STATUS REPORT FOR R 1732. BY-104 STD TIME: 8/20/92 12:53
DISPATCHED: 6/18/92 8:15 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/21/92 8:28

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5578	CN	OUT FOR RERUN			N233L
5578	CN	9.88000E 01 % RECOVERY	N	Y	N233L

END OF REPORT

00300940331

SAMPLE STATUS REPORT FOR R 1733. BY-104 BLK TIME: 8/20/92 12:53
 DISPATCHED: 6/18/92 8:16 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/21/92 8:28

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5678	CN	OUT FOR RERUN			N233L
5678	CN	< 2.00000E-02 PPM	N	Y	N233L

END OF REPORT

0.0300047332

SAMPLE STATUS REPORT FOR R.1734. BY-104 RSA#424. TIME: 8/20/92. 12:53
DISPATCHED: 6/18/92 8:17 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/21/92 8:28

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5778	CN	OUT FOR RERUN			N233L
5778	CN	4.30800E 01 PPM	N	Y	N233L
5878	CN	OUT FOR RERUN			N233L
5878	CN	4.26800E 01 PPM	N	Y	N233L
5978	CN	OUT FOR RERUN			N233L
5978	CN	1.03100E 02 % RECOVERY	N	Y	N233L

END OF REPORT

0 0 3 0 0 0 4 0 3 3 3

SAMPLE STATUS REPORT FOR R 1735. BY-104 RSA#424 TIME: 8/20/92 12:54
 DISPATCHED: 6/18/92 8:18 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/21/92 8:28

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5778	CN	OUT FOR RERUN			N233L
5778	CN	9.06400E 01 PPM	N	Y	N233L
5878	CN	OUT FOR RERUN			N233L
5878	CN	8.12800E 01 PPM	N	Y	N233L
5978	CN	OUT FOR RERUN			N233L
5978	CN	7.73100E 01 % RECOVERY	N	Y	N233L

END OF REPORT

0000004334

SAMPLE STATUS REPORT FOR R 1736. BY-104 STD TIME: 8/20/92 12:54
DISPATCHED: 6/18/92 8:35 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/14/92 13:29

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE
			RANGE? ANS? CODE
****	*****	*****	*** **
5510	% H2O	9.90300E 01 % RECOVERY	N Y N233L

END OF REPORT

00300240335

SAMPLE STATUS REPORT FOR R 1737. BY-104 RSA#425 TIME: 8/20/92 12:54
 DISPATCHED: 6/18/92 8:38 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/14/92 13:29

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5710	% H2O	1.48900E 01 % H2O	N	Y	N233L
5810	% H2O	1.53200E 01 % H2O	N	Y	N233L

END OF REPORT

00800249336

SAMPLE STATUS REPORT FOR R 1743. BY-104 STD TIME: 8/20/92 13:23
 DISPATCHED: 6/18/92 8:52 SAMPLE HAS NOT BEEN SLURPED
 REIVED: 7/27/92 15:12

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5511	DSC	EXOTHERM OK			N233L
5512	TGA	1.00300E 02 % RECOVERY	N	Y	N233L

END OF REPORT

03800747338

SAMPLE STATUS REPORT FOR R 1745. BY-104 RSA#426 TIME: 8/20/92 13:23
 DISPATCHED: 6/18/92 8:53 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/27/92 15:12

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5711	DSC	EXOTHERM BETWEEN 358 C & 441 C, ENERGY 23.5 J/g			N233L
5712	TGA	1.96000E 01 % H2O	N	Y	N233L
5811	DSC	EXOTHERM BETWEEN 379 C & 439 C, ENERGY 38.2 J/g			N233L
5812	TGA	2.42000E 01 % H2O	N	Y	N233L

END OF REPORT

00300947340

SAMPLE STATUS REPORT FOR R 1755. BY-104 STD TIME: 8/20/92 13:23
DISPATCHED: 6/18/92 13:35 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/ 7/92 8:49

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS
****	*****	*****
5571	IC	DELETED BY CUSTOMER

OUT OF RANGE?	GOOD ANS?	CHARGE CODE
***	***	*****
		N233L

END OF REPORT

003300940341

SAMPLE STATUS REPORT FOR R 1756. BY-104 BLK TIME: 8/20/92 13:23
 DISPATCHED: 6/18/92 13:36 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 8/ 7/92 8:49

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5671	IC	DELETED BY CUSTOMER			N233L

END OF REPORT

00800740342

SAMPLE STATUS REPORT FOR R 1757. BY-104 RSA#430 TIME:- 8/20/92 13:23
 DISPATCHED: 6/18/92 13:37 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/21/92 8:16

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5771	IC	DELETED			N233L
5871	IC	DELETED			N233L

END OF REPORT

00800247343

SAMPLE STATUS REPORT FOR R 1758. BY-104 RSA#430 TIME: 8/20/92 13:23
DISPATCHED: 6/18/92 13:38 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/21/92 8:16

EXT.	DETER.	RESULTS OR STATUS
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
26	26	26
27	27	27
28	28	28
29	29	29
30	30	30
31	31	31
32	32	32
33	33	33
34	34	34
35	35	35
36	36	36
37	37	37
38	38	38
39	39	39
40	40	40
41	41	41
42	42	42
43	43	43
44	44	44
45	45	45
46	46	46
47	47	47
48	48	48
49	49	49
50	50	50
51	51	51
52	52	52
53	53	53
54	54	54
55	55	55
56	56	56
57	57	57
58	58	58
59	59	59
60	60	60
61	61	61
62	62	62
63	63	63
64	64	64
65	65	65
66	66	66
67	67	67
68	68	68
69	69	69
70	70	70
71	71	71
72	72	72
73	73	73
74	74	74
75	75	75
76	76	76
77	77	77
78	78	78
79	79	79
80	80	80
81	81	81
82	82	82
83	83	83
84	84	84
85	85	85
86	86	86
87	87	87
88	88	88
89	89	89
90	90	90
91	91	91
92	92	92
93	93	93
94	94	94
95	95	95
96	96	96
97	97	97
98	98	98
99	99	99
100	100	100

5771 IC DELETED

5871 IC DELETED

END OF REPORT

009300744

SAMPLE STATUS REPORT FOR R 1776. BY-104 STD TIME: 8/20/92 13:23
DISPATCHED: 6/24/92 14:15 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/15/92 13:33

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
8500	ACD DGST	COMPLETED			N233L
8550	ICP	DIRECT STD			N233L
8550	ICP	1.00300E 02 % RECOVERY Co	N	Y	N233L
8550	ICP	9.70000E 01 % RECOVERY Cu	N	Y	N233L
8550	ICP	1.00400E 02 % RECOVERY Ni	N	Y	N233L
8550	ICP	9.86000E 01 % RECOVERY Fe	N	Y	N233L
8550	ICP	9.54000E 01 % RECOVERY Ca	N	Y	N233L
8550	ICP	1.04000E 02 % RECOVERY Cr	N	Y	N233L
8550	ICP	9.54000E 01 % RECOVERY Na	N	Y	N233L
8550	ICP	9.96000E 01 % RECOVERY K	N	Y	N233L
8550	ICP	9.56000E 01 % RECOVERY Mn	N	Y	N233L
8550	ICP	1.05600E 02 % RECOVERY Zr	N	Y	N233L
8550	ICP	9.48000E 01 % RECOVERY Al	N	Y	N233L
8550	ICP	9.17000E 01 % RECOVERY P	N	Y	N233L
8550	ICP	DIGESTED STD			N233L
8550	ICP	1.01500E 02 % RECOVERY Zr	N	Y	N233L
8550	ICP	1.14000E 02 % RECOVERY Al	N	Y	N233L
8550	ICP	9.90000E 01 % RECOVERY Co	N	Y	N233L
8550	ICP	9.80000E 01 % RECOVERY Cu	N	Y	N233L
8550	ICP	9.88000E 01 % RECOVERY Ni	N	Y	N233L
8550	ICP	1.03000E 02 % RECOVERY Fe	N	Y	N233L
8550	ICP	1.14500E 02 % RECOVERY Ca	N	Y	N233L
8550	ICP	1.04000E 02 % RECOVERY Cr	N	Y	N233L
8550	ICP	9.55000E 01 % RECOVERY P	N	Y	N233L
8550	ICP	1.25500E 02 % RECOVERY Na	N	Y	N233L
8550	ICP	1.08000E 02 % RECOVERY K	N	Y	N233L
8550	ICP	9.54000E 01 % RECOVERY Mn	N	Y	N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1777. BY-104 BLK TIME: 8/20/92 13:23
 DISPATCHED: 6/24/92 14:16 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/15/92 13:33

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
8600	ACD-DSGT	COMPLETED			N233L
8650	ICP	8.97000E 01 ug/L Al	N	Y	N233L
8650	ICP	4.31000E 02 ug/L Na	N	Y	N233L
8650	ICP	8.49000E 00 ug/L Cu	N	Y	N233L
8650	ICP	2.28000E 02 ug/L K	N	Y	N233L
8650	ICP	< 5.80000E 01 ug/L P	N	Y	N233L
8650	ICP	1.23000E 01 ug/L Zr	N	Y	N233L
8650	ICP	3.97000E 02 ug/L Ca	N	Y	N233L
8650	ICP	< 8.00000E 00 ug/L Co	N	Y	N233L
8650	ICP	3.95000E 01 ug/L Fe	N	Y	N233L
8650	ICP	< 9.00000E 00 ug/L Cr	N	Y	N233L
8650	ICP	< 1.70000E 01 ug/L Ni	N	Y	N233L
8650	ICP	< 2.00000E 00 ug/L Mn	N	Y	N233L

END OF REPORT

00300240346

SAMPLE STATUS REPORT FOR R 1778. BY-104 RSA#443 TIME: 8/20/92 13:23
 DISPATCHED: 6/24/92 14:17 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/15/92 13:33

WHC-SD-WM-TI-540.REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
8700	ACD DGST	1.10060E 01 G/L	N	Y	N233L
8755	ICP-SOL	5.95000E 01 ug/g rec Zr	N	Y	N233L
8755	ICP-SOL	4.61000E 01 ug/g rec Co	N	Y	N233L
8755	ICP-SOL	1.76000E 01 ug/g rec Cu	N	Y	N233L
8755	ICP-SOL	1.09000E 03 ug/g rec Ni	N	Y	N233L
8755	ICP-SOL	4.67000E 03 ug/g rec Fe	N	Y	N233L
8755	ICP-SOL	1.34000E 03 ug/g rec Ca	N	Y	N233L
8755	ICP-SOL	1.19000E 04 ug/g rec Cr	N	Y	N233L
8755	ICP-SOL	2.47000E 03 ug/g rec P	N	Y	N233L
8755	ICP-SOL	2.41000E 03 ug/g rec K	N	Y	N233L
8755	ICP-SOL	2.44000E 02 ug/g rec Mn	N	Y	N233L
8755	ICP-SOL	6.16000E 04 ug/g rec Al	N	Y	N233L
8755	ICP-SOL	1.41000E 05 ug/g rec Na	N	Y	N233L
8800	ACD DGST	1.19160E 01 G/L	N	Y	N233L
8855	ICP-SOL	8.39000E 01 ug/g rec Zr	N	Y	N233L
8855	ICP-SOL	6.25000E 01 ug/g rec Co	N	Y	N233L
8855	ICP-SOL	2.57000E 01 ug/g rec Cu	N	Y	N233L
8855	ICP-SOL	1.48000E 03 ug/g rec Ni	N	Y	N233L
8855	ICP-SOL	6.99000E 03 ug/g rec Fe	N	Y	N233L
8855	ICP-SOL	1.75000E 03 ug/g rec Ca	N	Y	N233L
8855	ICP-SOL	1.61000E 04 ug/g rec Cr	N	Y	N233L
8855	ICP-SOL	3.63000E 03 ug/g rec P	N	Y	N233L
8855	ICP-SOL	3.31000E 03 ug/g rec K	N	Y	N233L
8855	ICP-SOL	3.44000E 02 ug/g rec Mn	N	Y	N233L
8855	ICP-SOL	9.30999E 04 ug/g rec Al	N	Y	N233L
8855	ICP-SOL	2.11000E 05 ug/g rec Na	N	Y	N233L
8900	ACD-DGST	1.27820E 01 G/G	N	Y	N233L
8950	ICP	9.84000E 01 % RECOVERY Zr	N	Y	N233L
8950	ICP	9.31000E 01 % RECOVERY Co	N	Y	N233L
8950	ICP	9.78000E 01 % RECOVERY Cu	N	Y	N233L
8950	ICP	1.57200E 02 % RECOVERY Mn	N	Y	N233L
8950	ICP	SAMPLE > 4 X SPIKE CONC NI,FE,CA,P,K,AL,NA,CR			N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1779. BY-104 RSA#443 TIME: 8/20/92 13:24
DISPATCHED: 6/24/92 14:20 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/15/92 13:33

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
8700	ACD DGST	1.04720E 01 G/L	N	Y	N233L
8755	ICP-SOL	3.41000E 01 ug/g rec Zr	N	Y	N233L
8755	ICP-SOL	5.01000E 02 ug/g rec Ni	N	Y	N233L
8755	ICP-SOL	2.15000E 01 ug/g rec Co	N	Y	N233L
8755	ICP-SOL	7.08000E 00 ug/g rec Cu	N	Y	N233L
8755	ICP-SOL	2.04000E 03 ug/g rec Fe	N	Y	N233L
8755	ICP-SOL	6.83000E 02 ug/g rec Ca	N	Y	N233L
8755	ICP-SOL	3.77000E 03 ug/g rec Cr	N	Y	N233L
8755	ICP-SOL	2.33000E 03 ug/g rec P	N	Y	N233L
8755	ICP-SOL	2.31000E 03 ug/g rec K	N	Y	N233L
8755	ICP-SOL	1.07000E 02 ug/g rec Mn	N	Y	N233L
8755	ICP-SOL	2.01000E 04 ug/g rec Al	N	Y	N233L
8755	ICP-SOL	2.68000E 05 ug/g rec Na	N	Y	N233L
8800	ACD DGST	1.17760E 01 G/L	N	Y	N233L
8855	ICP-SOL	3.73000E 01 ug/g rec Zr	N	Y	N233L
8855	ICP-SOL	1.58000E 04 ug/g rec Al	N	Y	N233L
8855	ICP-SOL	2.46000E 01 ug/g rec Co	N	Y	N233L
8855	ICP-SOL	7.54000E 00 ug/g rec Cu	N	Y	N233L
8855	ICP-SOL	5.81000E 02 ug/g rec Ni	N	Y	N233L
8855	ICP-SOL	2.13000E 03 ug/g rec Fe	N	Y	N233L
8855	ICP-SOL	7.49000E 02 ug/g rec Ca	N	Y	N233L
8855	ICP-SOL	3.96000E 03 ug/g rec Cr	N	Y	N233L
8855	ICP-SOL	4.29000E 03 ug/g rec P	N	Y	N233L
8855	ICP-SOL	2.40000E 03 ug/g rec K	N	Y	N233L
8855	ICP-SOL	1.21000E 02 ug/g rec Mn	N	Y	N233L
8855	ICP-SOL	2.72000E 05 ug/g rec Na	N	Y	N233L

END OF REPORT

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)
AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540, REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
R	1724	5513	BY-104	PH	0 LA-212	25	STD	8 792	1	
	XTENSION COUNT =									
R	1726	5713	BY-104	PH	0 LA-212	25	RSA#422	72192	1	
R	1727	5713	BY-104	PH	0 LA-212	25	RSA#422	72192	1	
	XTENSION COUNT =									
R	1753	5715	BY-104	PH	0 LA-212	25	RSA#429	7 292	1	
R	1754	5715	BY-104	PH	0 LA-212	25	RSA#429	7 292	1	
	XTENSION COUNT =									
R	1726	5813	BY-104	PH	0 LA-212	25	RSA#422	72192	1	
R	1727	5813	BY-104	PH	0 LA-212	25	RSA#422	72192	1	
	XTENSION COUNT =									
R	1753	5815	BY-104	PH	0 LA-212	25	RSA#429	7 292	1	
R	1754	5815	BY-104	PH	0 LA-212	25	RSA#429	7 292	1	
	XTENSION COUNT =									
	FAMILY EXT. COUNT =				9	COMPLETED (SUM TYPE)				9
METHOD COUNT =					9					

LARRY

This is a list of all "R" numbers
for BY-104. I understand all work
except CN- is done.

Dan Thornton

00300042350

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)

AT 222-S FOR DAN THORNTON WHC-SD-WM-TI-540,REV.1

SERIAL

GRP	#	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
R	175115515	BY-104		pH	0 LA-212-103	25	STD	7 292	1	
	EXTENSION COUNT =			1						
	FAMILY EXT. COUNT =			1	COMPLETED (SUM TYPE)					1
	METHOD COUNT =				1					

00800940351

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)
AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540,REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
P	1717	5586	BY-104	SR90	0	LA-220-101	25 STD	8 792	1	
	EXTENSION COUNT =			1						
R	1718	5686	BY-104	SR90	0	LA-220-101	25 BLK	8 792	1	
	EXTENSION COUNT =			1						
R	1719	5786	BY-104	SR90	0	LA-220-101	25 RSA#420	72192	1	
R	1720	5786	BY-104	SR90	0	LA-220-101	25 RSA#420	72192	1	
	EXTENSION COUNT =			2						
R	1719	5886	BY-104	SR90	0	LA-220-101	25 RSA#420	72192	1	
R	1720	5886	BY-104	SR90	0	LA-220-101	25 RSA#420	72192	1	
	EXTENSION COUNT =			2						
	FAMILY EXT. COUNT =			6	COMPLETED (SUM TYPE)					6
R	1712	6786	BY-104	SR90	0	LA-220-101	25 RSA#418	71592	1	
R	1713	6786	BY-104	SR90	0	LA-220-101	25 RSA#418	71592	1	
	EXTENSION COUNT =			2						
R	1712	6886	BY-104	SR90	0	LA-220-101	25 RSA#418	71592	1	
R	1713	6886	BY-104	SR90	0	LA-220-101	25 RSA#418	71592	1	
	EXTENSION COUNT =			2						
	FAMILY EXT. COUNT =			4	COMPLETED (SUM TYPE)					4
	METHOD COUNT =				10					

0080040352

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)
AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540,REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
R	1724	5526	BY-104	TOC	0	LA-344-105	25 STD	8 792	1	
R	1761	5526	325BLDG CLAB	TOC	0	LA-344-105	25 STD	62692	1	
R	1766	5526	325BLDG CLAB	TOC	0	LA-344-105	25 STD	72192	1	
EXTENSION COUNT =					3					
R	1725	5626	BY-104	TOC	0	LA-344-105	25 BLK	8 792	1	
R	1762	5626	325BLDG CLAB	TOC	0	LA-344-105	25 BLK	62692	1	
R	1767	5626	325BLDG CLAB	TOC	0	LA-344-105	25 BLK	72192	1	
EXTENSION COUNT =					3					
R	1726	5726	BY-104	TOC	0	LA-344-105	25 RSA#422	72192	1	
R	1727	5726	BY-104	TOC	0	LA-344-105	25 RSA#422	72192	1	
R	1763	5726	325BLDG CLAB	TOC	0	LA-344-105	25 RSA# 441	62692	1	
R	1764	5726	325BLDG CLAB	TOC	0	LA-344-105	25 RSA# 441	62692	1	
R	1765	5726	325BLDG CLAB	TOC	0	LA-344-105	25 RSA# 441	62692	1	
R	1768	5726	325BLDG CLAB	TOC	0	LA-344-105	25 RSA# 441	72192	1	
R	1769	5726	325BLDG CLAB	TOC	0	LA-344-105	25 RSA# 441	72192	1	
R	1770	5726	325BLDG CLAB	TOC	0	LA-344-105	25 RSA# 441	72192	1	
EXTENSION COUNT =					8					
R	1726	5826	BY-104	TOC	0	LA-344-105	25 RSA#422	72192	1	
R	1727	5826	BY-104	TOC	0	LA-344-105	25 RSA#422	72192	1	
R	1763	5826	325BLDG CLAB	TOC	0	LA-344-105	25 RSA# 441	62692	1	
R	1768	5826	325BLDG CLAB	TOC	0	LA-344-105	25 RSA# 441	72192	1	
EXTENSION COUNT =					4					
R	1763	5926	325BLDG CLAB	TOC	0	LA-344-105	25 RSA# 441	62692	1	
R	1768	5926	325BLDG CLAB	TOC	0	LA-344-105	25 RSA# 441	72192	1	
EXTENSION COUNT =					2					
FAMILY EXT. COUNT =					20	COMPLETED (SUM TYPE)				20
R	1751	7526	BY-104	TOC	0	LA-344-105	25 STD	72992	1	
R	1751	7526	BY-104	TOC	1	LA-344-105	25 STD	72992	1	
EXTENSION COUNT =					2					
R	1752	7626	BY-104	TOC	0	LA-344-105	25 BLK	72992	1	
R	1752	7626	BY-104	TOC	1	LA-344-105	25 BLK	8 592	1	
EXTENSION COUNT =					2					
R	1753	7726	BY-104	TOC	0	LA-344-105	25 RSA#429	72992	1	
R	1753	7726	BY-104	TOC	1	LA-344-105	25 RSA#429	81092	1	
R	1754	7726	BY-104	TOC	0	LA-344-105	25 RSA#429	72992	1	
R	1754	7726	BY-104	TOC	1	LA-344-105	25 RSA#429	81092	1	
EXTENSION COUNT =					4					
R	1753	7826	BY-104	TOC	1	LA-344-105	25 RSA#429	81092	1	
R	1753	7826	BY-104	TOC	0	LA-344-105	25 RSA#429	72992	1	
R	1754	7826	BY-104	TOC	0	LA-344-105	25 RSA#429	72992	1	
R	1754	7826	BY-104	TOC	1	LA-344-105	25 RSA#429	81092	1	
EXTENSION COUNT =					4					
R	1753	7926	BY-104	TOC	0	LA-344-105	25 RSA#429	81092	1	
EXTENSION COUNT =					1					
FAMILY EXT. COUNT =					13	COMPLETED (SUM TYPE)				13
METHOD COUNT =					33					

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)
AT 222-S FOR DAN THORNTON

GRP	SERIAL #	EXTN	SAMPLE PT	DET	WHC-SD-WM-TI-540,REV.1 R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
R	1717 5581	BY-104		PU239/40	0 LA-503-156	25	STD	8 792	1	
	EXTENSION COUNT = 1									
R	1717 5582	BY-104		AM241	0 LA-503-156	25	STD	8 792	1	
	EXTENSION COUNT = 1									
R	1718 5681	BY-104		PU239/40	0 LA-503-156	25	BLK	8 792	1	
	EXTENSION COUNT = 1									
R	1718 5682	BY-104		AM241	0 LA-503-156	25	BLK	8 792	1	
	EXTENSION COUNT = 1									
R	1719 5781	BY-104		PU239/40	0 LA-503-156	25	RSA#420	72192	1	
R	1720 5781	BY-104		PU239/40	0 LA-503-156	25	RSA#420	72192	1	
	EXTENSION COUNT = 2									
R	1719 5782	BY-104		AM241	0 LA-503-156	25	RSA#420	72192	1	
R	1720 5782	BY-104		AM241	0 LA-503-156	25	RSA#420	72192	1	
	EXTENSION COUNT = 2									
R	1719 5881	BY-104		PU239/40	0 LA-503-156	25	RSA#420	72192	1	
R	1720 5881	BY-104		PU239/40	0 LA-503-156	25	RSA#420	72192	1	
	EXTENSION COUNT = 2									
R	1719 5882	BY-104		AM241	0 LA-503-156	25	RSA#420	72192	1	
R	1720 5882	BY-104		AM241	0 LA-503-156	25	RSA#420	72192	1	
	EXTENSION COUNT = 2									
5	FAMILY EXT. COUNT =				12	COMPLETED (SUM TYPE)				12
R	1712 6781	BY-104		PU239/40	0 LA-503-156	25	RSA#418	72392	1	
R	1713 6781	BY-104		PU239/40	0 LA-503-156	25	RSA#418	72392	1	
	EXTENSION COUNT = 2									
R	1712 6782	BY-104		AM241	0 LA-503-156	25	RSA#418	72992	1	
R	1713 6782	BY-104		AM241	0 LA-503-156	25	RSA#418	72992	1	
	EXTENSION COUNT = 2									
R	1712 6881	BY-104		PU239/40	0 LA-503-156	25	RSA#418	72392	1	
R	1713 6881	BY-104		PU239/40	0 LA-503-156	25	RSA#418	72392	1	
	EXTENSION COUNT = 2									
R	1712 6882	BY-104		AM241	0 LA-503-156	25	RSA#418	72992	1	
R	1713 6882	BY-104		AM241	0 LA-503-156	25	RSA#418	72992	1	
	EXTENSION COUNT = 2									
8	FAMILY EXT. COUNT =				8	COMPLETED (SUM TYPE)				8
0	METHOD COUNT =							20		

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)

AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540,REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST.	ID	DATE DONE	CHRG TYPE	TECH
R	1752	7600	BY-104	H20	DGST 0	LA-504-101	25	BLK	7 192	1	
R	1752	7600	BY-104	H20	DGST 1	LA-504-101	25	BLK	81792	1	
	EXTENSION COUNT =			2							
R	1753	7700	BY-104	H20	DGST 0	LA-504-101	25	RSA#429	7 192	1	
R	1754	7700	BY-104	H20	DGST 1	LA-504-101	23	RSA#429	81792	1	
R	1754	7700	BY-104	H20	DGST 0	LA-504-101	25	RSA#429	7 192	1	
	EXTENSION COUNT =			3							
R	1753	7800	BY-104	H20	DGST 0	LA-504-101	25	RSA#429	7 192	1	
R	1754	7800	BY-104	H20	DGST 0	LA-504-101	25	RSA#429	7 192	1	
R	1754	7800	BY-104	H20	DGST 1	LA-504-101	23	RSA#429	81792	1	
	EXTENSION COUNT =			3							
	FAMILY EXT. COUNT =			8	COMPLETED (SUM TYPE)						8
METHOD COUNT =					8						

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REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)
AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540.REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
R	1715	5750	BY-104	ICP-LIQ	0	LA-505-151	25	RSA#419	72192	1
	1716	5750	BY-104	ICP-LIQ	0	LA-505-151	25	RSA#419	72192	1
	EXTENSION COUNT =			2						
R	1715	5850	BY-104	ICP-LIQ	0	LA-505-151	25	RSA#419	72192	1
R	1716	5850	BY-104	ICP-LIQ	0	LA-505-151	25	RSA#419	72192	1
	EXTENSION COUNT =			2						
	FAMILY EXT. COUNT =			4	COMPLETED (SUM TYPE)					4
R	1714	6550	BY-104	ICP	0	LA-505-151	25	STD	72292	1
	EXTENSION COUNT =			1						
R	1712	6755	BY-104	ICP-SOL	0	LA-505-151	25	RSA#418	72292	0
R	1712	6755	BY-104	ICP-SOL	0	LA-505-151	25	RSA#418	72292	1
R	1713	6755	BY-104	ICP-SOL	0	LA-505-151	25	RSA#418	72292	1
	EXTENSION COUNT =			3						
R	1713	6855	BY-104	ICP-SOL	0	LA-505-151	25	RSA#418	72292	0
R	1712	6855	BY-104	ICP-SOL	0	LA-505-151	25	RSA#418	72292	1
R	1713	6855	BY-104	ICP-SOL	0	LA-505-151	25	RSA#418	72292	1
	EXTENSION COUNT =			3						
R	1712	6950	BY-104	ICP	0	LA-505-151	25	RSA#418	72292	1
	EXTENSION COUNT =			1						
	FAMILY EXT. COUNT =			8	COMPLETED (SUM TYPE)					6
R	1751	7550	BY-104	ICP	0	LA-505-151	23	STD	82092	1
	EXTENSION COUNT =			1						
R	1752	7650	BY-104	ICP	0	LA-505-151	23	BLK	82092	1
	EXTENSION COUNT =			1						
R	1754	7750	BY-104	ICP-LIQ	0	LA-505-151	23	RSA#429	82092	0
R	1753	7750	BY-104	ICP-LIQ	0	LA-505-151	23	RSA#429	82092	1
R	1754	7750	BY-104	ICP-LIQ	0	LA-505-151	23	RSA#429	82092	1
	EXTENSION COUNT =			3						
R	1753	7850	BY-104	ICP-LIQ	0	LA-505-151	23	RSA#429	82092	1
R	1754	7850	BY-104	ICP-LIQ	0	LA-505-151	23	RSA#429	82092	1
	EXTENSION COUNT =			2						
	FAMILY EXT. COUNT =			7	COMPLETED (SUM TYPE)					6
R	1776	8550	BY-104	ICP	0	LA-505-151	25	STD	72192	1
	EXTENSION COUNT =			1						
R	1777	8650	BY-104	ICP	0	LA-505-151	25	BLK	72192	1
	EXTENSION COUNT =			1						
R	1778	8755	BY-104	ICP-SOL	0	LA-505-151	25	RSA#443	72192	1
R	1779	8755	BY-104	ICP-SOL	0	LA-505-151	25	RSA#443	72192	1
	EXTENSION COUNT =			2						
R	1778	8855	BY-104	ICP-SOL	0	LA-505-151	25	RSA#443	72192	1
R	1779	8855	BY-104	ICP-SOL	0	LA-505-151	25	RSA#443	72192	1
	EXTENSION COUNT =			2						
R	1778	8950	BY-104	ICP	0	LA-505-151	25	RSA#443	72192	1
	EXTENSION COUNT =			1						
	FAMILY EXT. COUNT =			7	COMPLETED (SUM TYPE)					7
METHOD COUNT =					26					

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)
 AT 222-S FOR DAN THORNTON WHC-SD-WM-TI-540,REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
R	1776	8500	BY-104	ACD DGST	0	LA-505-159	25 STD	71592	1	
	EXTENSION COUNT = 1									
R	1777	8600	BY-104	ACD-DSGT	0	LA-505-159	25 BLK	71592	1	
	EXTENSION COUNT = 1									
R	1778	8700	BY-104	ACD DGST	0	LA-505-159	25 RSA#443	71592	1	
R	1779	8700	BY-104	ACD DGST	0	LA-505-159	25 RSA#443	71592	1	
	EXTENSION COUNT = 2									
R	1778	8800	BY-104	ACD DGST	0	LA-505-159	25 RSA#443	71592	1	
R	1779	8800	BY-104	ACD DGST	0	LA-505-159	25 RSA#443	71592	1	
	EXTENSION COUNT = 2									
R	1778	8900	BY-104	ACD-DGST	0	LA-505-159	25 RSA#443	71592	1	
	EXTENSION COUNT = 1									
	FAMILY EXT. COUNT = 7 COMPLETED (SUM TYPE) 7									
	METHOD COUNT = 7									

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REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)
 AT 222-S FOR DAN THORNTON

SERIAL		WHC-SD-WM-TI-540.REV.1		DATE	CHRG
GRP	#	EXTN SAMPLE PT	DET	R METHOD	PRI CUST. ID DONE TYPE TECH
R	749	4606 BY-104	XRAY	0 LA-507-151 25 RSA#428	71592 1
R	750	4606 BY-104	XRAY	0 LA-507-151 25 RSA#428	71592 1
EXTENSION COUNT =			2		
FAMILY EXT. COUNT =			2	COMPLETED (SUM TYPE) 2	
METHOD COUNT =			2		

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REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)

AT 222-S FOR DAN THORNTON

WHC-SD-WM-TI-540,REV.1

SRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
	1717	5520	BY-104	TB	0 LA-508-101	25	STD	8 792	1	
	EXTENSION COUNT = 1									
	1717	5525	BY-104	AT	0 LA-508-101	25	STD	8 792	1	
	EXTENSION COUNT = 1									
	1718	5620	BY-104	TB	0 LA-508-101	25	BLK	8 792	1	
	EXTENSION COUNT = 1									
	1718	5625	BY-104	AT	0 LA-508-101	25	BLK	8 792	1	
	EXTENSION COUNT = 1									
	1719	5720	BY-104	TB	0 LA-508-101	25	RSA#420	72192	1	
	1720	5720	BY-104	TB	0 LA-508-101	25	RSA#420	72192	1	
	EXTENSION COUNT = 2									
	1719	5725	BY-104	AT	0 LA-508-101	25	RSA#420	72192	1	
	1720	5725	BY-104	AT	0 LA-508-101	25	RSA#420	72192	1	
	EXTENSION COUNT = 2									
	1719	5820	BY-104	TB	0 LA-508-101	25	RSA#420	72192	1	
	1720	5820	BY-104	TB	0 LA-508-101	25	RSA#420	72192	1	
	EXTENSION COUNT = 2									
	1719	5825	BY-104	AT	0 LA-508-101	25	RSA#420	72192	1	
	1720	5825	BY-104	AT	0 LA-508-101	25	RSA#420	72192	1	
	EXTENSION COUNT = 2									
	FAMILY EXT. COUNT = 12									
	COMPLETED (SUM TYPE) 12									
	1712	6720	BY-104	TB	0 LA-508-101	25	RSA#418	71592	1	
	1713	6720	BY-104	TB	0 LA-508-101	25	RSA#418	71592	1	
	EXTENSION COUNT = 2									
	1712	6725	BY-104	AT	1 LA-508-101	25	RSA#418	72392	1	
	1712	6725	BY-104	AT	0 LA-508-101	25	RSA#418	71592	1	
	1713	6725	BY-104	AT	1 LA-508-101	25	RSA#418	72392	1	
	1713	6725	BY-104	AT	0 LA-508-101	25	RSA#418	71592	1	
	EXTENSION COUNT = 4									
	1712	6820	BY-104	TB	0 LA-508-101	25	RSA#418	71592	1	
	1713	6820	BY-104	TB	0 LA-508-101	25	RSA#418	71592	1	
	EXTENSION COUNT = 2									
	1712	6825	BY-104	AT	0 LA-508-101	25	RSA#418	71592	1	
	1712	6825	BY-104	AT	1 LA-508-101	25	RSA#418	72392	1	
	1713	6825	BY-104	AT	0 LA-508-101	25	RSA#418	71592	1	
	1713	6825	BY-104	AT	1 LA-508-101	25	RSA#418	72392	1	
	EXTENSION COUNT = 4									
	FAMILY EXT. COUNT = 12									
	COMPLETED (SUM TYPE) 12									
	METHOD COUNT = 24									

REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)
 AT 222-S FOR DAN THORNTON WHC-SD-WM-TI-540,REV.1

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI	CUST. ID	DATE DONE	CHRG TYPE	TECH
R	1739	5511	BY-104	DSC	0 LA-514-113	25	STD	81492	1	
R	1741	5511	BY-104	DSC	0 LA-514-113	26	RSA#426	81992	1	
R	1743	5511	BY-104	DSC	0 LA-514-113	25	STD	72792	1	
EXTENSION COUNT =				3						
R	1740	5711	BY-104	DSC	0 LA-514-113	25	RSA#426	81492	1	
R	1741	5711	BY-104	DSC	0 LA-514-113	26	RSA#426	82692	1	
R	1742	5711	BY-104	DSC	0 LA-514-113	25	RSA#426	82692	1	
R	1744	5711	BY-104	DSC	0 LA-514-113	25	RSA#426	72792	1	
R	1745	5711	BY-104	DSC	0 LA-514-113	25	RSA#426	72792	1	
R	1746	5711	BY-104	DSC	0 LA-514-113	25	RSA#426	82692	1	
EXTENSION COUNT =				6						
R	1740	5811	BY-104	DSC	0 LA-514-113	25	RSA#426	81492	1	
R	1741	5811	BY-104	DSC	0 LA-514-113	25	RSA#426	82692	1	
R	1742	5811	BY-104	DSC	0 LA-514-113	25	RSA#426	82692	1	
R	1744	5811	BY-104	DSC	0 LA-514-113	25	RSA#426	72792	1	
R	1745	5811	BY-104	DSC	0 LA-514-113	25	RSA#426	72792	1	
R	1746	5811	BY-104	DSC	0 LA-514-113	25	RSA#426	82692	1	
EXTENSION COUNT =				6						
FAMILY EXT.: COUNT =				15	COMPLETED (SUM TYPE)				15	
METHOD COUNT =					15					

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REPORT ON INC AND COMPL ANALYSIS (MULTIPLE RESULTS COUNTED ONCE)
AT 222-S FOR DAN THORNTON

GRP	SERIAL #	EXTN	SAMPLE PT	DET	R METHOD	PRI CUST. ID	DATE DONE	CHRG TYPE	TECH
R	1755	5571	BY-104	IC	0 LA-533-105	25 STD	8 792	1	
	EXTENSION COUNT =			1					
R	1756	5671	BY-104	IC	0 LA-533-105	25 BLK	8 792	1	
	EXTENSION COUNT =			1					
R	1757	5771	BY-104	IC	0 LA-533-105	25 RSA#430	72192	1	
R	1758	5771	BY-104	IC	0 LA-533-105	25 RSA#430	72192	1	
	EXTENSION COUNT =			2					
R	1757	5871	BY-104	IC	0 LA-533-105	25 RSA#430	72192	1	
R	1758	5871	BY-104	IC	0 LA-533-105	25 RSA#430	72192	1	
	EXTENSION COUNT =			2					
	FAMILY EXT. COUNT =			6	COMPLETED (SUM TYPE)				6
R	1751	7571	BY-104	IC	0 LA-533-105	25 STD	81092	1	
R	1751	7571	BY-104	IC	1 LA-533-105	25 STD	81792	1	
	EXTENSION COUNT =			2					
R	1752	7671	BY-104	IC	1 LA-533-105	25 BLK	81792	1	
R	1752	7671	BY-104	IC	0 LA-533-105	25 BLK	81092	1	
	EXTENSION COUNT =			2					
R	1753	7771	BY-104	IC	0 LA-533-105	25 RSA#429	81092	1	
R	1754	7771	BY-104	IC	1 LA-533-105	23 RSA#429	81792	1	
R	1754	7771	BY-104	IC	0 LA-533-105	25 RSA#429	81092	1	
	EXTENSION COUNT =			3					
R	1753	7871	BY-104	IC	0 LA-533-105	25 RSA#429	81092	1	
R	1754	7871	BY-104	IC	1 LA-533-105	23 RSA#429	81792	1	
R	1754	7871	BY-104	IC	0 LA-533-105	25 RSA#429	81092	1	
	EXTENSION COUNT =			3					
R	1753	7971	BY-104	IC	0 LA-533-105	25 RSA#429	81092	1	
	EXTENSION COUNT =			1					
	FAMILY EXT. COUNT =			11	COMPLETED (SUM TYPE)				11
	METHOD COUNT =				17				

WBS CODE: 1N2C330C01 AUGER SAMPLE ANALYSIS TPCN: N233L

WHC-SD-WM-TI-540,REV.1

ORG COST DE ELE	REFERENCE ITH NUMBER NUM	CURRENT MONTH COST HOURS	F Y T D COST HOURS
12110 000 NON-EXEMPT LABO		6261.78 246.5	12357.59 490.0
12110 010 EXEMPT-COMP TIM		37.99 1.0	37.99 1.0
12110 010 EXEMPT LABOR		10580.79 278.5	28964.30 767.5
12110 030 EXEMPT OVERTIME		162.60 4.0	162.60 4.0
12110 100 MAT'L & EQUIPME			720.12
12110 4V0 LIGHT EQUIPMENT		26.53	26.53
12110 6P2 DUPLICATING SER			13.25
12110 6P3 PRINTING SERVIC		8.70	8.70
12110 6P6 WORD PROCESS/FO		473.05	1585.71
12110 6P7 TECH PUBLICATIO		1435.90	2463.75
12110 6P8 GRAPHICS SERVIC		212.40	507.40
4C1 - MPR ADDER			138.94
7C0 - ORG ADDER		4175.57	10085.40
7D0 - G&A ADDER		4090.67	9987.65
7E0 - CSP ADDER		2454.44	6028.93
TOTAL 12110 PROCESS CHEMISTRY		29920.42 530.0	73088.86 1262.5
12200 010 EXEMPT LABOR		301.34 9.0	1502.52 45.0
7C0 - ORG ADDER		73.83	368.12
7D0 - G&A ADDER		65.65	327.36
7E0 - CSP ADDER		39.39	196.41
TOTAL 12200 ANALYTICAL OPERATIONS		480.21 9.0	2394.41 45.0
12210 010 EXEMPT LABOR			1734.58 52.0
7C0 - ORG ADDER			424.97
7D0 - G&A ADDER			377.92
7E0 - CSP ADDER			226.76
TOTAL 12210 INORGANIC CHEMISTRY			2764.23 52.0
12230 010 EXEMPT LABOR			1467.98 44.0
12230 030 EXEMPT OVERTIME			142.41 4.0
12230 300 PHL-ENGINEERING			3.16
7C0 - ORG ADDER			394.54
7D0 - G&A ADDER			350.87
7E0 - CSP ADDER			210.85
TOTAL 12230 RADIO CHEMISTRY			2569.81 48.0
12240 010 EXEMPT LABOR			467.29 14.0
12240 4V0 LIGHT EQUIPMENT			17.36
7C0 - ORG ADDER			114.49
7D0 - G&A ADDER			104.85
7E0 - CSP ADDER			62.91
TOTAL 12240 SPECIAL ANALYTICAL STUDIES			766.90 14.0
TOTAL 1N2C330C01		30400.63 539.0	81584.21 1421.5

RECEIVED: 7/14/92 13:15

OUT FOR RERUN

1-16200E 02 UCI/

6-70000E-02

5/50	20	300039	1
5/50	10	300040	0

6/60 40 3000005

9-880008 01 5/6n

1-43000E 03 ug/5

4.87000E 03 50/BN

1.441000E 02 09/9

3-360005 01 6/6n

3-890006 90 900068

1-000000E-01 uci/

9-260000 02 20 11/17

1. 10000 01 0017

3-10000E-01 UC17

3.77000E 03 6/6n

9-81000E 02 300018-6

b/bn 10 300098-7

CONTINUED ON NEXT PAGE

[illegible]

SAMPLE STATUS REPORT FOR R 1712. BY-104 RSA#418 TIME: 8/20/92 9:28
DISPATCHED: 6/17/92 11:53 SAMPLE HAS NOT BEEN SLURPED

WHC-SD-WM-TI-540,REV.1

E:	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
6855	ICP-SOL	5.33000E 03 ug/g rec Ni	N	Y	N233L
6855	ICP-SOL	8.15000E 03 ug/g rec Fe	N	Y	N233L
6855	ICP-SOL	1.48000E 03 ug/g rec Ca	N	Y	N233L
6855	ICP-SOL	1.72000E 04 ug/g rec Cr	N	Y	N233L
6855	ICP-SOL	4.43000E 01 ug/g rec Ba	N	Y	N233L
6855	ICP-SOL	3.33000E 03 ug/g rec P	N	Y	N233L
6855	ICP-SOL	1.00000E 04 ug/g rec S	N	Y	N233L
6855	ICP-SOL	1.57000E 02 ug/g rec Mg	N	Y	N233L
6855	ICP-SOL	1.53000E 05 ug/g rec Na	N	Y	N233L
6855	ICP-SOL	2.20000E 03 ug/g rec Se			N233L
6855	ICP-SOL	2.72000E 01 ug/g rec Ag	N	Y	N233L
6855	ICP-SOL	4.63000E 02 ug/g rec Pb	N	Y	N233L
6855	ICP-SOL	1.04000E 02 ug/g rec Cd	N	Y	N233L
6855	ICP-SOL	2.88000E 06 ug/g rec K	N	Y	N233L
6855	ICP-SOL	3.89000E 02 ug/g rec Mn	N	Y	N233L
6881	PU239/40	5.53000E-02 uCI/g rec	N	Y	N233L
6882	AM241	1.06000E-01 uCI/g rec	N	Y	N233L
6886	SR90	1.53000E 02 uCI/g rec	N	Y	N233L
6950	ICP	1.04500E 02 % RECOVERY Zr	N	Y	N233L
6950	ICP	9.52000E 01 % RECOVERY Sr	N	Y	N233L
6950	ICP	8.96000E 01 % RECOVERY Co	N	Y	N233L
6950	ICP	5.69000E 01 % RECOVERY Cu	N	Y	N233L
6950	ICP	9.80000E 01 % RECOVERY Zn	N	Y	N233L
6950	ICP	9.38000E 01 % RECOVERY Ca	N	Y	N233L
6950	ICP	9.36000E 01 % RECOVERY Ba	N	Y	N233L
6950	ICP	9.44000E 01 % RECOVERY P	N	Y	N233L
6950	ICP	9.73000E 01 % RECOVERY Mg	N	Y	N233L
6950	ICP	1.66000E 01 % RECOVERY Se			N233L
6950	ICP	1.02500E 02 % RECOVERY Ag	N	Y	N233L
6950	ICP	1.06500E 02 % RECOVERY Pb	N	Y	N233L
6950	ICP	1.02600E 02 % RECOVERY Cd	N	Y	N233L
6950	ICP	FLAG: Si, Cr, Mn NO SPIKE RECOVERY			N233L
6950	ICP	FLAG: Al, Ni, Fe, Na, K SAMP > 4 X SPK CONC.			N233L
6950	ICP	9.66000E 01 % RECOVERY S	N	Y	N233L

END OF REPORT

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
*****	*****	*****	***	***	*****
6700	FUSION	2.03120E 00 G/L	N	Y	N233L
6720	TB	2.83000E 02 uCI/g rec	N	Y	N233L
6725	AT	OUT FOR RERUN			N233L
6725	AT	1.12000E-01 uCI/g rec	N	Y	N233L
6730	GEA	< 5.90000E-01 uCI/g rec	N	Y	N233L
6730	GEA	7.40000E 01 uCI/g rec	N	Y	N233L
6730	GEA	< 2.40000E-01 uCI/g rec	N	Y	N233L
6730	GEA	< 1.70000E-01 uCI/g rec	N	Y	N233L
6730	GEA	< 6.70000E-02 uCI/g rec	N	Y	N233L
6740	U	1.62000E 03 ug/g rec	N	Y	N233L
6755	ICP-SOL	5.97000E 02 ug/g rec	N	Y	N233L
6755	ICP-SOL	3.39000E 01 ug/g rec	N	Y	N233L
6755	ICP-SOL	1.55000E 03 ug/g rec	N	Y	N233L
6755	ICP-SOL	1.35000E 04 ug/g rec	N	Y	N233L
6755	ICP-SOL	8.27000E 02 ug/g rec	N	Y	N233L
6755	ICP-SOL	< 1.97000E 00 ug/g rec	N	Y	N233L
6755	ICP-SOL	6.06000E 02 ug/g rec	N	Y	N233L
6755	ICP-SOL	4.94000E 03 ug/g rec	N	Y	N233L
6755	ICP-SOL	2.65000E 03 ug/g rec	N	Y	N233L
6755	ICP-SOL	7.40000E 02 ug/g rec	N	Y	N233L
6755	ICP-SOL	4.22000E 03 ug/g rec	N	Y	N233L
6755	ICP-SOL	1.95000E 01 ug/g rec	N	Y	N233L
6755	ICP-SOL	8.50000E 03 ug/g rec	N	Y	N233L
6755	ICP-SOL	1.73000E 04 ug/g rec	N	Y	N233L
6755	ICP-SOL	1.10000E 02 ug/g rec	N	Y	N233L
6755	ICP-SOL	2.39000E 05 ug/g rec	N	Y	N233L
6755	ICP-SOL	5.35000E 02 ug/g rec			N233L
6755	ICP-SOL	2.89000E 01 ug/g rec	N	Y	N233L
6755	ICP-SOL	4.03000E 01 ug/g rec	N	Y	N233L
6755	ICP-SOL	1.43000E 02 ug/g rec	N	Y	N233L
6755	ICP-SOL	5.57000E 06 ug/g rec	N	Y	N233L
6781	PU239/40	2.28000E-02 uCI/g rec	N	Y	N233L
6782	AM241	4.48000E-02 uCI/g rec	N	Y	N233L
6786	SR90	5.97000E 01 uCI/g rec	N	Y	N233L
6800	FUSION	1.99160E 00 G/L	N	Y	N233L
6820	TB	2.93000E 02 uCI/g rec	N	Y	N233L
6825	AT	OUT FOR RERUN			N233L
6825	AT	1.67000E-01 uCI/g rec	N	Y	N233L
6830	GEA	< 5.90000E-01 uCI/g rec	N	Y	N233L
6830	GEA	7.80000E 01 uCI/g rec	N	Y	N233L
6830	GEA	< 2.60000E-01 uCI/g rec	N	Y	N233L
6830	GEA	< 1.60000E-01 uCI/g rec	N	Y	N233L
6830	GEA	< 7.60000E-02 uCI/g rec	N	Y	N233L
6840	U	1.66000E 03 ug/g rec	N	Y	N233L
6855	ICP-SOL	3.97000E 01 ug/g rec	N	Y	N233L
6855	ICP-SOL	6.32000E 02 ug/g rec	N	Y	N233L
6855	ICP-SOL	2.60000E 03 ug/g rec	N	Y	N233L
6855	ICP-SOL	1.27000E 04 ug/g rec	N	Y	N233L
6855	ICP-SOL	3.15000E 01 ug/g rec	N	Y	N233L
6855	ICP-SOL	5.06000E 01 ug/g rec	N	Y	N233L
6855	ICP-SOL	1.14000E 02 ug/g rec	N	Y	N233L
6855	ICP-SOL	5.10000E 03 ug/g rec	N	Y	N233L

SAMPLE STATUS REPORT FOR R 1713. BY-104 RSA#418 TIME: 8/20/92 9:28
DISPATCHED: 6/17/92 11:54 SAMPLE HAS NOT BEEN SLURPED

WHC-SD-WM-TI-540,REV.1

EX	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
6855	ICP-SOL	2.35000E 03 ug/g rec Fe	N	Y	N233L
6855	ICP-SOL	8.13000E 02 ug/g rec Ca	N	Y	N233L
6855	ICP-SOL	4.26000E 03 ug/g rec Cr	N	Y	N233L
6855	ICP-SOL	2.04000E 01 ug/g rec Ba	N	Y	N233L
6855	ICP-SOL	4.28000E 03 ug/g rec P	N	Y	N233L
6855	ICP-SOL	1.93000E 04 ug/g rec S	N	Y	N233L
6855	ICP-SOL	1.46000E 02 ug/g rec Mg	N	Y	N233L
6855	ICP-SOL	2.57000E 05 ug/g rec Na	N	Y	N233L
6855	ICP-SOL	5.10000E 02 ug/g rec Se			N233L
6855	ICP-SOL	1.20000E 02 ug/g rec Ti	N	Y	N233L
6855	ICP-SOL	4.19000E 01 ug/g rec Cd	N	Y	N233L
6855	ICP-SOL	1.39000E 02 ug/g rec Mn	N	Y	N233L
6855	ICP-SOL	6.73000E 06 ug/g rec K	N	Y	N233L
6881	PU239/40	2.75000E-02 uCI/g rec	N	Y	N233L
6882	AM241	4.14000E-02 uCI/g rec	N	Y	N233L
6886	SR90	6.20000E 01 uCI/g rec	N	Y	N233L

END OF REPORT

0086041277

SAMPLE STATUS REPORT FOR N 274. CCP-2-SOL RSA # 98 TIME: 3/31/92 13:42
DISPATCHED: 2/26/92 15: 3 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 2/27/92 13:26- WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE RANGE? ANS? CODE
****	*****	*****	*** *** *****
1001	APPR/OTR	100% SOLID SLUDGE BROWN HOMOGENOUS	N442K
8700	ACD DGST	INCOMPLETE	N442K
8755	ICP-SOL	INCOMPLETE	N442K
8769	CR+6	INCOMPLETE	N442K
8783	NP 237	INCOMPLETE	N442K
8795	As	INCOMPLETE	N442K
8796	Se	INCOMPLETE	N442K
8800	ACD DGST	INCOMPLETE	N442K
8855	ICP-SOL	INCOMPLETE	N442K
8869	CR+6	INCOMPLETE	N442K
8883	NP 237	INCOMPLETE	N442K
8895	As	INCOMPLETE	N442K
8896	Se	INCOMPLETE	N442K
8900	ACD-DGST	INCOMPLETE	N442K
8950	ICP	INCOMPLETE	N442K
8969	CR+6	INCOMPLETE	N442K
8983	NP 237	INCOMPLETE	N442K
8995	As	INCOMPLETE	N442K
8996	Se	INCOMPLETE	N442K

END OF REPORT

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613	288	
3725	1640	
0.24	0.14	
613	288	Constant
3725	1640	Std Err o
0.07	0.025	R Squared
143	60	No. of Ob
		Degrees o

X Coeffic
Std Err o

0.07	0.025
0.24	0.14
143	60
613	288
3725	1640
0.24	0.14
613	288
3725	1640
0.07	0.025
143	60

Regression Output:

613	288	Constant	3.293048
3725	1640	Std Err of Y Est	9.831341
0.07	0.025	R Squared	0.999854
143	60	No. of Observations	5
		Degrees of Freedom	3

X Coefficient(s) 0.439983
Std Err of Coef. 0.00307

0.07	0.025
0.24	0.14
143	60
613	288
3725	1640

val chem regression - seems to indicate non-homogeneity in tank

SAMPLE STATUS REPORT FOR N 248. CCP-2-SOL RSA #100 TIME: 3/31/92 13:42
DISPATCHED: 2/26/92 11:35 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 2/27/92 13:27

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
1001	APPR/OTR	100% SOLID SLUDGE BROWN HOMOGENOUS	N	Y	N442K
6700	FUSION	2.00900E 00 G/L			N442K
6720	TB	INCOMPLETE			N442K
6725	AT	INCOMPLETE			N442K
6730	GEA	INCOMPLETE			N442K
6740	U	INCOMPLETE			N442K
6750	ICP	INCOMPLETE			N442K
6781	PU239/40	INCOMPLETE			N442K
6782	AM241	INCOMPLETE			N442K
6783	NP237	INCOMPLETE			N442K
6784	TC99	OUT FOR RERUN			N442K
6784	TC99	INCOMPLETE			N442K
6785	I129	INCOMPLETE			N442K
6786	SR90	OUT FOR RERUN			N442K
6786	SR90	OUT FOR RERUN			N442K
6786	SR90	INCOMPLETE			N442K
6800	FUSION	2.04800E 00 G/L	N	Y	N442K
6820	TB	INCOMPLETE			N442K
6825	AT	INCOMPLETE			N442K
6830	GEA	INCOMPLETE			N442K
6840	U	INCOMPLETE			N442K
6850	ICP	INCOMPLETE			N442K
6881	PU239/40	INCOMPLETE			N442K
6882	AM241	INCOMPLETE			N442K
6883	NP237	INCOMPLETE			N442K
6884	TC99	OUT FOR RERUN			N442K
6884	TC99	INCOMPLETE			N442K
6885	I129	INCOMPLETE			N442K
6886	SR90	OUT FOR RERUN			N442K
6886	SR90	OUT FOR RERUN			N442K
6886	SR90	INCOMPLETE			N442K
6920	TB	INCOMPLETE			N442K
6925	AT	INCOMPLETE			N442K
6930	GEA	INCOMPLETE			N442K
6940	U	INCOMPLETE			N442K
6950	ICP	INCOMPLETE			N442K
6983	NP237	INCOMPLETE			N442K
6985	I129	INCOMPLETE			N442K

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END OF REPORT

WHC-SD-WM-TI-540.REV.1?

The procedure used by WHC is WHC-SD-WM-TP-104 .

3.7 PSA

????? Particle size analysis (PSA) were conducted on solids remaining after water digestion. The procedure is found in Process Chemistry Laboratory Desk Instruction T044 A01 712 F.

3.8 Radiochemical Analyses

All radiochemical analyses were performed with the fusion dissolution solution. The results are given in terms of μCi of radionuclide per gram of solids as delivered to the lab (wet, as compared to treated, dried sample).

Table 7.7 Radiochemical Analysis

Analysis	Riser 5 $\mu\text{Ci/g}$ wet solids + 1 σ	Riser 10 $\mu\text{Ci/g}$ wet solids + 1 σ
Total Alpha	0.24 ± 0.07	0.14 ± 0.03
Total Beta	613 ± 17	288 ± 7
Gamma Energy Analysis		
Uranium	3725 ± 64 $\mu\text{g/g}$ wet solids	1640 ± 28 $\mu\text{g/g}$ wet solids
Pu-239/240	0.07 ± 0.02	0.025 ± 0.003
Strontium-90	143 ± 14	60 ± 2
Americium-241		

3.9 Speciation

X-ray Diffraction (XRD, Procedure LA 507-151 Rev. B3), Particle Size Analysis and Polarized Light Microscopy (PLM, Procedure WHC-MR-0375) shall be conducted for all residues from water digestion in order to identify insolubles such as ferrocyanides in the salt cake.

The XRD results show that the major crystalline, insoluble specie in this tank is aluminum hydroxide. No clear indication of other species is present. Also included in the XRD data are X-Ray Fluorescence (XRF) scans. The XRF data indicate the presence of (but are in no way quantitative for) iron, chromium, uranium, strontium, and a number of other elements as minor signals.

3.8.1 X-Ray Diffraction

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The X-Ray Diffraction patterns clearly show aluminum hydroxide $\text{Al}(\text{OH})_3$ to be the dominant insoluble crystalline species in both auger samples. No evidence of ferrocyanides can be seen. Note that the samples for X-Ray diffraction consist of the residues of the

WHC-SD-WM-TI-540, REV. 1

END OF REPORT

217

SAMPLE STATUS REPORT FOR R 1750. BY-104 RSA#428 TIME: 9/ 3/92 13:56
 DISPATCHED: 6/18/92 11: 4 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/15/92 8:57 WHC-SD-WM-TI-540.REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE
****	*****	*****	RANGE? ANS? CODE
			*** *** *****
3581	SHIP	INCOMPLETE	N233L
4606	XRAY	AL(OH)3 ALUMINUM HYDROXIDE	N233L
5702	PARTSIZE	COMPLETED	N233L
5702	PARTSIZE	INCOMPLETE	N233L

END OF REPORT

0006041284

SAMPLE STATUS REPORT FOR R 1740. BY-104 RSA#426 TIME: 9/10/92 10: 9
DISPATCHED: 6/18/92 8:49 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/ 5/92 14:33 WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD CHARGE	ANS?	CODE
****	*****	*****	***	***	*****	
5711	DSC	1.00700E 02 EXOTHERMS	N	Y		N233L
5712	TGA	2.09900E 01 % H2O	N	Y		N233L
5811	DSC	1.13400E 02 EXOTHERMS	N	Y		N233L
5812	TGA	1.98000E 01 % H2O	N	Y		N233L

END OF REPORT

009960341286

SAMPLE STATUS REPORT FOR R 1741. BY-104 RSA#426 TIME: 9/10/92 10: 9
 DISPATCHED: 6/18/92 8:50 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 8/ 5/92 14:34

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5511	DSC	EXOTHERMS			N233L
5711	DSC	EXOTHERMS			N233L
5712	TGA	1.73000E 02 % H2O	N	Y	N233L
5811	DSC	EXOTHERMS			N233L
5812	TGA	1.81000E 01 % H2O	N	Y	N233L

END OF REPORT

0 0 3 6 0 . 4 1 2 8 7

SAMPLE STATUS REPORT FOR R 1742. BY-104 RSA#426 TIME: 9/10/92 10: 9
DISPATCHED: 6/18/92 8:51 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/ 5/92 14:34 WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE		
			RANGE?	ANS?	CODE
****	*****	*****	***	***	*****
5711	DSC	EXOTHERMS			N233L
5712	TGA	1.44000E 01 % H2O	N	Y	N233L
5811	DSC	EXOTHERMS			N233L
5812	TGA	1.65000E 01 % H2O	N	Y	N233L

END OF REPORT

0 0 3 6 0 2 4 1 2 3 8

SAMPLE STATUS REPORT FOR R 1744. BY-104 RSA#426 TIME: 9/10/92 10: 9
 DISPATCHED: 6/18/92 8:52 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/27/92 15:12 WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
5711	DSC	EXOTHERM BETWEEN 357 C AND 433 C, ENERGY 43.2 J/g	N	Y	N233L
5712	TGA	2.03000E 01 % H2O	N	Y	N233L
5811	DSC	EXOTHERM BETWEEN 378 C & 441 C, ENERGY 36.1 J/g	N	Y	N233L
5812	TGA	2.01000E 01 % H2O	N	Y	N233L

END OF REPORT

0036041289

SAMPLE STATUS REPORT FOR R 1745. BY-104 RSA#426 TIME: 9/10/92 10: 9
DISPATCHED: 6/18/92 8:53 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/27/92 15:12 WHC-SD-WMLTI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD CHARGE ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5711	DSC	EXOTHERM BETWEEN 358 C & 441 C, ENERGY 23.5 J/g	N	Y	N233L
5712	TGA	1.96000E 01 % H2O	N	Y	N233L
5811	DSC	EXOTHERM BETWEEN 379 C & 439 C, ENERGY 38.2 J/g	N	Y	N233L
5812	TGA	2.42000E 01 % H2O	N	Y	N233L

END OF REPORT

003360941290

SAMPLE STATUS REPORT FOR R 1746. BY-104

RSA#426 TIME: 9/10/92 10: 9

DISPATCHED: 6/18/92 8:54

SAMPLE HAS NOT BEEN SLURPED

RECEIVED: 8/ 7/92 10:30

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5711	DSC	EXOTHERMS			N233L
5712	TGA	2.24000E 01 % H2O	N	Y	N233L
5811	DSC	EXOTHERMS			N233L
5812	TGA	1.78000E 01 % H2O	N	Y	N233L

END OF REPORT

0036041291

SAMPLE STATUS REPORT FOR R 1753. BY-104 RSA#429 TIME: 9/ 3/92 13:52
DISPATCHED: 6/18/92 13:22 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/ 1/92 14: 3 WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5715	pH	1.31600E 01	N	Y	N233L
5815	PH	1.31500E 01	N	Y	N233L
7700	H2O DGST	1.00040E 01 G/L	N	Y	N233L
7726	TOC	OUT FOR RERUN			N233L
7726	TOC	5.89000E 03 ug/g rec	N	Y	N233L
7750	ICP-LIQ	9.90000E-01 UG/ML Zr	N	Y	N233L
7750	ICP-LIQ	1.84000E 03 UG/ML Al	N	Y	N233L
7750	ICP-LIQ	4.96000E 00 UG/ML Co	N	Y	N233L
7750	ICP-LIQ	5.72000E-01 UG/ML Cu	N	Y	N233L
7750	ICP-LIQ	2.25000E 00 UG/ML Ni	N	Y	N233L
7750	ICP-LIQ	6.23000E 00 UG/ML Fe	N	Y	N233L
7750	ICP-LIQ	< 2.72000E 01 UG/ML Ca	N	Y	N233L
7750	ICP-LIQ	1.18000E 04 UG/ML Cr	N	Y	N233L
7750	ICP-LIQ	2.33000E 03 UG/ML P	N	Y	N233L
7750	ICP-LIQ	8.81000E 03 UG/ML S	N	Y	N233L
7750	ICP-LIQ	1.51000E 00 UG/ML Mg	N	Y	N233L
7750	ICP-LIQ	2.71000E 01 UG/ML Mo	N	Y	N233L
7750	ICP-LIQ	2.93000E 03 UG/ML K	N	Y	N233L
7750	ICP-LIQ	1.51000E 05 UG/ML Na	N	Y	N233L
7750	ICP-LIQ	< 3.00000E-01 UG/ML Mn	N	Y	N233L
7750	ICP-LIQ	FLAG: Cu,Mg Samp/Dup > 20 % Difference			N233L
7750	ICP-LIQ	NOTE: Cu, Mg close to detection limits			N233L
7771	IC	6.65000E 03 ug/g rec F-	N	Y	N233L
7771	IC	1.99000E 03 ug/g rec CL-	N	Y	N233L
7771	IC	1.26000E 04 ug/g rec NO2-	N	Y	N233L
7771	IC	4.99000E 04 ug/g rec NO3-	N	Y	N233L
7771	IC	5.94000E 03 ug/g rec PO4-	N	Y	N233L
7771	IC	2.53000E 04 ug/g rec SO4-	N	Y	N233L
7800	H2O DGST	1.00140E 01 G/L	N	Y	N233L
7826	TOC	OUT FOR RERUN			N233L
7826	TOC	6.15000E 03 ug/g rec	N	Y	N233L
7850	ICP-LIQ	< 7.99000E-01 UG/ML Zr	N	Y	N233L
7850	ICP-LIQ	1.93000E 03 UG/ML Al	N	Y	N233L
7850	ICP-LIQ	3.98000E 00 UG/ML Co	N	Y	N233L
7850	ICP-LIQ	< 3.99000E-01 UG/ML Cu	N	Y	N233L
7850	ICP-LIQ	1.95000E 00 UG/ML Ni	N	Y	N233L
7850	ICP-LIQ	6.28000E 00 UG/ML Fe	N	Y	N233L
7850	ICP-LIQ	< 2.72000E 01 UG/ML Ca	N	Y	N233L
7850	ICP-LIQ	1.20000E 04 UG/ML Cr	N	Y	N233L
7850	ICP-LIQ	2.21000E 03 UG/ML P	N	Y	N233L
7850	ICP-LIQ	9.52000E 03 UG/ML S	N	Y	N233L
7850	ICP-LIQ	9.03000E-01 UG/ML Mg	N	Y	N233L
7850	ICP-LIQ	1.52000E 05 UG/ML Na	N	Y	N233L
7850	ICP-LIQ	2.51000E 01 UG/ML Mo	N	Y	N233L
7850	ICP-LIQ	3.00000E 03 UG/ML K	N	Y	N233L
7850	ICP-LIQ	< 3.00000E-01 UG/ML Mn	N	Y	N233L
7871	IC	6.82000E 03 ug/g rec F-	N	Y	N233L
7871	IC	1.90000E 03 ug/g rec CL-	N	Y	N233L
7871	IC	1.12000E 04 ug/g rec NO2-	N	Y	N233L
7871	IC	4.82000E 04 ug/g rec NO3-	N	Y	N233L
7871	IC	5.63000E 03 ug/g rec PO4-	N	Y	N233L
7871	IC	2.77000E 04 ug/g rec SO4-	N	Y	N233L

REPORT CONTINUED ON NEXT PAGE

SAMPLE STATUS REPORT FOR R 1753. BY-104
DISPATCHED: 6/18/92 13:22

RSA#429

TIME: 9/ 3/92 13:52

SAMPLE HAS NOT BEEN SLURPED

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
7926	TOC	9.72000E 01 % RECOVERY	N	Y	N233L
7971	IC	1.07000E 02 % RECOVERY F-	N	Y	N233L
7971	IC	1.16000E 02 % RECOVERY CL-	N	Y	N233L
7971	IC	9.70000E 01 % RECOVERY NO2-	N	Y	N233L
7971	IC	1.07000E 02 % RECOVERY NO3-	N	Y	N233L
7971	IC	1.02000E 02 % RECOVERY PO4-	N	Y	N233L
7971	IC	1.05000E 02 % RECOVERY SO4-	N	Y	N233L

END OF REPORT

00000041294

SAMPLE STATUS REPORT FOR R 1754. BY-104

RSA#429 TIME: 9/ 3/92 13:54

DISPATCHED: 6/18/92 13:23

SAMPLE HAS NOT BEEN SLURPED

RECEIVED: 7/ 1/92 14: 3

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5715	pH	1.18500E 01	N	Y	N233L
5815	PH	1.18700E 01	N	Y	N233L
7700	H2O DGST	1.00480E 01 G/L	N	Y	N233L
7700	H2O DGST	1.00080E 01 G/L	N	Y	N233L
7726	TOC	OUT FOR RERUN			N233L
7726	TOC	1.07400E 04 ug/g rec	N	Y	N233L
7750	ICP-LIQ	1.75000E 00 UG/ML Zr	N	Y	N233L
7750	ICP-LIQ	3.18000E 02 UG/ML Al	N	Y	N233L
7750	ICP-LIQ	2.04000E 00 UG/ML Co	N	Y	N233L
7750	ICP-LIQ	9.45000E-01 UG/ML Cu	N	Y	N233L
7750	ICP-LIQ	4.17000E 00 UG/ML Ni	N	Y	N233L
7750	ICP-LIQ	5.77000E 00 UG/ML Fe	N	Y	N233L
7750	ICP-LIQ	4.21000E 01 UG/ML Ca	N	Y	N233L
7750	ICP-LIQ	2.67000E 03 UG/ML Cr	N	Y	N233L
7750	ICP-LIQ	3.19000E 03 UG/ML P	N	Y	N233L
7750	ICP-LIQ	2.05000E 04 UG/ML S	N	Y	N233L
7750	ICP-LIQ	2.13000E 01 UG/ML Mo	N	Y	N233L
7750	ICP-LIQ	2.37000E 03 UG/ML K	N	Y	N233L
7750	ICP-LIQ	< 2.99000E-01 UG/ML Mn	N	Y	N233L
7750	ICP-LIQ	2.66000E 05 UG/ML Na	N	Y	N233L
7771	IC	1.42000E 04 ug/g rec F-	N	Y	N233L
7771	IC	1.36000E 03 ug/g rec CL-	N	Y	N233L
7771	IC	1.42000E 04 ug/g rec NO2-	N	Y	N233L
7771	IC	7.75999E 04 ug/g rec NO3-	N	Y	N233L
7771	IC	8.55000E 03 ug/g rec PO4-	N	Y	N233L
7771	IC	5.99000E 04 ug/g rec SO4-	N	Y	N233L
7771	IC	1.31000E 04 ug/g rec F-	N	Y	N233L
7771	IC	1.10000E 03 ug/g rec CL-	N	Y	N233L
7771	IC	1.51000E 04 ug/g rec NO2-	N	Y	N233L
7771	IC	7.76999E 04 ug/g rec NO3-	N	Y	N233L
7771	IC	4.42000E 03 ug/g rec PO4-	N	Y	N233L
7771	IC	4.19000E 04 ug/g rec SO4-	N	Y	N233L
7800	H2O DGST	1.00300E 01 G/L	N	Y	N233L
7800	H2O DGST	1.00100E 01 G/L	N	Y	N233L
7826	TOC	OUT FOR RERUN			N233L
7826	TOC	1.07600E 04 ug/g rec	N	Y	N233L
7850	ICP-LIQ	1.34000E 00 UG/ML Zr	N	Y	N233L
7850	ICP-LIQ	3.00000E 02 UG/ML Al	N	Y	N233L
7850	ICP-LIQ	< 9.97000E-01 UG/ML Co	N	Y	N233L
7850	ICP-LIQ	8.92000E-01 UG/ML Cu	N	Y	N233L
7850	ICP-LIQ	2.39000E 00 UG/ML Ni	N	Y	N233L
7850	ICP-LIQ	3.49000E 00 UG/ML Fe	N	Y	N233L
7850	ICP-LIQ	4.83000E 01 UG/ML Ca	N	Y	N233L
7850	ICP-LIQ	1.92000E 03 UG/ML Cr	N	Y	N233L
7850	ICP-LIQ	1.78000E 03 UG/ML P	N	Y	N233L
7850	ICP-LIQ	1.60000E 04 UG/ML S	N	Y	N233L
7850	ICP-LIQ	1.61000E 01 UG/ML Mo	N	Y	N233L
7850	ICP-LIQ	1.78000E 03 UG/ML K	N	Y	N233L
7850	ICP-LIQ	< 2.99000E-01 UG/ML Mn	N	Y	N233L
7850	ICP-LIQ	2.79000E 05 UG/ML Na	N	Y	N233L
7871	IC	1.06000E 04 ug/g rec F-	N	Y	N233L
7871	IC	9.64000E 02 ug/g rec CL-	N	Y	N233L

REPORT CONTINUED ON NEXT PAGE

227

SAMPLE STATUS REPORT FOR R 1754. BY-104 RSA#429 TIME: 9/ 3/92 13:54
 DISPATCHED: 6/18/92 13:23 SAMPLE HAS NOT BEEN SLURPED WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
7871	IC	1.18000E 04 ug/g rec NO2-	N	Y	N233L
7871	IC	2.65000E 00 ug/g rec NO3-	N	Y	N233L
7871	IC	4.88000E 03 ug/g rec PO4-	N	Y	N233L
7871	IC	4.50000E 04 ug/g rec SO4-	N	Y	N233L
7871	IC	1.11000E 04 ug/g rec F-	N	Y	N233L
7871	IC	1.24000E 03 ug/g rec CL-	N	Y	N233L
7871	IC	1.63000E 04 ug/g rec NO2-	N	Y	N233L
7871	IC	7.13999E 04 ug/g rec NO3-	N	Y	N233L
7871	IC	3.26000E 03 ug/g rec PO4-	N	Y	N233L
7871	IC	4.73000E 04 ug/g rec SO4-	N	Y	N233L

END OF REPORT

00000041296

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WHC-SD-WM-TI-540, REV. 1

SAMPLE STATUS REPORT FOR R 1713. BY-104 RSA#418 TIME: 8/12/92 12:36
DISPATCHED: 6/17/92 11:54 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/14/92 13:16

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD?	CHARGE CODE
3	****	*****	***	***	*****
6700	FUSION	2.03120E 00 G/L	N	Y	N233L
6720	TB	2.83000E 02 uCi/g rec	N	Y	N233L
6725	AT	OUT FOR RERUN			N233L
6725	AT	1.12000E-01 uCi/g rec	N	Y	N233L
6730	GEA	< 5.90000E-01 uCi/g rec Am-241	N	Y	N233L
6730	GEA	7.40000E 01 uCi/g rec Cs-137	N	Y	N233L
6730	GEA	< 2.40000E-01 uCi/g rec Eu-155	N	Y	N233L
6730	GEA	< 1.70000E-01 uCi/g rec Eu-154	N	Y	N233L
6730	GEA	< 6.70000E-02 uCi/g rec Co-60	N	Y	N233L
6740	U	1.62000E 03 ug/g rec	N	Y	N233L
6755	ICP-SOL	5.97000E 02 ug/g rec Sr	N	Y	N233L
6755	ICP-SOL	3.39000E 01 ug/g rec Zr	N	Y	N233L
6755	ICP-SOL	1.55000E 03 ug/g rec Si	N	Y	N233L
6755	ICP-SOL	1.35000E 04 ug/g rec Al	N	Y	N233L
6755	ICP-SOL	8.27000E 02 ug/g rec Co	N	Y	N233L
6755	ICP-SOL	< 1.97000E 00 ug/g rec Li	N	Y	N233L
6755	ICP-SOL	6.06000E 02 ug/g rec Zn	N	Y	N233L
6755	ICP-SOL	4.94000E 03 ug/g rec Ni	N	Y	N233L
6755	ICP-SOL	2.65000E 03 ug/g rec Fe	N	Y	N233L
6755	ICP-SOL	7.40000E 02 ug/g rec Ca	N	Y	N233L
6755	ICP-SOL	4.22000E 03 ug/g rec Cr	N	Y	N233L
6755	ICP-SOL	1.95000E 01 ug/g rec Ba	N	Y	N233L
6755	ICP-SOL	8.50000E 03 ug/g rec P	N	Y	N233L
6755	ICP-SOL	1.73000E 04 ug/g rec S	N	Y	N233L
6755	ICP-SOL	1.10000E 02 ug/g rec Mg	N	Y	N233L
6755	ICP-SOL	2.39000E 05 ug/g rec Na	N	Y	N233L
6755	ICP-SOL	5.35000E 02 ug/g rec Se			N233L
6755	ICP-SOL	2.89000E 01 ug/g rec Ti	N	Y	N233L
6755	ICP-SOL	4.03000E 01 ug/g rec Cd	N	Y	N233L
6755	ICP-SOL	1.43000E 02 ug/g rec Mn	N	Y	N233L
6755	ICP-SOL	5.57000E 06 ug/g rec K	N	Y	N233L
6781	PU239/40	2.28000E-02 uCi/g rec	N	Y	N233L
6782	AM241	4.48000E-02 uCi/g rec	N	Y	N233L
6786	SR90	5.97000E 01 uCi/g rec	N	Y	N233L
6800	FUSION	1.99160E 00 G/L	N	Y	N233L
6820	TB	2.93000E 02 uCi/g rec	N	Y	N233L
6825	AT	OUT FOR RERUN			N233L
6825	AT	1.67000E-01 uCi/g rec	N	Y	N233L
6830	GEA	< 5.90000E-01 uCi/g rec Am-241	N	Y	N233L

6830	GEA	< 2.60000E-01	uCI/g rec	Cu-155	N	Y	N233L
6830	GEA	< 1.60000E-01	uCI/g rec	Eu-154	N	Y	N233L
6830	GEA	< 7.60000E-02	uCI/g rec	Co-60	N	Y	N233L
6840	U	1.66000E 03	ug/g rec		N	Y	N233L
6855	ICP-SOL	3.97000E 01	ug/g rec	Zr	N	Y	N233L
6855	ICP-SOL	6.32000E 02	ug/g rec	Sr	N	Y	N233L
6855	ICP-SOL	2.60000E 03	ug/g rec	Si	N	Y	N233L
6855	ICP-SOL	1.27000E 04	ug/g rec	Al	N	Y	N233L
6855	ICP-SOL	3.15000E 01	ug/g rec	Cu	N	Y	N233L
6855	ICP-SOL	5.06000E 01	ug/g rec	Li	N	Y	N233L
6855	ICP-SOL	1.14000E 02	ug/g rec	Zn	N	Y	N233L
6855	ICP-SOL	5.10000E 03	ug/g rec	Ni	N	Y	N233L

REPORT CONTINUED ON NEXT PAGE

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WHC-SD-WM-TI-540, REV. 1

SAMPLE STATUS REPORT FOR R 1713. BY-104 RSA#418 TIME: 8/12/92 12:36
DISPATCHED: 6/17/92 11:54 SAMPLE HAS NOT BEEN SHIPPED

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	CHARGE ANSW?	CHARGE CODE
4	****	*****	***	***	*****
6855	ICP-SOL	2.35000E 03 ug/g rec Fe	N	Y	N233L
6855	ICP-SOL	8.13000E 02 ug/g rec Ca	N	Y	N233L
6855	ICP-SOL	4.26000E 03 ug/g rec Cr	N	Y	N233L
6855	ICP-SOL	2.04000E 01 ug/g rec Ba	N	Y	N233L
6855	ICP-SOL	4.28000E 03 ug/g rec P	N	Y	N233L
6855	ICP-SOL	1.93000E 04 ug/g rec S	N	Y	N233L
6855	ICP-SOL	1.46000E 02 ug/g rec Mg	N	Y	N233L
6855	ICP-SOL	2.57000E 05 ug/g rec Na	N	Y	N233L
355	ICP-SOL	5.10000E 02 ug/g rec Se			N233L
6855	ICP-SOL	1.20000E 02 ug/g rec Ti	N	Y	N233L
6855	ICP-SOL	4.19000E 01 ug/g rec Cd	N	Y	N233L
6855	ICP-SOL	1.39000E 02 ug/g rec Mn	N	Y	N233L
6855	ICP-SOL	6.73000E 06 ug/g rec K	N	Y	N233L
6881	PU239/40	2.75000E-02 uCI/g rec	N	Y	N233L
6882	AM241	4.14000E-02 uCI/g rec	N	Y	N233L
6886	SR90	6.20000E 01 uCI/g rec	N	Y	N233L

END OF REPORT

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WHC-SD-WM-TI-540, REV. 1

SAMPLE STATUS REPORT FOR R 1712. RY-J04 RSA#418 TIME: 8/12/92 12:35
DISPATCHED: 6/17/92 11:53 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/14/92 13:15

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD?	CHARGE CODE
5	****	*****	***	***	*****
6700	FUSION	2.00520E 00 G/L	N	Y	N2331
6720	TB	6.01000E 02 uCI/a rec	N	Y	N233L
6725	AT	OUT FOR RERUN			N2331
6725	AT	2.96000E-01 uCI/a rec	N	Y	N2331
6730	GEA	< 7.20000E-01 uCI/a rec Am-241	N	Y	N2331
6730	GEA	1.16200E 02 uCI/g rec Cs-137	N	Y	N233L
6730	GEA	< 3.10000E-01 uCI/a rec Eu-155	N	Y	N2331
6730	GEA	< 1.90000E-01 uCI/g rec Eu-154	N	Y	N2331
6730	GEA	< 6.70000E-02 uCI/a rec Co-60	N	Y	N233L
6740	U	3.68000E 03 ug/g rec	N	Y	N233L
6755	ICP-SOL	3.89000E 01 ug/g rec Zr	N	Y	N2331
6755	ICP-SOL	1.65000E 03 ug/g rec Sr	N	Y	N233L
6755	ICP-SOL	8.38000E 02 ug/g rec Si	N	Y	N233L
6755	ICP-SOL	7.50000E 04 ug/g rec Al	N	Y	N233L
6755	ICP-SOL	6.55000E 01 ug/g rec Co	N	Y	N2331
6755	ICP-SOL	4.15000E 01 ug/g rec Cu	N	Y	N233L
6755	ICP-SOL	9.88000E 01 ug/g rec Zn	N	Y	N233L
6755	ICP-SOL	3.46000E 03 ug/g rec Ni	N	Y	N233L
6755	ICP-SOL	6.01000E 03 ug/g rec Fe	N	Y	N233L
6755	ICP-SOL	1.43000E 03 ug/g rec Ca	N	Y	N233L
6755	ICP-SOL	1.64000E 04 ug/g rec Cr	N	Y	N2331
6755	ICP-SOL	4.06000E 01 ug/g rec Ba	N	Y	N233L
6755	ICP-SOL	4.87000E 03 ug/g rec P	N	Y	N233L
6755	ICP-SOL	1.09000E 04 ug/g rec S	N	Y	N233L
6755	ICP-SOL	1.41000E 02 ug/g rec Mg	N	Y	N2331
6755	ICP-SOL	1.72000E 05 ug/g rec Na	N	Y	N2331
6755	ICP-SOL	1.96000E 03 ug/g rec Se			N2331
6755	ICP-SOL	3.36000E 01 ug/g rec Au	N	Y	N2331
6755	ICP-SOL	3.29000E 02 ug/g rec Pb	N	Y	N2331
6755	ICP-SOL	9.20000E 01 ug/g rec Cd	N	Y	N2331
6755	ICP-SOL	3.89000E 06 ug/g rec K	N	Y	N2331
6755	ICP-SOL	3.44000E 02 ug/g rec Hg	N	Y	N233L
6781	PU239/40	8.27000E-02 uCI/g rec	N	Y	N2331
6782	AM241	1.00000E-01 uCI/a rec	N	Y	N2331
6786	SR90	1.33000E 02 uCI/g rec	N	Y	N2331
6800	FUSION	2.02640E 00 G/L	N	Y	N2331
6820	TB	6.26000E 02 uCI/a rec	N	Y	N2331
6825	AT	OUT FOR RERUN			N2331
6825	AT	1.91000E 01 uCI/a rec	N	Y	N2331

6830	GEA	1.15000E-02	uCI/g rec	Cs-137	N	Y	N233L
6830	GEA	< 3.10000E-01	uCI/g rec	Eu-155	N	Y	N233L
6830	GEA	< 2.10000E-01	uCI/g rec	Eu-154	N	Y	N233L
6830	GEA	< 7.09999E-02	uCI/g rec	Co-60	N	Y	N233L
6840	U	3.77000E-03	ug/g rec		N	Y	N233L
6855	ICP-SOL	5.28000E-01	ug/g rec	Zr	N	Y	N233L
755	ICP-SOL	1.80000E-03	ug/g rec	Sr	N	Y	N233L
755	ICP-SOL	9.81000E-02	ug/g rec	Si	N	Y	N233L
6855	ICP-SOL	8.63999E-04	ug/g rec	Al	N	Y	N233L
6855	ICP-SOL	6.93000E-01	ug/g rec	Co	N	Y	N233L
6855	ICP-SOL	4.86000E-01	ug/g rec	Cu	N	Y	N233L
6855	ICP-SOL	1.38000E-02	ug/g rec	Zn	N	Y	N233L

REPORT CONTINUED ON NEXT PAGE

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WHC-SD-WM-TI-540, REV. 1

SAMPLE STATUS REPORT FOR R 1712. RY-104 RSA#418 TIME: 8/12/92 12:35
DISPATCHED: 6/17/92 11:53 SAMPLE HAS NOT BEEN SLURPED

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	ANS?	CHARGE CODE
6855	ICP-SOL	5.33000E-03 ug/g rec Ni	N	Y	N233L
6855	ICP-SOL	8.15000E-03 ug/g rec Fe	N	Y	N233L
6855	ICP-SOL	1.48000E-03 ug/g rec Ca	N	Y	N233L
6855	ICP-SOL	1.72000E-04 ug/g rec Cr	N	Y	N233L
6855	ICP-SOL	4.43000E-01 ug/g rec Ba	N	Y	N233L
6855	ICP-SOL	3.33000E-03 ug/g rec P	N	Y	N233L
6855	ICP-SOL	1.00000E-04 ug/g rec S	N	Y	N233L
6855	ICP-SOL	1.57000E-02 ug/g rec Mg	N	Y	N233L
6855	ICP-SOL	1.53000E-05 ug/g rec Na	N	Y	N233L
6855	ICP-SOL	2.20000E-03 ug/g rec Se	N	Y	N233L
6855	ICP-SOL	2.72000E-01 ug/g rec Ag	N	Y	N233L
6855	ICP-SOL	4.63000E-02 ug/g rec Pb	N	Y	N233L
6855	ICP-SOL	1.04000E-02 ug/g rec Cd	N	Y	N233L
6855	ICP-SOL	2.88000E-06 ug/g rec K	N	Y	N233L
6855	ICP-SOL	3.89000E-02 ug/g rec Mn	N	Y	N233L
6881	PU239/40	5.53000E-02 uCI/g rec	N	Y	N233L
6882	AM241	1.06000E-01 uCI/g rec	N	Y	N233L
6886	SR90	1.53000E-02 uCI/g rec	N	Y	N233L
6950	ICP	1.04500E-02 % RECOVERY Zr	N	Y	N233L
6950	ICP	9.52000E-01 % RECOVERY Sr	N	Y	N233L
6950	ICP	8.96000E-01 % RECOVERY Co	N	Y	N233L
6950	ICP	5.69000E-01 % RECOVERY Cu	N	Y	N233L
6950	ICP	9.80000E-01 % RECOVERY Zn	N	Y	N233L
6950	ICP	9.38000E-01 % RECOVERY Ca	N	Y	N233L
6950	ICP	9.36000E-01 % RECOVERY Ba	N	Y	N233L
6950	ICP	9.44000E-01 % RECOVERY P	N	Y	N233L
6950	ICP	9.73000E-01 % RECOVERY Mg	N	Y	N233L
6950	ICP	1.66000E-01 % RECOVERY Se	N	Y	N233L
6950	ICP	1.02500E-02 % RECOVERY Ag	N	Y	N233L
6950	ICP	1.06500E-02 % RECOVERY Pb	N	Y	N233L
6950	ICP	1.02600E-02 % RECOVERY Cd	N	Y	N233L
6950	ICP	FLAG: Si, Cr, Mn NO SPIKE RECOVERY			N233L
6950	ICP	FLAG: Al, Ni, Fe, Na, K BAMP > 4 X SPK CONC.			N233L
6950	ICP	9.66000E-01 % RECOVERY S	N	Y	N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1753. BY-104
 DISPATCHED: 6/18/92 13:22
 RECEIVED: 7/1/92 14:3
 SAMPLE HAS NOT BEEN SLURPED
 RS4#429 TIME: 8/12/92 12:53

EXT.	DETER.	RESULTS OR STATUS	OUT OF (GOOD) CHARGE
***	*****	*****	***
5715	DH	1.31600E 01	N
5815	PH	1.31500E 01	N
7700	H2O DGST	1.00040E 01 G/L	N
7726	TDC	OUT FOR RERUN	N
7726	TDC	5.89000E 03 ug/g rec	N
7771	IC	6.65000E 03 ug/g rec	N
7771	IC	1.99000E 03 ug/g rec	N
6771	IC	1.26000E 04 ug/g rec	N
7771	IC	4.99000E 04 ug/g rec	N
6771	IC	5.94000E 03 ug/g rec	N
7771	IC	2.53000E 04 ug/g rec	N
7771	IC	1.00140E 01 G/L	N
7800	H2O DGST	OUT FOR RERUN	N
7826	TDC	6.15000E 03 ug/g rec	N
7826	TDC	6.82000E 03 ug/g rec	N
7871	IC	1.90000E 03 ug/g rec	N
7871	IC	1.12000E 04 ug/g rec	N
7871	IC	4.82000E 04 ug/g rec	N
7871	IC	5.63000E 03 ug/g rec	N
7871	IC	2.77000E 04 ug/g rec	N
7926	TDC	9.72000E 01 % RECOVERY	N
7971	IC	1.07000E 02 % RECOVERY	N
7971	IC	1.16000E 02 % RECOVERY	N
7971	IC	9.70000E 01 % RECOVERY	N
7971	IC	1.07000E 02 % RECOVERY	N
7971	IC	1.02000E 02 % RECOVERY	N
7971	IC	1.05000E 02 % RECOVERY	N

END OF REPORT

WHC-SD-WM-TI-540,REV.1

SAMPLE STATUS REPORT FOR R 1778. BY-104 RSA#443 TIME: 8/12/92 12:54
DISPATCHED: 6/24/92 14:17 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/15/92 13:33

EXT.	DETER.	RESULTS OR STATUS	(OUT OF 6000) RANGE?	CHARGE ANS?	CODE
****	*****	*****	***	***	*****
8700	ACD DGST	1.10060E 01 G/L	N	Y	N233L
8755	ICP-SOL	5.95000E 01 ug/g rec Zr	N	Y	N233L
8755	ICP-SOL	4.61000E 01 ug/g rec Co	N	Y	N233L
8755	ICP-SOL	1.76000E 01 ug/g rec Cu	N	Y	N233L
8755	ICP-SOL	1.09000E 03 ug/g rec Ni	N	Y	N233L
8755	ICP-SOL	4.67000E 03 ug/g rec Fe	N	Y	N233L
8755	ICP-SOL	1.34000E 03 ug/g rec Ca	N	Y	N233L
8755	ICP-SOL	1.19000E 04 ug/g rec Cr	N	Y	N233L
8755	ICP-SOL	2.47000E 03 ug/g rec P	N	Y	N233L
8755	ICP-SOL	2.41000E 03 ug/g rec K	N	Y	N233L
8755	ICP-SOL	2.44000E 02 ug/g rec Mn	N	Y	N233L
8755	ICP-SOL	6.16000E 04 ug/g rec Al	N	Y	N233L
8755	ICP-SOL	1.41000E 05 ug/g rec Na	N	Y	N233L
8800	ACD DGST	1.19160E 01 G/L	N	Y	N233L
8855	ICP-SOL	8.39000E 01 ug/g rec Zr	N	Y	N233L
8855	ICP-SOL	6.25000E 01 ug/g rec Co	N	Y	N233L
8855	ICP-SOL	2.57000E 01 ug/g rec Cu	N	Y	N233L
8855	ICP-SOL	1.48000E 03 ug/g rec Ni	N	Y	N233L
8855	ICP-SOL	6.99000E 03 ug/g rec Fe	N	Y	N233L
8855	ICP-SOL	1.75000E 03 ug/g rec Ca	N	Y	N233L
8855	ICP-SOL	1.61000E 04 ug/g rec Cr	N	Y	N233L
8855	ICP-SOL	3.63000E 03 ug/g rec P	N	Y	N233L
8855	ICP-SOL	3.31000E 03 ug/g rec K	N	Y	N233L
8855	ICP-SOL	3.44000E 02 ug/g rec Mn	N	Y	N233L
8855	ICP-SOL	9.30999E 04 ug/g rec Al	N	Y	N233L
8855	ICP-SOL	2.11000E 05 ug/g rec Na	N	Y	N233L
8900	ACD-DGST	1.27820E 01 G/G	N	Y	N233L
8950	ICP	9.84000E 01 % RECOVERY Zr	N	Y	N233L
8950	ICP	9.31000E 01 % RECOVERY Co	N	Y	N233L
8950	ICP	9.78000E 01 % RECOVERY Cu	N	Y	N233L
8950	ICP	1.57200E 02 % RECOVERY Mn	N	Y	N233L
8950	ICP	SAMPLE > 4 X SPIKE CONC NI,FE,CA,P,K,AL,NA,CR			N233L

END OF REPORT

WHC-SN-WM-TT-540.RFV.1

SAMPLE STATUS REPORT FOR R 1779. HY-104 RSA#443 TIME: 8/12/92 12:54
 DISPATCHED: 6/24/92 14:20 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/15/92 13:33

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE RANGE? ANS? CODE
2	****	*****	*** **
8700	ACD DGST	1.04720E 01 G/L	N Y N233L
8755	ICP-SOL	3.41000E 01 ug/g rec Zr	N Y N233L
8755	ICP-SOL	5.01000E 02 ug/g rec Ni	N Y N233L
8755	ICP-SOL	2.15000E 01 ug/g rec Co	N Y N233L
8755	ICP-SOL	7.08000E 00 ug/g rec Cu	N Y N233L
8755	ICP-SOL	2.04000E 03 ug/g rec Fe	N Y N233L
8755	ICP-SOL	6.83000E 02 ug/g rec Ca	N Y N233L
8755	ICP-SOL	3.77000E 03 ug/g rec Cr	N Y N233L
8755	ICP-SOL	2.33000E 03 ug/g rec P	N Y N233L
8755	ICP-SOL	2.31000E 03 ug/g rec K	N Y N233L
8755	ICP-SOL	1.07000E 02 ug/g rec Mn	N Y N233L
8755	ICP-SOL	2.01000E 04 ug/g rec Al	N Y N233L
8755	ICP-SOL	2.68000E 05 ug/g rec Na	N Y N233L
8800	ACD DGST	1.17760E 01 G/L	N Y N233L
8855	ICP-SOL	3.73000E 01 ug/g rec Zr	N Y N233L
8855	ICP-SOL	1.58000E 04 ug/g rec Al	N Y N233L
8855	ICP-SOL	2.46000E 01 ug/g rec Co	N Y N233L
8855	ICP-SOL	7.54000E 00 ug/g rec Cu	N Y N233L
8855	ICP-SOL	5.81000E 02 ug/g rec Ni	N Y N233L
8855	ICP-SOL	2.13000E 03 ug/g rec Fe	N Y N233L
8855	ICP-SOL	7.49000E 02 ug/g rec Ca	N Y N233L
8855	ICP-SOL	3.96000E 03 ug/g rec Cr	N Y N233L
8855	ICP-SOL	4.29000E 03 ug/g rec P	N Y N233L
8855	ICP-SOL	2.40000E 03 ug/g rec K	N Y N233L
8855	ICP-SOL	1.21000E 02 ug/g rec Mn	N Y N233L
8855	ICP-SOL	2.72000E 05 ug/g rec Na	N Y N233L

END OF REPORT

WHC-SD-WM-TI-540, REV. 1

SAMPLE STATUS REPORT FOR R 1754. HY-104 RSA#429 TIME: 8/12/92 12:53
 DISPATCHED: 6/18/92 13:23 SAMPLE HAS NOT BEFN SLURPED
 RECEIVED: 7/ 1/92 14: 3

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD RANGE?	CHARGE ANS?	CODE
****	*****	*****	***	***	*****
5715	pH	1.18500E 01	N	Y	N233L
5815	PH	1.18700E 01	N	Y	N233L
M7700	H2O DGST	1.00480E 01 G/L	N	Y	N233L
7726	TDC	OUT FOR RERUN			N233L
7726	TDC	1.07400E 04 ug/g rec	N	Y	N233L
7771	IC	1.42000E 04 ug/g rec	N	Y	N233L
7771	IC	1.36000E 03 ug/g rec	N	Y	N233L
771	IC	1.42000E 04 ug/g rec	N	Y	N233L
7771	IC	7.75999E 04 ug/g rec	N	Y	N233L
7771	IC	8.55000E 03 ug/g rec	N	Y	N233L
7771	IC	5.99000E 04 ug/g rec	N	Y	N233L
7800	H2O DGST	1.00300E 01 G/L	N	Y	N233L
7826	TDC	OUT FOR RERUN			N233L
7826	TDC	1.07600E 04 ug/g rec	N	Y	N233L
7871	IC	1.06000E 04 ug/g rec	N	Y	N233L
7871	IC	9.64000E 02 ug/g rec	N	Y	N233L
7871	IC	1.18000E 04 ug/g rec	N	Y	N233L
7871	IC	2.65000E 00 ug/g rec	N	Y	N233L
7871	IC	4.88000E 03 ug/g rec	N	Y	N233L
7871	IC	4.50000E 04 ug/g rec	N	Y	N233L

END OF REPORT

WHC-SD-WM-TI-540,REV.1

SAMPLE STATUS REPORT FOR R 1737. RY-J04 RSA#425 TIME: 8/12/92 12:52
DISPATCHED: 6/18/92 8:38 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/14/92 13:29

EXT. DETER. RESULTS OR STATUS OUT OF GOOD CHARGE
RANGE? ANS? CODE
**** *****
5710 % H2O 1.48900E 01 % H2O N Y N233L
5810 % H2O 1.53200E 01 % H2O N Y N233L

END OF REPORT

WHC-SD-WM-TI-540,REV.1

SAMPLE STATUS REPORT FOR R 1738. BY-104 RSA#425 TIME: 8/12/92 12:52
DISPATCHED: 6/18/92 8:39 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/14/92 13:30

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE RANGE? ANS?	CODE
****	*****	*****	***	***
5710	% H2O	1.69500E 01 % H2O	N	Y N233L
5810	% H2O	1.71800E 01 % H2O	N	Y N233L

END OF REPORT

WHC-SD-WM-TI-540,REV.1

SAMPLE STATUS REPORT FOR R 1734. RY-104 RSA#424 TIME: 8/12/92 12:36
DISPATCHED: 6/18/92 8:17 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/21/92 8:28

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD RANGE?	CHARGE ANSW?	CHARGE CODE
****	*****	*****	***	***	*****
15778	CN	OUT FOR RERUN			N233L
5778	CN	4.30800E 01 PPM	N	Y	N233L
35878	CN	OUT FOR RERUN			N233L
5878	CN	4.26800E 01 PPM	N	Y	N233L
15978	CN	OUT FOR RERUN			N233L
45978	CN	1.03100E 02 % RECOVERY	N	Y	N233L

END OF REPORT

WHC-SD-WM-TI-540,REV.1

SAMPLE STATUS REPORT FOR R 1735. BY-J04 RSA#424 TIME: 8/12/92 12:36
DISPATCHED: 6/18/92 8:18 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/21/92 8:28

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE RANGE? ANS?	CODE
****	*****	*****	***	***
5778	CN	OUT FOR RERUN		N233L
5778	CN	9.06400E 01 PPM	N	Y N233L
5878	CN	OUT FOR RERUN		N233L
5878	CN	8.12800E 01 PPM	N	Y N233L
5978	CN	OUT FOR RERUN		N233L
5978	CN	7.73100E 01 % RECOVERY	N	Y N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1773. BY-104 RSA# 442: TIME: 10/ 9/92 10:12
 DISPATCHED: 6/23/92 8:13 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 8/26/92 8:32 WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5709	ADIAB	COMPLETED			N233L
5709	ADIAB	COMPLETED			N233L

END OF REPORT

0 0 3 3 6 0 7 4 1 3 4 0

SAMPLE STATUS REPORT FOR R 1775. BY-104 RSA# 442 TIME: 10/ 9/92 10:12
DISPATCHED: 6/23/92 8:14 SAMPLE HAS NOT BEEN SLURPED
CEIVED: 8/26/92 8:32 WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE
			RANGE? ANS? CODE
****	*****	*****	*** **
5709	ADIAB	COMPLETE	N233L
5709	ADIAB	COMPLETED	N233L

END OF REPORT

0033041341

Actual mass balance calculations

0 0 8 6 0 9 4 1 2 6 1

by104 acid digest

R1778

	Riser 5	Riser 5	Ave	sample	std dev
Zr	59.5	83.9	71.7	17	
Al	61600	93090	77345	22267	
Co	46.1	62.5	54.3	12	
Cu	17.6	25.7	21.65	6	
Ni	1090	1480	1285	276	
Fe	4670	6990	5830	1640	
Ca	1340	1750	1545	290	
Cr	11900	16100	14000	2970	
P	2470	3630	3050	820	
S			0	0	
Mo			0	0	Charge balance
K	2410	3310	2860	636	73.14578
U	3680	3770	3725	64	
Mn	244	344	294	71	
Na	141000	211000	176000	49497	7652.173

Total metal concentration	286081.6	7725.319 metals charge equiv.
TOC solub	5890 6150 6020	184
TIC solub	21587 19288 20437.5	1626
TOC total	8025 9326 8675.5	920
TIC total	18915 19251 19083	238

Water, TGA 154000

Mass balance calculations

	Al(OH)3	UO2+2	Cr2O7
metals	445759.6		
anions	101915		
TOC*3	26026.5		
Water	171000		
TIC*5	95415		
Mass balance w/TGA water			
Total mass balance	823116.1		
Riser 5	840116.1		

243

MHC-SD-WM-TI-540, REV. 1

R1753 anions

Riser 5 anions

0 0 3 6 0 4 1 2 6 2

	Riser5	Riser5dup	Ave.	small sample dev.	Charge equivalents
F	6650	6820	6735	120.2081	354.4736
C1	1990	1900	1945	63.63961	54.86600
N02	12600	11200	11900	989.9494	258.6956
N03-	49900	48200	49050	1202.081	791.1290
P04-3	5940	5630	5785	219.2031	182.6842
S04-2	25300	27700	26500	1697.056	552.0833
Total anion conc.			101915		

TOC total charge equiv. 240.9861

TIC total charge equiv. 3180.5

Cr07-2 charge equiv. 272.2222

Total anion charge 5887.640

Cation/anion

Charge balance Ratio 1.312124

Riser 5

244

MHC-SD-MN-TI-540, REV. 1

R1779 metals

Riser 10BRiser108d

	Ave.	
zr	34.1	37.3
al	20100	15800
co	21.5	24.6
cu	7.08	7.54
ni	501	581
fe	2040	2130
ca	683	749
cr	3770	3960
p	2330	4290
s		0
mo		0
k	2310	2400
u	1620	1660
mn	107	121
na	263000	272000

Total metals concentration 302642.0

TOC, Sol 10740 10760 10750

TIC, Sol. 47400 49200 48300

TOC total 10611 10983 10797

TIC total 38222 38793 38507.5

Water TGA composit 200000

metals

anions

TOC*3

Water

TIC*5

Total

Mass balance

Riser 10

Al(OH)3 Cr-207-2 U02+2

337852.5

151910

32391

151000

192537.5

Mass balance w/TGA water

914691.0

<-total cation charge equiv.

Charge balance

64 60.23017

28

10

2828 11739.13

11799.36

14

1273

263

404

WHC-SD-WM-TI-540,REV.1

0 0 8 6 0 4 1 2 6 4

R1754 anions

Riser108 Riser108d		Ave.	Small sample std dev.		Charge balance
F	13100	11100	1414.213	636.8421	+d102/19
Cl	1100	1240	98.99494	33.00423	+d103/35.45
NO2	15100	16300	848.5281	341.3043	0104/46
NO3--	77600	71400	4384.062	1201.612	=D105/62
PO4-3	4420	3260	820.2438	121.2631	=3*d106/95
SO4-2	41900	47300	3818.376	929.1666	=2*d107/96
				299.9166	=d93/36
				6417.916	=(2*d104)/60
		151910		75.15277	

Total anion charge equiv. 10056.17 =@SUM(J102..J108)

Cation:anion
Charge balance ratio: 1.173344 =g82/I117
Riser 108

SAMPLE STATUS REPORT FOR R 1778. BY-104

RSA#443 TIME: 10/ 9/92 10:11

DISPATCHED: 6/24/92 14:17

SAMPLE HAS NOT BEEN SLURPED

RECEIVED: 7/15/92 13:33

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
8700	ACD DGST	1.10060E 01 G/L	N	Y	N233L
8755	ICP-SOL	5.95000E 01 ug/g rec Zr	N	Y	N233L
8755	ICP-SOL	4.61000E 01 ug/g rec Co	N	Y	N233L
8755	ICP-SOL	1.76000E 01 ug/g rec Cu	N	Y	N233L
8755	ICP-SOL	1.09000E 03 ug/g rec Ni	N	Y	N233L
8755	ICP-SOL	4.67000E 03 ug/g rec Fe	N	Y	N233L
8755	ICP-SOL	1.34000E 03 ug/g rec Ca	N	Y	N233L
8755	ICP-SOL	1.19000E 04 ug/g rec Cr	N	Y	N233L
8755	ICP-SOL	2.47000E 03 ug/g rec P	N	Y	N233L
8755	ICP-SOL	2.41000E 03 ug/g rec K	N	Y	N233L
8755	ICP-SOL	2.44000E 02 ug/g rec Mn	N	Y	N233L
8755	ICP-SOL	6.16000E 04 ug/g rec Al	N	Y	N233L
8755	ICP-SOL	1.41000E 05 ug/g rec Na	N	Y	N233L
8800	ACD DGST	1.19160E 01 G/L	N	Y	N233L
8855	ICP-SOL	8.39000E 01 ug/g rec Zr	N	Y	N233L
8855	ICP-SOL	6.25000E 01 ug/g rec Co	N	Y	N233L
8855	ICP-SOL	2.57000E 01 ug/g rec Cu	N	Y	N233L
8855	ICP-SOL	1.48000E 03 ug/g rec Ni	N	Y	N233L
8855	ICP-SOL	6.99000E 03 ug/g rec Fe	N	Y	N233L
8855	ICP-SOL	1.75000E 03 ug/g rec Ca	N	Y	N233L
8855	ICP-SOL	1.61000E 04 ug/g rec Cr	N	Y	N233L
8855	ICP-SOL	3.63000E 03 ug/g rec P	N	Y	N233L
8855	ICP-SOL	3.31000E 03 ug/g rec K	N	Y	N233L
8855	ICP-SOL	3.44000E 02 ug/g rec Mn	N	Y	N233L
8855	ICP-SOL	9.30999E 04 ug/g rec Al	N	Y	N233L
8855	ICP-SOL	2.11000E 05 ug/g rec Na	N	Y	N233L
8900	ACD-DGST	1.27820E 01 G/G	N	Y	N233L
8950	ICP	9.84000E 01 % RECOVERY Zr	N	Y	N233L
8950	ICP	9.31000E 01 % RECOVERY Co	N	Y	N233L
8950	ICP	9.78000E 01 % RECOVERY Cu	N	Y	N233L
8950	ICP	1.57200E 02 % RECOVERY Mn	N	Y	N233L
8950	ICP	SAMPLE > 4 X SPIKE CONC NI,FE,CA,P,K,AL,NA,CR			N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1779. BY-104 RSA#443 TIME: 10/ 9/92 10:12
 DISPATCHED: 6/24/92 14:20 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/15/92 13:33

WHC-SD-WM-TI-540.REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
8700	ACD DGST	1.04720E 01 G/L	N	Y	N233L
8755	ICP-SOL	3.41000E 01 ug/g rec Zr	N	Y	N233L
8755	ICP-SOL	5.01000E 02 ug/g rec Ni	N	Y	N233L
8755	ICP-SOL	2.15000E 01 ug/g rec Co	N	Y	N233L
8755	ICP-SOL	7.08000E 00 ug/g rec Cu	N	Y	N233L
8755	ICP-SOL	2.04000E 03 ug/g rec Fe	N	Y	N233L
8755	ICP-SOL	6.83000E 02 ug/g rec Ca	N	Y	N233L
8755	ICP-SOL	3.77000E 03 ug/g rec Cr	N	Y	N233L
8755	ICP-SOL	2.33000E 03 ug/g rec P	N	Y	N233L
8755	ICP-SOL	2.31000E 03 ug/g rec K	N	Y	N233L
8755	ICP-SOL	1.07000E 02 ug/g rec Mn	N	Y	N233L
8755	ICP-SOL	2.01000E 04 ug/g rec Al	N	Y	N233L
8755	ICP-SOL	2.68000E 05 ug/g rec Na	N	Y	N233L
8800	ACD DGST	1.17760E 01 G/L	N	Y	N233L
8855	ICP-SOL	3.73000E 01 ug/g rec Zr	N	Y	N233L
8855	ICP-SOL	1.58000E 04 ug/g rec Al	N	Y	N233L
8855	ICP-SOL	2.46000E 01 ug/g rec Co	N	Y	N233L
8855	ICP-SOL	7.54000E 00 ug/g rec Cu	N	Y	N233L
8855	ICP-SOL	5.81000E 02 ug/g rec Ni	N	Y	N233L
8855	ICP-SOL	2.13000E 03 ug/g rec Fe	N	Y	N233L
8855	ICP-SOL	7.49000E 02 ug/g rec Ca	N	Y	N233L
8855	ICP-SOL	3.96000E 03 ug/g rec Cr	N	Y	N233L
55	ICP-SOL	4.29000E 03 ug/g rec P	N	Y	N233L
8855	ICP-SOL	2.40000E 03 ug/g rec K	N	Y	N233L
8855	ICP-SOL	1.21000E 02 ug/g rec Mn	N	Y	N233L
8855	ICP-SOL	2.72000E 05 ug/g rec Na	N	Y	N233L

END OF REPORT

00860941348

34-3000-101 (8-59)

DON'T SAY IT --- Write It!

TO Mark Beck BY 104 FROM J. Lachut DATE 9/10/82

EDTA/ETHYLENEDIAMINE OUTSIDE Limits

<u>STD.</u>	<u>98.8</u>	<u>0.02 ppm</u>
<u>BLANK</u>	<u><0.02 ppm</u>	
<u>R-1734</u>	<u>43.08</u>	<u>74.1 ppm</u> } <u>14.0% RPD</u>
<u>R-1734 DUP</u>	<u>42.68</u>	<u>64.4 ppm</u> } <u>TOO LOW!!</u>
<u>R-1734 SPIKE</u>	<u>103.1</u>	<u>74.9 ppm</u> } <u>0.5% RPD</u>
<u>R-1735</u>	<u>90.6</u>	<u>75.3 ppm</u>
<u>R-1735 DUP</u>	<u>81.3</u>	

"TO MAKE LIFE LAST, PUT SAFETY FIRST"

SAMPLE STATUS REPORT FOR R 1754. BY-104 RSA#429 TIME: 8/26/92 11:16
DISPATCHED: 6/18/92 13:23 SAMPLE HAS NOT BEEN SLURPED
CEIVED: 7/1/92 14:3

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WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5715	pH	1.18500E 01	N	Y	N233L
5815	PH	1.18700E 01	N	Y	N233L
7700	H2O DGST	1.00480E 01 G/L	N	Y	N233L
7700	H2O DGST	1.00080E 01 G/L	N	Y	N233L
7700	H2O DGST	INCOMPLETE	N	Y	N233L
7726	TOC	OUT FOR RERUN			N233L
7726	TOC	1.07400E 04 ug/g rec	N	Y	N233L
7750	ICP-LIQ	1.75000E 00 UG/ML	N	Y	N233L
7750	ICP-LIQ	3.18000E 02 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.04000E 00 UG/ML	N	Y	N233L
7750	ICP-LIQ	9.45000E-01 UG/ML	N	Y	N233L
7750	ICP-LIQ	4.17000E 00 UG/ML	N	Y	N233L
7750	ICP-LIQ	5.77000E 00 UG/ML	N	Y	N233L
7750	ICP-LIQ	4.21000E 01 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.67000E 03 UG/ML	N	Y	N233L
7750	ICP-LIQ	3.19000E 03 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.05000E 04 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.13000E 01 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.37000E 03 UG/ML	N	Y	N233L
7750	ICP-LIQ	< 2.99000E-01 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.66000E 05 UG/ML	N	Y	N233L
7771	IC	1.42000E 04 ug/g rec	N	Y	N233L
7771	IC	1.36000E 03 ug/g rec	N	Y	N233L
7771	IC	1.42000E 04 ug/g rec	N	Y	N233L
7771	IC	7.75999E 04 ug/g rec	N	Y	N233L
7771	IC	8.55000E 03 ug/g rec	N	Y	N233L
7771	IC	5.99000E 04 ug/g rec	N	Y	N233L
7771	IC	1.31000E 04 ug/g rec	N	Y	N233L
7771	IC	1.10000E 03 ug/g rec	N	Y	N233L
7771	IC	1.51000E 04 ug/g rec	N	Y	N233L
7771	IC	2.76999E 04 ug/g rec	N	Y	N233L
7771	IC	4.42000E 03 ug/g rec	N	Y	N233L
7771	IC	4.19000E 04 ug/g rec	N	Y	N233L
7771	IC	INCOMPLETE	N	Y	N233L
7800	H2O DGST	1.00300E 01 G/L	N	Y	N233L
7800	H2O DGST	1.00100E 01 G/L	N	Y	N233L
7800	H2O DGST	INCOMPLETE			N233L
7826	TOC	OUT FOR RERUN			N233L
7826	TOC	1.07600E 04 ug/g rec	N	Y	N233L
7850	ICP-LIQ	1.34000E 00 UG/ML	N	Y	N233L
7850	ICP-LIQ	3.00000E 02 UG/ML	N	Y	N233L
7850	ICP-LIQ	< 9.97000E-01 UG/ML	N	Y	N233L
7850	ICP-LIQ	8.92000E-01 UG/ML	N	Y	N233L
7850	ICP-LIQ	2.39000E 00 UG/ML	N	Y	N233L
7850	ICP-LIQ	3.49000E 00 UG/ML	N	Y	N233L
7850	ICP-LIQ	4.83000E 01 UG/ML	N	Y	N233L
7850	ICP-LIQ	1.92000E 03 UG/ML	N	Y	N233L
7850	ICP-LIQ	1.78000E 03 UG/ML	N	Y	N233L
7850	ICP-LIQ	1.60000E 04 UG/ML	N	Y	N233L
7850	ICP-LIQ	1.61000E 01 UG/ML	N	Y	N233L
7850	ICP-LIQ	1.78000E 03 UG/ML	N	Y	N233L
7850	ICP-LIQ	< 2.99000E-01 UG/ML	N	Y	N233L

REPORT CONTINUED ON NEXT PAGE

$$11.86 = pH_{ave}$$

$$pOH = 14.0 - 11.86$$

$$pOH = 2.14$$

$$pOH = -\log[OH^-]$$

$$-pOH = \log[OH^-] = .007249M = .007249 \frac{mole}{L} \times \frac{17g}{1mole} \times \frac{10^6 \mu g}{1g} \times \frac{1L}{1000mL}$$

$$123 \mu g/mL = 123 ppm??$$

$$\frac{2073 \mu g}{mL} \times \frac{1L}{10.019 g} \times \frac{1000 mL}{L} = \frac{\mu g}{g}$$

map 11/14/94

WHC-SD-WM-TI-540, REV. 1

SAMPLE STATUS REPORT FOR R 1754. BY-104 RSA#429 TIME: 8/26/92 11:16
DISPATCHED: 6/18/92 13:23 SAMPLE HAS NOT BEEN SLURPED

WHC-SD-WM-TI-540, REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
7850	ICP-LIQ	2.79000E 05 UG/ML Na	N	Y	N233L
7871	IC	1.06000E 04 ug/g rec F-	N	Y	N233L
7871	IC	9.64000E 02 ug/g rec CL-	N	Y	N233L
7871	IC	1.18000E 04 ug/g rec NO2-	N	Y	N233L
7871	IC	2.65000E 00 ug/g rec NO3-	N	Y	N233L
7871	IC	4.88000E 03 ug/g rec PO4-	N	Y	N233L
7871	IC	4.50000E 04 ug/g rec SO4-	N	Y	N233L
7871	IC	1.11000E 04 ug/g rec F-	N	Y	N233L
7871	IC	1.24000E 03 ug/g rec CL-	N	Y	N233L
7871	IC	1.63000E 04 ug/g rec NO2-	N	Y	N233L
7871	IC	7.13999E 04 ug/g rec NO3-	N	Y	N233L
7871	IC	3.26000E 03 ug/g rec PO4-	N	Y	N233L
7871	IC	4.73000E 04 ug/g rec SO4-	N	Y	N233L
7871	IC	INCOMPLETE			N233L

END OF REPORT

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ma 11/18/94
4/11/95

2502

00860941351

SAMPLE STATUS REPORT FOR R 1753. BY-104 RSA#429 TIME: 9/ 2/92 13:49
DISPATCHED: 6/18/92 13:22 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/ 1/92 14: 3

WHC-SD-WM-TI-540;REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5715	pH	1.31600E 01	N	Y	N233L
5815	PH	1.31500E 01	N	Y	N233L
7700	H2O DGST	1.00040E 01 G/L	N	Y	N233L
7726	TOC	OUT FOR RERUN			N233L
7726	TOC	5.89000E 03 ug/g rec	N	Y	N233L
7750	ICP-LIQ	9.90000E-01 UG/ML Zr	N	Y	N233L
7750	ICP-LIQ	1.84000E 03 UG/ML Al	N	Y	N233L
7750	ICP-LIQ	4.96000E 00 UG/ML Co	N	Y	N233L
7750	ICP-LIQ	5.72000E-01 UG/ML Cu	N	Y	N233L
7750	ICP-LIQ	2.25000E 00 UG/ML Ni	N	Y	N233L
7750	ICP-LIQ	6.23000E 00 UG/ML Fe	N	Y	N233L
7750	ICP-LIQ	< 2.72000E 01 UG/ML Ca	N	Y	N233L
7750	ICP-LIQ	1.18000E 04 UG/ML Cr	N	Y	N233L
7750	ICP-LIQ	2.33000E 03 UG/ML P	N	Y	N233L
7750	ICP-LIQ	8.81000E 03 UG/ML S	N	Y	N233L
7750	ICP-LIQ	1.51000E 00 UG/ML Mg	N	Y	N233L
7750	ICP-LIQ	2.71000E 01 UG/ML Mo	N	Y	N233L
7750	ICP-LIQ	2.93000E 03 UG/ML K	N	Y	N233L
7750	ICP-LIQ	1.51000E 05 UG/ML Na	N	Y	N233L
7750	ICP-LIQ	< 3.00000E-01 UG/ML Mn	N	Y	N233L
7750	ICP-LIQ	FLAG: Cu,Mg Samp/Dup > 20 % Difference			N233L
7750	ICP-LIQ	NOTE: Cu, Mg close to detection limits			N233L
7771	IC	6.65000E 03 ug/g rec F-	N	Y	N233L
7771	IC	1.99000E 03 ug/g rec CL-	N	Y	N233L
7771	IC	1.26000E 04 ug/g rec NO2-	N	Y	N233L
7771	IC	4.99000E 04 ug/g rec NO3-	N	Y	N233L
7771	IC	5.94000E 03 ug/g rec PO4-	N	Y	N233L
7771	IC	2.53000E 04 ug/g rec SO4-	N	Y	N233L
7800	H2O DGST	1.00140E 01 G/L	N	Y	N233L
7826	TOC	OUT FOR RERUN			N233L
7826	TOC	6.15000E 03 ug/g rec	N	Y	N233L
7850	ICP-LIQ	< 7.99000E-01 UG/ML Zr	N	Y	N233L
7850	ICP-LIQ	1.93000E 03 UG/ML Al	N	Y	N233L
7850	ICP-LIQ	3.98000E 00 UG/ML Co	N	Y	N233L
7850	ICP-LIQ	< 3.99000E-01 UG/ML Cu	N	Y	N233L
7850	ICP-LIQ	1.95000E 00 UG/ML Ni	N	Y	N233L
7850	ICP-LIQ	6.28000E 00 UG/ML Fe	N	Y	N233L
7850	ICP-LIQ	< 2.72000E 01 UG/ML Ca	N	Y	N233L
7850	ICP-LIQ	1.20000E 04 UG/ML Cr	N	Y	N233L
7850	ICP-LIQ	2.21000E 03 UG/ML P	N	Y	N233L
7850	ICP-LIQ	9.52000E 03 UG/ML S	N	Y	N233L
7850	ICP-LIQ	9.03000E-01 UG/ML Mg	N	Y	N233L
7850	ICP-LIQ	1.52000E 05 UG/ML Na	N	Y	N233L
7850	ICP-LIQ	2.51000E 01 UG/ML Mo	N	Y	N233L
7850	ICP-LIQ	3.00000E 03 UG/ML K	N	Y	N233L
7850	ICP-LIQ	< 3.00000E-01 UG/ML Mn	N	Y	N233L
7871	IC	6.82000E 03 ug/g rec F-	N	Y	N233L
7871	IC	1.90000E 03 ug/g rec CL-	N	Y	N233L
7871	IC	1.12000E 04 ug/g rec NO2-	N	Y	N233L
7871	IC	4.82000E 04 ug/g rec NO3-	N	Y	N233L
7871	IC	5.63000E 03 ug/g rec PO4-	N	Y	N233L
7871	IC	2.77000E 04 ug/g rec SO4-	N	Y	N233L

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REPORT CONTINUED ON NEXT PAGE

SAMPLE STATUS REPORT FOR R 1753. BY-104 RSA#429 TIME: 9/ 2/92 13:49
 DISPATCHED: 6/18/92 13:22 SAMPLE HAS NOT BEEN SLURPED

WHC-SD-WM-TI-540,REV.1

EX	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
7926	TOC	9.72000E 01 % RECOVERY	N	Y	N233L
7971	IC	1.07000E 02 % RECOVERY F-	N	Y	N233L
7971	IC	1.16000E 02 % RECOVERY CL-	N	Y	N233L
7971	IC	9.70000E 01 % RECOVERY N02-	N	Y	N233L
7971	IC	1.07000E 02 % RECOVERY N03-	N	Y	N233L
7971	IC	1.02000E 02 % RECOVERY P04-	N	Y	N233L
7971	IC	1.05000E 02 % RECOVERY S04-	N	Y	N233L

END OF REPORT

0 3 8 6 0 4 1 3 5 4

EXT.	DETER.	RESULTS OR STATUS		OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****		***	***	*****
5715	pH	1.18500E 01		N	Y	N233L
5815	PH	1.18700E 01		N	Y	N233L
7700	H2O DGST	1.00480E 01 G/L		N	Y	N233L
7700	H2O DGST	1.00080E 01 G/L		N	Y	N233L
7726	TOC	OUT FOR RERUN				N233L
7726	TOC	1.07400E 04 ug/g rec		N	Y	N233L
7750	ICP-LIQ	1.75000E 00 UG/ML	Zr	N	Y	N233L
7750	ICP-LIQ	3.18000E 02 UG/ML	Al	N	Y	N233L
7750	ICP-LIQ	2.04000E 00 UG/ML	Co	N	Y	N233L
7750	ICP-LIQ	9.45000E-01 UG/ML	Cu	N	Y	N233L
7750	ICP-LIQ	4.17000E 00 UG/ML	Ni	N	Y	N233L
7750	ICP-LIQ	5.77000E 00 UG/ML	Fe	N	Y	N233L
7750	ICP-LIQ	4.21000E 01 UG/ML	Ca	N	Y	N233L
7750	ICP-LIQ	2.67000E 03 UG/ML	Cr	N	Y	N233L
7750	ICP-LIQ	3.19000E 03 UG/ML	P	N	Y	N233L
7750	ICP-LIQ	2.05000E 04 UG/ML	S	N	Y	N233L
7750	ICP-LIQ	2.13000E 01 UG/ML	Mo	N	Y	N233L
7750	ICP-LIQ	2.37000E 03 UG/ML	K	N	Y	N233L
7750	ICP-LIQ	< 2.99000E-01 UG/ML	Mn	N	Y	N233L
7750	ICP-LIQ	2.66000E 05 UG/ML	Na	N	Y	N233L
7771	IC	1.42000E 04 ug/g rec	F-	N	Y	N233L
7771	IC	1.36000E 03 ug/g rec	CL-	N	Y	N233L
7771	IC	1.42000E 04 ug/g rec	N02-	N	Y	N233L
7771	IC	7.75999E 04 ug/g rec	N03-	N	Y	N233L
7771	IC	8.55000E 03 ug/g rec	P04-	N	Y	N233L
7771	IC	5.99000E 04 ug/g rec	S04-	N	Y	N233L
7771	IC	1.31000E 04 ug/g rec	F-	N	Y	N233L
7771	IC	1.10000E 03 ug/g rec	CL-	N	Y	N233L
7771	IC	1.51000E 04 ug/g rec	N02-	N	Y	N233L
7771	IC	7.76999E 04 ug/g rec	N03-	N	Y	N233L
7771	IC	4.42000E 03 ug/g rec	P04-	N	Y	N233L
7771	IC	4.19000E 04 ug/g rec	S04-	N	Y	N233L
7800	H2O DGST	1.00300E 01 G/L		N	Y	N233L
7800	H2O DGST	1.00100E 01 G/L		N	Y	N233L
7826	TOC	OUT FOR RERUN				N233L
7826	TOC	1.07600E 04 ug/g rec		N	Y	N233L
7850	ICP-LIQ	1.34000E 00 UG/ML	Zr	N	Y	N233L
7850	ICP-LIQ	3.00000E 02 UG/ML	Al	N	Y	N233L
7850	ICP-LIQ	< 9.97000E-01 UG/ML	Co	N	Y	N233L
7850	ICP-LIQ	8.92000E-01 UG/ML	Cu	N	Y	N233L
7850	ICP-LIQ	2.39000E 00 UG/ML	Ni	N	Y	N233L
7850	ICP-LIQ	3.49000E 00 UG/ML	Fe	N	Y	N233L
7850	ICP-LIQ	4.83000E 01 UG/ML	Ca	N	Y	N233L
7850	ICP-LIQ	1.92000E 03 UG/ML	Cr	N	Y	N233L
7850	ICP-LIQ	1.78000E 03 UG/ML	P	N	Y	N233L
7850	ICP-LIQ	1.60000E 04 UG/ML	S	N	Y	N233L
7850	ICP-LIQ	1.61000E 01 UG/ML	Mo	N	Y	N233L
7850	ICP-LIQ	1.78000E 03 UG/ML	K	N	Y	N233L
7850	ICP-LIQ	< 2.99000E-01 UG/ML	Mn	N	Y	N233L
7850	ICP-LIQ	2.79000E 05 UG/ML	Na	N	Y	N233L
7871	IC	1.06000E 04 ug/g rec	F-	N	Y	N233L
7871	IC	9.64000E 02 ug/g rec	CL-	N	Y	N233L

WHC-SD-WM-TI-540,REV.1:

EXT	DETER.	RESULTS OR STATUS			OUT OF RANGE?	GOOD ANS?	CHARGE CODE
***	*****	*****			***	***	*****
7871	IC	1.18000E	04	ug/g rec	N02-	N	Y N233L
7871	IC	2.65000E	00	ug/g rec	N03-	N	Y N233L
7871	IC	4.88000E	03	ug/g rec	P04-	N	Y N233L
7871	IC	4.50000E	04	ug/g rec	S04-	N	Y N233L
7871	IC	1.11000E	04	ug/g rec	F-	N	Y N233L
7871	IC	1.24000E	03	ug/g rec	CL-	N	Y N233L
7871	IC	1.63000E	04	ug/g rec	N02-	N	Y N233L
7871	IC	7.13999E	04	ug/g rec	N03-	N	Y N233L
7871	IC	3.26000E	03	ug/g rec	P04-	N	Y N233L
7871	IC	4.73000E	04	ug/g rec	S04-	N	Y N233L

END OF REPORT

0386041356

1076

WHC-SD-WM-TI-540, REV. 11

$$\frac{11.9}{\text{mol}} \cdot \frac{1 \text{ mol}}{1001 \text{ g}} \cdot \frac{K}{10.0489 \text{ g solid (wet)}} = 11.9 \text{ g solid wet}$$

SAMPLE STATUS REPORT FOR R 1754. BY-104
DISPATCHED: 6/18/92 13:23
RECEIVED: 7/ 1/92 14: 3

RSA#429 TIME: 8/26/92 11:15
SAMPLE HAS NOT BEEN SLURPED

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5715	pH	1.18500E 01	N	Y	N233L
5815	PH	1.18700E 01	N	Y	N233L
7700	H2O DGST	1.00480E 01 G/L	N	Y	N233L
7700	H2O DGST	1.00080E 01 G/L	N	Y	N233L
7700	H2O DGST	INCOMPLETE			N233L
7726	TOC	OUT FOR RERUN			N233L
7726	TOC	1.07400E 04 ug/g rec	N	Y	N233L
7750	ICP-LIQ	1.75000E 00 UG/ML	N	Y	N233L
7750	ICP-LIQ	3.18000E 02 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.04000E 00 UG/ML	N	Y	N233L
7750	ICP-LIQ	9.45000E-01 UG/ML	N	Y	N233L
7750	ICP-LIQ	4.17000E 00 UG/ML	N	Y	N233L
7750	ICP-LIQ	5.77000E 00 UG/ML	N	Y	N233L
7750	ICP-LIQ	4.21000E 01 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.67000E 03 UG/ML	N	Y	N233L
7750	ICP-LIQ	3.19000E 03 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.05000E 04 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.13000E 01 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.37000E 03 UG/ML	N	Y	N233L
7750	ICP-LIQ	< 2.99000E-01 UG/ML	N	Y	N233L
7750	ICP-LIQ	2.66000E 05 UG/ML	N	Y	N233L
7771	IC	1.42000E 04 ug/g rec	N	Y	N233L
7771	IC	1.36000E 03 ug/g rec	N	Y	N233L
7771	IC	1.42000E 04 ug/g rec	N	Y	N233L
7771	IC	7.75999E 04 ug/g rec	N	Y	N233L
7771	IC	8.55000E 03 ug/g rec	N	Y	N233L
7771	IC	5.99000E 04 ug/g rec	N	Y	N233L
7771	IC	1.31000E 04 ug/g rec	N	Y	N233L
7771	IC	1.10000E 03 ug/g rec	N	Y	N233L
7771	IC	1.51000E 04 ug/g rec	N	Y	N233L
7771	IC	7.76999E 04 ug/g rec	N	Y	N233L
7771	IC	4.42000E 03 ug/g rec	N	Y	N233L
7771	IC	4.19000E 04 ug/g rec	N	Y	N233L
7771	IC	INCOMPLETE			N233L
7800	H2O DGST	1.00300E 01 G/L	N	Y	N233L
7800	H2O DGST	1.00100E 01 G/L	N	Y	N233L
7800	H2O DGST	INCOMPLETE			N233L
7826	TOC	OUT FOR RERUN			N233L
7826	TOC	1.07600E 04 ug/g rec	N	Y	N233L
7850	ICP-LIQ	1.34000E 00 UG/ML	N	Y	N233L
7850	ICP-LIQ	3.00000E 02 UG/ML	N	Y	N233L
7850	ICP-LIQ	< 9.97000E-01 UG/ML	N	Y	N233L
7850	ICP-LIQ	8.92000E-01 UG/ML	N	Y	N233L
7850	ICP-LIQ	2.39000E 00 UG/ML	N	Y	N233L
7850	ICP-LIQ	3.49000E 00 UG/ML	N	Y	N233L
7850	ICP-LIQ	4.83000E 01 UG/ML	N	Y	N233L
7850	ICP-LIQ	1.92000E 03 UG/ML	N	Y	N233L
7850	ICP-LIQ	1.78000E 03 UG/ML	N	Y	N233L
7850	ICP-LIQ	1.60000E 04 UG/ML	N	Y	N233L
7850	ICP-LIQ	1.61000E 01 UG/ML	N	Y	N233L
7850	ICP-LIQ	1.78000E 03 UG/ML	N	Y	N233L
50	ICP-LIQ	< 2.99000E-01 UG/ML	N	Y	N233L

REPORT CONTINUED ON NEXT PAGE

09360941358

END OF REPORT

2011000 : Feck VHC 11

WHC-SD-WM-TI-540, REV. 1

BY104 *water* digest metals and anions

by104 acid digest

R1778

	Riser 5	Riser 5	Ave	sample std dev
Zr	59.5	83.9	71.7	17
Al	61600	93090	77345	22267
Co	46.1	62.5	54.3	12
Cu	17.6	25.7	21.65	6
Ni	1090	1480	1285	276
Fe	4670	6990	5830	1640
Ca	1340	1750	1545	290
Cr	11900	16100	14000	2970
P	2470	3630	3050	820
S			0	0
Mo			0	0
K	2410	3310	2860	636
Mn	244	344	294	71
Na	141000	211000	176000	49497
			282356.7	

R1779 metals

	Riser 10B	Riser 10Bd	Ave.	Small sample std d
Zr	34.1	37.3	35.7	2
Al	20100	15800	17950	3041
Co	21.5	24.6	23.05	2
Cu	7.08	7.54	7.31	0
Ni	501	581	541	57
Fe	2040	2130	2085	64
Ca	683	749	716	47
Cr	3770	3960	3865	134
P	2330	4290	3310	1386
S			0	0
Mo			0	0
K	2310	2400	2355	64
Mn	107	121	114	10
Na	268000	272000	270000	2828

301002.1

The above are all acid digest samples.

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SAMPLE STATUS REPORT FOR R 1737. BY-104 RSA#425 TIME: 7/15/92 10:35
DISPATCHED: 6/18/92 8:38 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/14/92 13:29
WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
*****	*****	*****	***	***	*****
5710	% H2O	1.48900E 01 % H2O	N	Y	N233L
5810	% H2O	1.53200E 01 % H2O	N	Y	N233L

END OF REPORT

00360941360

SAMPLE STATUS REPORT FOR R 1738. BY-104 RSA#425 TIME: 7/15/92 10:35
 DISPATCHED: 6/18/92 8:39 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/14/92 13:30 WHC-SQ-WM-TI-540,REV.1

EX DETER. RESULTS OR STATUS

 5710 % H2O 1.69500E 01 % H2O
 5810 % H2O 1.71800E 01 % H2O

OUT OF RANGE?	GOOD ANS?	CHARGE CODE
***	***	*****
N	Y	N233L
N	Y	N233L

END OF REPORT

00860741361

SAMPLE STATUS REPORT FOR R 1753. BY-104 RSA#429 TIME: 7/15/92 10:35
DISPATCHED: 6/18/92 13:22 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/ 1/92 14: 3 WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5715	pH	1.31600E 01	N	Y	N233L
5815	PH	1.31500E 01	N	Y	N233L
7700	H2O DGST	1.00040E 01 G/L	N	Y	N233L
7726	TOC	INCOMPLETE			N233L
7771	IC	INCOMPLETE			N233L
7800	H2O DGST	1.00140E 01 G/L	N	Y	N233L
7826	TOC	INCOMPLETE			N233L
7871	IC	INCOMPLETE			N233L

END OF REPORT

00960941362

SAMPLE STATUS REPORT FOR R 1754. BY-104 RSA#429 TIME: 7/15/92 10:35
 DISPATCHED: 6/18/92 13:23 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/ 1/92. 14: 3

WHC-SD-WM-TI-540,REV.1

EX.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5715	pH	1.18500E 01	N	Y	N233L
5815	PH	1.18700E 01	N	Y	N233L
7700	H2O DGST.	1.00480E 01 G/L	N	Y	N233L
7726	TOC	INCOMPLETE			N233L
7771	IC	INCOMPLETE			N233L
7800	H2O DGST.	1.00300E 01 G/L	N	Y	N233L
7826	TOC	INCOMPLETE			N233L
7871	IC	INCOMPLETE			N233L

END OF REPORT

0036041363

Start of Search/Match: 01-JUL-92 13:17:14 Peaks File: Z01069

WHC-SD-WM-TI-540,REV.1

R-1750 BY-104

UpVp ERROR(DEG): 0.300 3 STRONGEST LINES DATA BASE: 1 NUMBER OF OBSERVED LINES= 34

1639 PHASE(S) MATCHED NREQ= 0 HELEM= 0

FAST SEARCH OP CUT OFF IS 320.

DMAX= 29.427 DMIN= 1.343

JCPDS #	PHASE	OP	IC/I00	PDF/MATCH	XPATTERN
36,1146	GA4 HI	5.92	0.1	4/ 4	11
35,206	U O2 (H2 P 04)2 . H2 O	8.54	0.1	5/ 5	14
28,312	CS LI CR 04	11.20	0.1	11/ 10	29
36,903	(S H BR .33)x	13.96	0.1	5/ 4	11
19,268	C / LOHSDALEITE-2H, SY	15.05	0.1	4/ 3	8
29,1450	HA2 HB F7	15.46	0.1	23/ 16	47
37,1218	CA I2 . 6 .5 H2 O	15.60	0.1	7/ 6	17
22,889	HA B H13	15.99	0.1	4/ 4	11
12,105	CR2 TI2 07	16.15	0.1	10/ 9	26
15,721	ZR FE SI	16.50	0.1	11/ 8	23
16,464	EU C2	16.90	0.1	7/ 6	17
37,1321	RB .3 U2 05	17.74	0.1	17/ 14	41
15,726	ZR CO SI	18.25	0.1	11/ 9	26
29,41	AL (O H)3 / GIBBSITE	18.76	1.0	39/ 24	71
38,455	CA1 .5 (TI ZR HB)5 012 . 9 H2 O / BELYANKINITE	19.61	0.1	7/ 4	11
35,925	LI2 H2 O3	20.28	0.1	6/ 5	14
28,954	RB5 TB3 F17	20.49	0.1	20/ 14	41
19,157	BE (P 03)2	20.71	0.4	21/ 15	43
30,390	CS U6 015	20.84	0.1	8/ 7	20
26,955	AG3 P3 09 . H2 O	21.10	0.1	23/ 16	47
37,1140	TI3 AL H	21.21	0.1	5/ 3	8
21,89	BA TE 03	21.23	0.1	9/ 7	20
17,676	(AU MN)	22.10	0.1	4/ 3	8
3,1215	AL LI	22.82	0.1	5/ 4	11
34,991	FE23 B6	23.32	0.1	5/ 4	11
15,287	LI23 SR6	23.75	0.2	14/ 10	29
22,952	SH2 S3	23.92	0.1	7/ 5	14
30,1377	SH2 S3	23.92	0.1	7/ 5	14
19,597	IR SI	24.91	0.1	6/ 3	8
28,521	PB4 B10 019 . 2 .5 H2 O	25.41	0.1	10/ 7	20
31,751	LI HA S 04	25.87	0.1	3/ 3	8
21,1352	HA2 GE4 09	25.89	0.0	39/ 24	71
30,813	MH2 F5	25.89	0.1	6/ 5	14
21,910	FE AS 04	25.93	0.1	32/ 21	62
21,421	FE3 AS 07	27.64	0.1	45/ 28	83
36,609	SH (O H) P 04	27.81	0.1	15/ 11	32
3,1031	U- H	28.30	0.1	3/ 3	8
24,758	HG2 U2 07	28.92	0.1	10/ 7	20
17,353	ER2 YB S4	29.18	0.1	23/ 15	43
20,701	MN SB2 04	29.33	0.1	14/ 10	29
18,622	IH (O H) S 04	29.40	0.1	15/ 11	32
23,831	BA RE2 08 . 4 H2 O	29.56	0.1	15/ 11	32
4,781	AU5 HG	29.74	0.1	3/ 3	8
24,35	(AL SI)	29.86	0.2	4/ 3	8
30,1082	RB3 SH F6	30.41	0.1	11/ 8	23
34,1425	RB5 G03 (S 04)5	30.66	0.1	18/ 11	32
16,192	HI (CL 03)2 . 2 H2 O	31.04	0.1	20/ 14	41
11,222	(OS (H H3)5 BR) BR2 . H2 O	31.64	0.1	6/ 5	14
21,1102	SB2 FD FG	32.70	0.1	7/ 6	17

263

0 0 8 6 0 9 4 1 3 7 2

End of Search/Match: 01-JUL-92 13:23:16 Total Time: 6 min 2 sec

WHC-SD-WM-TI-540,REV.1

0000041373

D/MAX-B

PEAK FINDING PROGRAM

V1.1

DATA FILE: C:\DATA\Z01069.RAW

WHC-SD-WM-TI-540,REV.1

COLLECTED ON 01-JUL-92 AT 12:05:24

SAMPLE IDENTIFICATION:

R-1750 BY-104

DATE OF PEAK SEARCH:

7- 1-92 AT 14: 1:29

START 2THETA: 3.000

STOP 2THETA: 70.000

STEP SIZE: 0.020

SCAN SPEED: 1.000

KV: 50, MA: 150

PEAK FINDING PARAMETERS

THRESHOLD VALUES : 5.0, 10.0
 RELATIVE CUTOFF INTENSITY : 0.0
 TYPICAL FULL WIDTH-HALF MAXIMUM : 0.20
 MINIMUM FULL WIDTH-HALF MAXIMUM : 0.02
 REFINEMENT ITERATION LIMIT : 50
 PERCENT CONVERGENCE : 75.00
 ALPHA 2 REMOVAL USING CODE : 1

BACKGROUND-SUBTRACTED DATA WILL BE IN FILE C:\DATA\Z01069.BSD

PEAKS DATA WILL BE IN THE NEW FILE C:\DATA\Z01069.PKS

THRESHOLD DATA WILL BE IN FILE C:\DATA\Z01069.THD

PEAK	2-THETA	D-SPACE	I(REL)	I(CPS)	FWHM
1	14.134	6.2611	5.65	327.2	0.109
2	15.449	5.7311	8.88	514.4	1.098
3	16.659	5.3173	7.00	405.6	0.348
4	18.301	4.8438	100.00	5790.6	0.141
5	18.417	4.8135	8.33	482.5	0.428
6	20.217	4.3888	41.16	2383.5	0.175
7	20.374	4.3555	20.63	1194.7	0.192
8	20.942	4.2385	6.20	359.2	0.592
9	21.874	4.0600	5.64	326.4	0.306
10	24.117	3.6872	5.12	296.4	0.051
11	26.019	3.4219	5.09	295.0	0.521
12	26.397	3.3737	6.78	392.5	0.584
13	26.701	3.3360	11.09	642.3	0.196
14	26.697	3.3365	9.99	578.2	0.326
15	27.461	3.2454	6.57	380.3	0.435
16	27.823	3.2040	10.07	583.4	0.561
17	28.944	3.0823	12.15	703.5	1.175
18	31.481	2.8395	8.34	482.8	0.169
19	33.226	2.6942	4.17	241.4	0.137
20	34.433	2.6025	14.55	842.7	0.063
21	36.256	2.4757	6.05	350.3	0.140
22	36.582	2.4544	8.69	503.0	0.210
23	37.070	2.4232	5.03	291.2	0.123
24	37.692	2.3846	10.62	614.9	0.148
25	38.377	2.3437	5.30	306.7	0.173
26	40.105	2.2465	5.42	314.1	0.037
27	41.444	2.1770	5.10	295.5	0.401
28	44.213	2.0469	7.94	459.5	0.105

29	45.355	1.3381	0.47	214.8	0.075
30	47.043	1.9301	4.02	232.9	0.160
31	50.363	1.8104	5.82	337.2	0.175
32	52.122	1.7534	5.02	290.8	0.244
33	54.269	1.6890	5.15	298.0	0.320
34	63.525	1.4633	6.34	367.1	0.214

34 PEAKS WERE FOUND AND WRITTEN TO THE PEAKS FILE

WHC-SD-WM-TI-540.REV.1

00350941375

SAMPLE STATUS REPORT FOR R 1778. BY-104

RSA#443 TIME: 8/28/92 15:10

DISPATCHED: 6/24/92 14:17

SAMPLE HAS NOT BEEN SLURPED

RECEIVED: 7/15/92 13:33

WHC-SD-WM-TI-540,REV.1

EA	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
*****	*****	*****	***	***	*****
8700	ACD DGST	1.10060E 01 G/L	N	Y	N233L
8755	ICP-SOL	5.95000E 01 ug/g rec Zr	N	Y	N233L
8755	ICP-SOL	4.61000E 01 ug/g rec Co	N	Y	N233L
8755	ICP-SOL	1.76000E 01 ug/g rec Cu	N	Y	N233L
8755	ICP-SOL	1.09000E 03 ug/g rec Ni	N	Y	N233L
8755	ICP-SOL	4.67000E 03 ug/g rec Fe	N	Y	N233L
8755	ICP-SOL	1.34000E 03 ug/g rec Ca	N	Y	N233L
8755	ICP-SOL	1.19000E 04 ug/g rec Cr	N	Y	N233L
8755	ICP-SOL	2.47000E 03 ug/g rec P	N	Y	N233L
8755	ICP-SOL	2.41000E 03 ug/g rec K	N	Y	N233L
8755	ICP-SOL	2.44000E 02 ug/g rec Mn	N	Y	N233L
8755	ICP-SOL	6.16000E 04 ug/g rec Al	N	Y	N233L
8755	ICP-SOL	1.41000E 05 ug/g rec Na	N	Y	N233L
8800	ACD DGST	1.19160E 01 G/L	N	Y	N233L
8855	ICP-SOL	8.39000E 01 ug/g rec Zr	N	Y	N233L
8855	ICP-SOL	6.25000E 01 ug/g rec Co	N	Y	N233L
8855	ICP-SOL	2.57000E 01 ug/g rec Cu	N	Y	N233L
8855	ICP-SOL	1.48000E 03 ug/g rec Ni	N	Y	N233L
8855	ICP-SOL	6.99000E 03 ug/g rec Fe	N	Y	N233L
8855	ICP-SOL	1.75000E 03 ug/g rec Ca	N	Y	N233L
8855	ICP-SOL	1.61000E 04 ug/g rec Cr	N	Y	N233L
8855	ICP-SOL	3.63000E 03 ug/g rec P	N	Y	N233L
8855	ICP-SOL	3.31000E 03 ug/g rec K	N	Y	N233L
8855	ICP-SOL	3.44000E 02 ug/g rec Mn	N	Y	N233L
8855	ICP-SOL	9.30999E 04 ug/g rec Al	N	Y	N233L
8855	ICP-SOL	2.11000E 05 ug/g rec Na	N	Y	N233L
8900	ACD-DGST	1.27820E 01 G/G	N	Y	N233L
8950	ICP	9.84000E 01 % RECOVERY Zr	N	Y	N233L
8950	ICP	9.31000E 01 % RECOVERY Co	N	Y	N233L
8950	ICP	9.78000E 01 % RECOVERY Cu	N	Y	N233L
8950	ICP	1.57200E 02 % RECOVERY Mn	N	Y	N233L
8950	ICP	SAMPLE > 4 X SPIKE CONC NI,FE,CA,P,K,AL,NA,CR			N233L

O

END OF REPORT

SAMPLE STATUS REPORT FOR R 1779. BY-104 RSA#443 TIME: 8/28/92 15:10
DISPATCHED: 6/24/92 14:20 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/15/92 13:33 WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF GOOD CHARGE		
			RANGE?	ANS?	CODE
****	*****	*****	***	***	*****
8700	ACD DGST	1.04720E 01 G/L	N	Y	N233L
8755	ICP-SOL	3.41000E 01 ug/g rec Zr	N	Y	N233L
8755	ICP-SOL	5.01000E 02 ug/g rec Ni	N	Y	N233L
8755	ICP-SOL	2.15000E 01 ug/g rec Co	N	Y	N233L
8755	ICP-SOL	7.08000E 00 ug/g rec Cu	N	Y	N233L
8755	ICP-SOL	2.04000E 03 ug/g rec Fe	N	Y	N233L
8755	ICP-SOL	6.83000E 02 ug/g rec Ca	N	Y	N233L
8755	ICP-SOL	3.77000E 03 ug/g rec Cr	N	Y	N233L
8755	ICP-SOL	2.33000E 03 ug/g rec P	N	Y	N233L
8755	ICP-SOL	2.31000E 03 ug/g rec K	N	Y	N233L
8755	ICP-SOL	1.07000E 02 ug/g rec Mn	N	Y	N233L
8755	ICP-SOL	2.01000E 04 ug/g rec Al	N	Y	N233L
8755	ICP-SOL	2.68000E 05 ug/g rec Na	N	Y	N233L
8800	ACD DGST	1.17760E 01 G/L	N	Y	N233L
8855	ICP-SOL	3.73000E 01 ug/g rec Zr	N	Y	N233L
8855	ICP-SOL	1.58000E 04 ug/g rec Al	N	Y	N233L
8855	ICP-SOL	2.46000E 01 ug/g rec Co	N	Y	N233L
8855	ICP-SOL	7.54000E 00 ug/g rec Cu	N	Y	N233L
8855	ICP-SOL	5.81000E 02 ug/g rec Ni	N	Y	N233L
8855	ICP-SOL	2.13000E 03 ug/g rec Fe	N	Y	N233L
8855	ICP-SOL	7.49000E 02 ug/g rec Ca	N	Y	N233L
8855	ICP-SOL	3.96000E 03 ug/g rec Cr	N	Y	N233L
8855	ICP-SOL	4.29000E 03 ug/g rec P	N	Y	N233L
8855	ICP-SOL	2.40000E 03 ug/g rec K	N	Y	N233L
8855	ICP-SOL	1.21000E 02 ug/g rec Mn	N	Y	N233L
8855	ICP-SOL	2.72000E 05 ug/g rec Na	N	Y	N233L

END OF REPORT

SAMPLE STATUS REPORT FOR R 1734. BY-104 RSA#424 TIME: 8/28/92 15:10
 DISPATCHED: 6/18/92 8:17 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/21/92 8:28

WHC-SD-WM-TI-540,REV.1

E	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5778	CN	OUT FOR RERUN			N233L
5778	CN	4.30800E 01 PPM	N	Y	N233L
5878	CN	OUT FOR RERUN			N233L
5878	CN	4.26800E 01 PPM	N	Y	N233L
5978	CN	OUT FOR RERUN			N233L
5978	CN	1.03100E 02 % RECOVERY	N	Y	N233L

END OF REPORT

103.190

BEST AVAILABLE COPY

0033041381

SAMPLE STATUS REPORT FOR R 1735. BY-104 RSA#424 TIME: 8/28/92 15:10
DISPATCHED: 6/18/92 8:18 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/21/92 8:28 WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5778	CN	OUT FOR RERUN			N233L
5778	CN	9.06400E 01 PPM	N	Y	N233L
5878	CN	OUT FOR RERUN			N233L
5878	CN	8.12800E 01 PPM	N	Y	N233L
5978	CN	OUT FOR RERUN			N233L
5978	CN	7.73100E 01 % RECOVERY	N	Y	N233L

END OF REPORT

00860741382

SAMPLE STATUS REPORT FOR R 1740. BY-104 RSA#426 TIME: 8/28/92 15:10
DISPATCHED: 6/18/92 8:49 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/ 5/92 14:33

WHC-SD-WM-TI-540,REV.1

E:	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5711	DSC	1.00700E 02 EXOTHERMS	N	Y	N233L
5712	TGA	2.09900E 01 % H2O	N	Y	N233L
5811	DSC	1.13400E 02 EXOTHERMS	N	Y	N233L
5812	TGA	1.98000E 01 % H2O	N	Y	N233L

END OF REPORT

0005041383

SAMPLE STATUS REPORT FOR R 1741. BY-104 RSA#426 TIME: 8/28/92 15:10
 DISPATCHED: 6/18/92 8:50 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 8/ 5/92 14:34

WHC-SD-WM-TI-540,REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5511	DSC	EXOTHERMS			N233L
5711	DSC	EXOTHERMS			N233L
5712	TGA	1.73000E 02 % H2O	N	Y	N233L
5811	DSC	EXOTHERMS			N233L
5812	TGA	1.81000E 01 % H2O	N	Y	N233L

END OF REPORT

0 0 9 5 0 9 4 1 3 9 4

SAMPLE STATUS REPORT FOR R 1742. BY-104 RSA#426 TIME: 8/28/92 15:10
DISPATCHED: 6/18/92 8:51 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 8/ 5/92 14:34 WHC-SD-WM-TI-540,REV.1

E)	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5711	DSC	EXOTHERMS			N233L
5712	TGA	1.44000E 01 % H2O	N	Y	N233L
5811	DSC	EXOTHERMS			N233L
5812	TGA	1.65000E 01 % H2O	N	Y	N233L

END OF REPORT

0 3 3 6 0 4 1 3 8 5

SAMPLE STATUS REPORT FOR R 1744. BY-104 RSA#426 TIME: 8/28/92 15:10
 DISPATCHED: 6/18/92 8:52 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 7/27/92 15:12

WHC-SD-WM-TI-540-REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5711	DSC	EXOTHERM BETWEEN 357 C AND 433 C, ENERGY 43.2 J/g			N233L
5712	TGA	2.03000E 01 % H2O	N	Y	N233L
5811	DSC	EXOTHERM BETWEEN 378 C & 441 C, ENERGY 36.1 J/g			N233L
5812	TGA	2.01000E 01 % H2O	N	Y	N233L

END OF REPORT

0 2 3 5 0 7 4 1 3 8 6

SAMPLE STATUS REPORT FOR R 1746. BY-104 RSA#426 TIME: 8/28/92 15:10
 DISPATCHED: 6/18/92 8:54 SAMPLE HAS NOT BEEN SLURPED
 RECEIVED: 8/ 7/92 10:30 WHC-SD-WM-TI-540.REV.1

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	*****	*****	***	***	*****
5711	DSC	EXOTHERMS			N233L
5712	TGA	2.24000E 01 % H2O	N	Y	N233L
5811	DSC	EXOTHERMS			N233L
5812	TGA	1.78000E 01 % H2O	N	Y	N233L

END OF REPORT

00360041788

WHC-SD-WM-TI-540,REV.1

Polarized Light Microscopy of BY-104 Samples

Slide preparations were made from two subsamples (R1749 and R1750) for polarized light microscopy. A polymeric resin called Cytoseal[®], which hermetically seals the sample between the slide and coverslip, was used as the mounting medium. The refractive index of Cytoseal was unknown so the refractive index of crystals was not determined.

The two samples appeared to possess the same chemistry. The size and color of crystals, particle size distribution, and crystal habits were very similar between the two samples. For the most part the crystals were adhered to each other in large (50-500 microns) agglomerates which were dark and opaque. The interstitial liquid was also dark and opaque.

Several types of particles were present in these samples: very small (<1-2 microns) opaque crystals like ferrite, isotropic crystals like sodium chloride, and birefringent crystals such as sodium nitrite.

The opaque crystals numbered very high for particles 1 micron and smaller. The lower limit of particle sizes continued beyond the limit of light microscopy detection (about 0.5 micron). The high extinction coefficient of these particles for visible light may have contributed significantly to the color of the sample which was dark reddish brown. The interstitial liquid seemed to be saturated with these opaque crystals as well because it too possessed a reddish brown color.

Sodium nitrite crystals were seen which ranged in sizes between 20 and 75 microns in length. These crystals were highly distorted and probably contained considerable amounts of sodium nitrate and sodium carbonate in their crystal structures.

There were other crystals present whose identity is still unknown. Some crystals were birefringent shards which looked like sodium carbonate crystals but possessed a positive optic sign instead of negative which is representative of sodium carbonate. Also, there were present plate like crystals which looked like sodium nitrite but possessed low birefringence instead of high birefringence characteristic.

by104 acid digest

R1778

	Riser 5	Riser 5	Ave	sample std dev
zr	59.5	83.9	71.7	17
al	61600	93090	77345	22267
co	46.1	62.5	54.3	12
Cu	17.6	25.7	21.65	6
Ni	1090	1480	1285	276
Fe	4670	6990	5830	1640
Ca	1340	1750	1545	290
Cr	11900	16100	14000	2970
P	2470	3630	3050	820
S			0	0
Mo			0	0 Charge balance
K	2410	3310	2860	636 73.14578
U	3680	3770	3725	64
Mn	244	344	294	71
Na	141000	211000	176000	49497 7652.173

Total metal concetration	286081.6	7725.319 metals charge equiv.
TOC solub	5890 6150 6020	184
TIC solub	21587 19288 20437.5	1626
TOC total	8025 9326 8675.5	920
TIC total	18915 19251 19083	238

Water, TGA 154000

Mass balance calculations

	Al(OH)3	UO2+2	Cr2O7
metals	445759.6		
anions	101915		
TOC*3	26026.5		
Water	171000		
TIC*5	95415		

Mass balance w/TGA water

Total mass balance	823116.1
Riser 5	840116.1

R1753 anions Riser 5 anions

	Riser5	Riser5dup	Ave.	small sample dev.	Charge equivalents
F	6650	6820	6735	120.2081	354.4736
Cl	1990	1900	1945	63.63961	54.86600
NO2	12600	11200	11900	989.9494	258.6956

MHC-SD-MM-TI-540, REV. 1

278

N03-	49900	48200	49050	0	12023081	0	291.1290	9	1
P04-3	5940	5630	5785		219.2031		182.6842		
S04-2	25300	27700	26500		1697.056		552.0833		

Total anion conc. 101915

TOC total charge equiv. 240.9861

TIC total charge equiv. 3180.5

Cr07-2 charge equiv. 272.2222

Total anion charge 5887.640

Cation/anion

Charge balance Ratio 1.312124

Riser 5

279

WHC-SD-WM-TI-540, REV. 1

	R5	R5error		R10
Ta	0.24	0.07	1.714286	0.14
Tb	613	17	2.128472	288
GEA	115.6	0.8	1.521053	76
pu	0.07	0.02	2.8	0.025
Sr90	143	14	2.383333	60
Am241	0.103	0.004	2.395349	0.043

Regression Output:

Constant	-14.5929
Std Err of Y Est	27.33375
R Squared	0.999668
No. of Observations	7
Degrees of Freedom	5

X Coefficient(s)	2.276497
Std Err of Coef.	0.018542

	R5	R5error	High	Low	R10	Ratio R5/r10B	
pu	0.07	0.02	0.09	0.05	0.025	2.8	
Am241	0.103	0.004	0.107	0.099	0.043	2.395349	
Ta	0.24	0.07	0.31	0.17	0.14	1.714286	
Sr90	143	14	157	129	60	2.383333	
GEA	115.6	0.8	116.4	114.8	76	1.521053	
Tb	613	17	630	596	288	2.128472	
U	3725	64	3789	3661	1640	2.271341	t-test va
				std		0.402477	2.447
				Ave		2.173405	

2.17+-0.98

Start of Search/Match: 01-JUL-92 12:27:48 Peaks File: Z01068

R-1749 BY-104

UpUp ERROR(DEC): 0.300 3 STRONGEST LINES DATA BASE: 1 NUMBER OF OBSERVED LINES= 48

2587 PHASE(S) MATCHED NREQ= 0 NLEN= 0

FAST SEARCH OP CUT OFF IS 320.

DMAX= 29.427 DMIN= 1.343

WHC-SD-WM-TI-540.REV.1

JCPDS #	PHASE	OP	IC/IOB	POF/MATCH	XPATTERN
29, 41 AL (O H)3	/ GIBBSITE	0.83	1.0	39/ 38	76
22, 71 AS B CL3 H		2.56	0.1	4/ 4	8
10, 300 TH		4.98	0.0	4/ 4	8
27, 242 AU MN SB		5.91	0.1	5/ 5	10
26,1166 PB Y O F3		6.99	0.1	6/ 6	12
27,1108 CO2 GA MH		9.53	0.1	3/ 3	6
1,1130 CO2 MN O4	/ COBALI MANGANESE S	9.99	0.1	8/ 8	16
16, 544 H2 O		10.18	0.0	5/ 5	10
29, 675 PT IH	/ YIXUNITE	10.32	0.1	3/ 3	6
17, 42 PO3 GO		10.34	0.0	3/ 3	6
7, 324 AL (O H)3	/ GIBBSITE	10.38	1.0	36/ 27	55
33, 18 AL (O H)3	/ GIBBSITE, SYN	10.57	1.0	38/ 31	66
10, 266 HI2 GE O4		11.27	0.1	7/ 7	14
31, 824 MH6 H2 .58		11.74	0.1	6/ 6	12
28, 470 IN PO3 C		12.35	0.0	3/ 3	6
6, 620 PD ZH		12.54	0.0	6/ 6	12
34, 971 LI IR		12.91	0.1	6/ 6	12
38,1395 LI HI U O4		12.97	0.1	9/ 8	16
12, 138 CR2 TI O5		13.51	0.2	12/ 12	25
23,1380 PR2 SE O5		13.60	0.0	7/ 7	14
4, 784 AU	/ GOLD, SYN	13.62	0.0	3/ 3	6
29, 674 IN3 P SE3		13.97	0.1	4/ 4	8
13, 282 LI4 P2 O7		14.56	0.0	10/ 8	16
27,1111 CO2 GA U		14.61	0.1	4/ 4	8
20, 426 GA2 O3		14.84	0.1	6/ 6	12
23, 208 CU IN SE2		16.00	0.0	4/ 4	8
25, 599 PT3 PO2 SH2	/ UNKNOWN MINERAL	16.49	0.0	3/ 3	6
35,1337 CS GA		16.54	0.1	8/ 7	14
1,1129 FE (AL CR)2 O4	/ ALUMINIAN CHROMITE	16.58	0.1	7/ 6	12
25,1146 FE2 GO U		16.62	0.1	4/ 4	8
31,1406 ZR TI HI .68		17.21	0.1	7/ 7	14
35,1133 BK AS		17.55	0.1	6/ 6	12
32, 216 CS3 AS O4		17.66	0.0	14/ 11	22
4, 580 PB TH O3		17.69	0.1	4/ 4	8
24, 561 LA SC O3		17.71	0.0	11/ 9	18
21, 938 PB4 SB O6		18.11	0.1	7/ 6	12
5, 721 (CR FE U MO)23 FE21 (U MO)2 C1		18.48	0.1	7/ 6	12
33, 154 BA (FE (C H)5 N O) . 2 H2 O		18.65	1.0	12/ 9	18
35,1198 AS CF		18.83	0.0	6/ 6	12
6, 141 HI O O H		18.90	1.0	3/ 3	6
33, 606 H HI2		19.03	0.1	6/ 6	12
34, 814 CU GA SE2		19.19	0.0	7/ 6	12
12, 284 FE2 SI O4		19.48	0.1	8/ 7	14
19, 540 HF2 S		19.52	0.0	11/ 8	16
29,1328 TB C2		19.53	0.1	9/ 7	14
20, 797 U2 HI21 B6		19.76	0.1	9/ 6	12
35, 206-U O2 (H2 P O4)2 . H2 O		20.31	0.0	5/ 5	10
22, 983 SR3 CE7 F21 S3		20.47	0.1	5/ 5	10
12, 460 AL (O H)3	/ GIBBSITE, SYN	20.73	1.0	25/ 17	35
12, 83 CO TI		20.99	0.1	4/ 4	8

281

End of Search/Match: 01-JUL-92 12:33:54 Total Time: 6 min 6 sec

00360241368

D/MAX-B

PEAK FINDING PROGRAM

V1.1

DATA FILE: C:\DATA\Z01068.RAW
 COLLECTED ON 01-JUL-92 AT 10:01:38
 SAMPLE IDENTIFICATION:
 DATE OF PEAK SEARCH:

WHC-SD-WM-TI-540,REV.1

R-1749 BY-104
 7- 9-92 AT 11:58: 8

START 2THETA: 3.000
 STEP SIZE: 0.020
 KV: 50. MA: 150

STOP 2THETA: 70.000
 SCAN SPEED: 1.000

PEAK FINDING PARAMETERS

THRESHOLD VALUES : 5.0, 10.0
 RELATIVE CUTOFF INTENSITY : 0.0
 TYPICAL FULL WIDTH-HALF MAXIMUM : 0.20
 MINIMUM FULL WIDTH-HALF MAXIMUM : 0.02
 ALPHA 2 REMOVAL USING CODE : 1

BACKGROUND-SUBTRACTED DATA WILL BE IN FILE C:\DATA\Z01068.BSD
 PEAKS DATA WILL BE IN THE NEW FILE C:\DATA\Z01068.PKS
 THRESHOLD DATA WILL BE IN FILE C:\DATA\Z01068.THD

PEAK	2-THETA	D-SPACE	I(REL)	I(CPS)	FWHM
1	3.320	26.5910	1.45	178.9	0.120
2	14.680	6.0294	3.05	376.5	0.660
3	14.920	5.9330	3.34	411.7	1.260
4	17.020	5.2054	4.25	524.7	0.219
5	18.300	4.8440	100.00	12334.0	0.195
6	18.900	4.6916	3.00	369.6	0.720
7	19.100	4.6429	2.10	259.3	0.180
8	19.320	4.5905	2.11	260.6	0.520
9	20.280	4.3754	39.79	4907.2	0.196
10	20.540	4.3206	19.43	2396.2	0.257
11	24.240	3.6688	2.15	265.7	0.816
12	26.500	3.3608	8.71	1073.8	0.298
13	26.900	3.3117	10.58	1305.0	0.217
14	27.460	3.2455	3.09	380.6	0.280
15	28.000	3.1841	10.92	1346.7	0.319
16	28.720	3.1059	3.92	483.2	0.275
17	30.880	2.8934	3.41	420.4	0.258
18	31.660	2.8238	9.52	1174.7	0.196
19	34.440	2.6020	22.06	2720.3	0.174
20	36.380	2.4676	7.11	876.6	0.158
21	36.640	2.4507	12.34	1522.4	0.397
22	37.080	2.4226	4.55	561.0	0.258
23	37.680	2.3854	17.09	2107.3	0.216
24	38.580	2.3318	3.91	482.4	0.219
25	39.340	2.2885	3.69	455.5	0.255
26	40.140	2.2447	7.07	871.7	0.237
27	41.420	2.1782	2.65	326.7	0.200
28	41.700	2.1642	7.18	886.0	0.298
29	44.220	2.0466	12.04	1485.4	0.276
30	45.460	1.9936	9.14	1127.1	0.275
31	45.920	1.9747	2.02	249.1	0.240
32	46.180	1.9642	2.31	284.7	0.597
33	47.380	1.9172	6.07	748.3	0.317
34	50.500	1.8071	0.01	1105.4	0.250

0 0 3 6 0 9 4 1 7 6 9

34	50.380	1.8051	3.81	1185.4	0.238
35	52.220	1.7503	8.50	1048.0	0.294
36	54.460	1.6835	7.08	873.2	0.356
37	55.400	1.6571	3.06	377.4	0.858
38	55.840	1.6451	2.19	270.3	0.699
39	57.880	1.5919	1.98	244.3	0.396
40	58.100	1.5864	2.37	292.3	0.537
41	58.600	1.5740	2.78	343.5	0.255
42	63.800	1.4577	8.42	1038.4	0.198
43	64.660	1.4404	4.50	555.2	0.235
44	66.160	1.4113	5.49	677.6	0.316
45	66.680	1.4015	3.52	433.6	0.379
46	68.880	1.3621	2.38	293.9	0.435

WHC-SD-WM-TI-540.REV.1

46 PEAKS WERE FOUND AND WRITTEN TO THE PEAKS FILE

00300241370

WHC-SD-WM-TI-540, REV. 1

SUPPORTING DOCUMENTATION

TEST INSTRUCTIONS

WHC CHAIN OF CUSTODY FORMS

REQUEST FOR SPECIAL ANALYSIS (RSA's)

SAMPLE PREP DATA SHEETS

QUALITY CONTROL DATA REVIEW

REVIEW COMMENT RECORD (RCR's)

WHC-SD-WM-TI-540, REV.1

SST SAMPLE TEST INSTRUCTION FOR PREPARATION AND ANALYSIS OF THE BY-104 AUGER SAMPLES

DATE PREPARED : September 8, 1992PREPARED BY : SG McKinleySAMPLE NUMBERS : 92-09445 & 92-09446

APPROVED BY :

SG McKinley
Project ManagerDate: 9-8-92

CONTROLLING DOCUMENTS :

TEST PLAN : WHC-SD-WM-TP-114 Rev 2Project No.: 15497

PROJECT SOW: LOI 9255871 (Kessner to King "Letter of Instruction to Perform Total Organic Carbon Analysis by Hot Persulfate Method on SST BY-104 Auger Samples" August 1992)

Controlling Procedure: PNL-ALO-010

INTRODUCTION

This Test Instruction (TI) requests that two auger samples from Tank BY-104 (ferrocyanide SST) be analyzed for TOC using the hot persulfate method. All activities identified in this Test Instruction shall be charged against Project 15497 - FeCN Safety Project. The analyses are completed at Impact Level 2.

The analyses are to be completed following the identified procedures. Any deviations from the procedure must be documented and this documentation must accompany the analytical data. All analytical data are returned to the Project Management Office.

REQUESTED ANALYSES

Requested Analysis	Procedure #	Task Leader	WP#
TOC/TIC/TC (Direct)	PNL 7.40.47	Urie	M-85508

B HOT-CELL SAMPLE PREPARATION INSTRUCTIONS

- Prepare and analyze samples 92-09445 (WHC # A51CO) and 92-09446 (WHC # A52CO) for TOC. All activities pertaining to this work should be charged to work package M-85508.
- The following sample identification system will be followed. All samples will be identified with the appropriate ALO number.

Sample ID	Sample Description
92-09445-J-1	BY 104 A52 SAMPLE DUPLICATE METHODS BLANK
92-09445-J-2	
92-09445-J-3	
92-09446-J-1	BY 104 A52 SAMPLE DUPLICATE METHODS BLANK
92-09446-J-2	
92-09446-J-3	

per letacom 10/1/92
w/ SG. McKinley

285

0030043110

Westinghouse Hanford
Company

WHC-SD-WM-TI-540, REV.1

CHAIN OF CUSTODY

Company Contact Mark Beck Telephone 3-2182
Sample Collected by Mark Beck Date 6/70/92 Time
Sample Locations BV104 Riser 5 and Riser 10 upper samples
Ice Chest No. Doorstop Field Logbook and Page No.
Remarks

Bill of Lading No. Offsite Property No.
Method of Shipment B-Plant Truck - Road Closure
Shipped to 325 Building (PML)
Possible Sample Hazards Radioactive, Corrosive

Sample Identification

BV104A51C0 (92-9445) BV104A52C0 (92-9446)
-BV-104 Riser 5 -BV104 Riser 10B
10.27g sample 8.91g sample

Chain of Possession

Relinquished by: <u>Mark C. Beck</u> <u>7/30/92</u>	Received by: <u>[Signature]</u>	Date/Time: <u>7/30/92 1810</u>
Relinquished by: <u>[Signature]</u>	Received by: <u>[Signature]</u>	Date/Time: <u>7-30-92 1825</u>
Relinquished by: <u>[Signature]</u>	Received by: <u>John K. Rose</u>	Date/Time: <u>7-30-92 2020</u>
Relinquished by:	Received by:	Date/Time:

A-6000-107 (04/90)

COPY

PM# 91-178

CHAIN OF CUSTODY FOR WASTE SAMPLES

Sample Numbers:

WHC-SD-WM-TI-540, REV. 1

1. <u>R1704</u> - ^{Riser} (106)	2. <u>R-1705</u> ^{Riser} (5)	3. _____
4. _____	5. _____	6. _____
7. _____	8. _____	9. _____
10. _____	11. _____	12. _____
13. _____	14. _____	15. _____
16. _____	17. _____	18. _____
19. _____	20. _____	21. _____
22. _____	23. _____	24. _____
25. _____	26. _____	27. _____

Date of Sampling:

6/18 and 6/19

Point of Origin:

104 BY

Sampling Supervisor/PIC:

DAN BISHOP & RON WRIGHT

Senders Name:

TK RAVEN CRAFT

Sender Signature:

TK Ravencraft

Date Received at Laboratory:

6/19/92

Recipient Name:

VIDA JOHANSEN

Recipient Signature:

Vida Johansen

Comments: Reference SD-WM-TP 114 REV 2
ECN 166535 PER MARK BECK.

SSZul dream

0374041913

CHAIN OF CUSTODY FOR WASTE SAMPLES

PM# 91-178

WHC-SD-WM-TI-540, REV. 1

Sample Numbers:

1. <u>R1704</u> - ^{Riser} ₍₁₀₀₎	2. <u>R-1705</u> ^{Riser} ₍₅₎	3. _____
4. _____	5. _____	6. _____
7. _____	8. _____	9. _____
10. _____	11. _____	12. _____
13. _____	14. _____	15. _____
16. _____	17. _____	18. _____
19. _____	20. _____	21. _____
22. _____	23. _____	24. _____
25. _____	26. _____	27. _____

Date of Sampling:

6/18 and 6/19

Point of Origin:

104 BY

Sampling Supervisor/PIC:

DAN BISHOP & RON WRIGHT

Senders Name:

TK RAVENCRAFT

Sender Signature:

TK Ravencraft

Date Received at Laboratory:

6/19/92

Recipient Name:

VIDA JOHANSEN

Recipient Signature:

Vida Johansen

Comments: Reference SD-WM-TP 114 REV 2
ECN 166535 PER MARK BECK.

55 gal drums

00740941914

REQUEST FOR SPECIAL ANALYSIS (RSA)

WHC-SD-WM-TI-540, REV. 1

1. Sample Origin BY-104		2. Date Submitted 6/16/92		4. Requester Name Mark Beck		6. Charge Code/Work Package N233C	
		3. Date Required		5. Requester Phone/MSIN 3-2682 78-50			
7. Customer ID BY104AS1EO (CR1705)		8. Laboratory ID R1712		11. Number of Samples 2		13. Protocols ☐ None ☐ NQA-1 ☐ CERCLA ☐ RCRA ☒ Other duplicate per batch ICP ☐ Slurry ☐ Waste RCRA	
				12. Volume of Samples 7g each 14g total			
7. Customer ID BY104AS2EO (R1704)		8. Laboratory ID R1713		14. Sample Type ☒ Solid ☐ Gas ☐ Solution ☐ Other (specify)		☐ Soil ☐ Water ☐ Sludge	
9. Determination FUSION LA-549-141		10. Expected Range		15. Storage Requirements ☐ None ☐ Specify			
				16. Process Knowledge/Known Listed Wastes ☐ Unknown ☐ Known (Please attach list) ☐ Previously submitted for this Project			
Total Alpha				17. Survey Ch Zeller HPT			
Total Beta				Reading (Contact/uncorrected) 2.250 8/28/92 clj mfr mfr/hm			
GEA							
Cesium-137				18. Disposition of Waste ☐ Return to Client ☒ Dispose per 222-S Procedures ☐ Other			
LA-548-121 LA-508-052							
Sr-90 LA-220-101 LA-508-111				Date Disposed:			
Am-241, Pu-238, 239/240 LA-503-156 LA-508-051				19. Additional Information ICP RCRA			
Total U LA-549-141; LA-925-106							
ICP, Al, Na, Ca, K, P, Zn, Cu							
Co, Fe, Cr, Ni, Mn							
LA-505-151							
20. Chain of Custody ☒ No ☐ Yes Number:				21. Assigned Custodial Group (circle one) PCL PDSU ENV Process			
22. Sample Received By: Vicki Johnson Date: 6/25/92 Time: 1450				23. Laboratory Manager (if required) [Signature] Date: 9/1/92			

REQUEST FOR SPECIAL ANALYSIS (RSA)

WHC-SD-WM-TI-540, REV. 1

1. Sample Origin -BY104	2. Date Submitted 6/16/92	4. Requester Name Mark Beck	6. Charge Code/Work Package N 233L
	3. Date Required	5. Requester Phone/MSIN 3-2182-78-50	
7. Customer ID BY104A51B0 (R1705)	8. Laboratory ID R1734	11. Number of Samples 2	13. Protocols ☐ None ☐ NQA-1 ☒ CERCLA <i>max spike</i> ☒ RCRA <i>replicated</i> ☒ Other <i>spike per sample</i>
		12. Volume of Samples 2 each ~4 g total	
9. Determination Cyanide LA-695-102	10. Expected Range >10,000 ug/g	14. Sample Type ☒ Solid ☐ Gas ☐ Solution ☐ Other (specify) _____ ☐ Soil ☐ Water ☐ Sludge ☐ Slurry ☐ Waste	
		15. Storage Requirements ☐ None ☐ Specify _____	
		16. Process Knowledge/Known Listed Wastes ☐ Unknown ☒ Known (Please attach list) ☒ Previously submitted for this Project	
		17. Survey Ch Felder HPT Reading (Contact/uncorrected) 1750 <i>8-28-92</i> <i>ch</i> <i>mRad/hr</i>	
		18. Disposition of Waste ☐ Return to Client ☒ Dispose per 222-S Procedures ☐ Other _____ Date Disposed: _____	
		19. Additional Information	
20. Chain of Custody ☒ No ☐ Yes Number: _____	21. Assigned Custodial Group (circle one) PCL PDSU ENV Process		
22. Sample Received By: Vicki Johnson Date: 6/25/92 Time: 1500	23. Laboratory Manager (if required) [Signature] Date: 9/1/92		

7425

REQUEST FOR SPECIAL ANALYSIS (RSA)

WHC-SD-WM-TI-540, REV. 1

1. Sample Origin BY104		2. Date Submitted 6/16/92		4. Requester Name Mark Beck		6. Charge Code/Work Package V233L	
		3. Date Required		5. Requester Phone/MSIN			
7. Customer ID BY104AS2DO(R1737) BY104AS2DI		8. Laboratory ID R1737		11. Number of Samples 2		13. Protocols ☐ None ☐ NQA-1 ☐ CERCLA 9/21/92 mch. ☐ RCRA ☒ Other duplicates per sample LAD 9-1-92	
				12. Volume of Samples			
9. Determination 9a Water LA 564-101		10. Expected Range < 3090		14. Sample Type ☒ Solid ☐ Soil ☐ Slurry ☐ Gas ☐ Water ☐ Waste ☐ Solution ☐ Sludge ☐ Other (specify) _____			
				15. Storage Requirements ☐ None ☐ Specify _____			
				16. Process Knowledge/Known Listed Wastes ☐ Unknown ☐ Known (Please attach list) ☐ Previously submitted for this Project			
9- TARE weights				17. Survey CSZelder 2000 HPT			
R1737 - 16.9409g (200)				Reading (Contact/D. Corrected) 8-28-92 CAF m Rad/hu			
R1737a - 17.1218g (2DI)				18. Disposition of Waste ☐ Return to Client ☐ Dispose per 222-S Procedures ☐ Other _____ Date Disposed: _____			
R1738 - 17.3962g (100)				19. Additional Information BY104AS2DI are duplicates BY104AS2DI a X R1737(2DI) LAD R1738(1DI) 9-1-92			
R1738a - 17.0779g (1DI)							
20. Chain of Custody ☒ No ☐ Yes Number: _____				21. Assigned Custodial Group (circle one) PCL PDSU ENV Process			
22. Sample Received By: Vicki Johnson Date: 6/25/92 Time: 1510				23. Laboratory Manager (if required) John Hunt Date: 9/1/92			

REQUEST FOR SPECIAL ANALYSIS (RSA)

WHC-SD-WM-TI-540, REV. 1

1. Sample Origin <i>M. Beck BY104</i>		2. Date Submitted <i>6/16/92</i>		4. Requester Name <i>Mark Beck</i>		6. Charge Code/Work Package <i>N233L</i>	
		3. Date Required		5. Requester Phone/MSIN <i>3-2182 T8-50</i>			
7. Customer ID		8. Laboratory ID		11. Number of Samples <i>6</i>		13. Protocols ☐ None ☐ NQA-1 ☐ CERCLA ☐ RCRA ☒ Other <i>Duplicated per batch</i>	
<i>PY104AS1A0</i>		<i>R1740</i>		12. Volume of Samples <i>~3 each 18g total</i>			
<i>BY104AS1A1</i>		<i>R1741</i>					
<i>BY104AS1A2</i>		<i>R1742</i>					
<i>BY104AS2A0</i>		<i>R1744</i>		14. Sample Type			
<i>BY104AS2A1</i>		<i>R1745</i>		☒ Solid		☐ Soil ☐ Slurry	
<i>BY104AS2A2</i>		<i>R1746</i>		☐ Gas		☐ Water ☐ Waste	
				☐ Solution		☐ Sludge	
				☐ Other (specify)			
9. Determination		10. Expected Range		15. Storage Requirements			
<i>DSC</i>		<i>unknown</i>		☐ None			
<i>TGA</i>		<i>unknown</i>		☒ Specify <i>must remain sealed, cannot be allowed to dry out</i>			
				16. Process Knowledge/Known Listed Wastes			
				☐ Unknown			
				☐ Known (Please attach list)			
				☐ Previously submitted for this Project			
				17. Survey			
				Reading (Contact/Corrected) <i>C. Felder</i> <i>1400</i> mRad/hr HPT			
				18. Disposition of Waste			
				☐ Return to Client			
				☒ Dispose per 222-S Procedures			
				☐ Other			
				Date Disposed:			
				19. Additional Information			
				<i>Deliverable: DSC/TGA Traces</i>			
20. Chain of Custody				21. Assigned Custodial Group (circle one)			
☒ No				☐ PCL ☒ PDSU ☐ ENV ☐ Process			
☐ Yes Number:				23. Laboratory Manager (if required)			
22. Sample Received By: <i>Vicki Johansen</i>				<i>Jim Huff</i>			
Date: <i>6/25/92</i>		Time: <i>1545</i>		Date: <i>9/5/92</i>			

427

REQUEST FOR SPECIAL ANALYSIS (RSA) WHC-SD-WM-TI-540, REV. 1

1. Sample Origin BY104	2. Date Submitted 6/16/92	4. Requester Name Mark Beck	6. Charge Code/Work Package N233L
	3. Date Required	5. Requester Phone/MSIN 3-2182 T6-50	
7. Customer ID BY104AS1H0	8. Laboratory ID R1747	11. Number of Samples 2	13. Protocols ☐ None ☐ NQA-1 ☐ CERCLA ☐ RCRA ☒ Other 1 duplicate per batch
		12. Volume of Samples ~15g each ~30 total	
BY104AS2H0	R1748	14. Sample Type ☒ Solid ☐ Gas ☐ Solution ☐ Other (specify) _____	☐ Soil ☐ Water ☐ Sludge ☐ Slurry ☐ Waste
		15. Storage Requirements ☐ None ☐ Specify _____	
9. Determination Adiabatic	10. Expected Range		
Calorimetry			
WHC-SD-WM-TI-104		16. Process Knowledge/Known Listed Wastes ☐ Unknown ☐ Known (Please attach list) ☐ Previously submitted for this Project	
		17. Survey _____ HPT	
		Reading (Contact/Uncorrected) _____ mRem/hr	
		18. Disposition of Waste ☐ Return to Client ☐ Dispose per 222-S Procedures ☐ Other _____ Date Disposed: _____	
		19. Additional Information may be misprinted as "MO" on some labels.	
20. Chain of Custody ☐ No ☐ Yes Number: _____	21. Assigned Custodial Group (circle one) PCL PDSU ENV Process		
22. Sample Received By: _____ Date: _____ Time: _____	23. Laboratory Manager (if required) _____ Date: _____		

428

REQUEST FOR SPECIAL ANALYSIS (RSA) WHC-SD-WM-TI-540, REV. 1

1. Sample Origin <i>BY104 WATER Digest residue</i>		2. Date Submitted <i>6/16/92</i>		4. Requester Name <i>Mark Beck</i>		6. Charge Code/Work Package <i>N233L</i>	
3. Date Required		5. Requester Phone/MSIN <i>7-2182 76-50</i>					
7. Customer ID <i>BY104AS1G1 (R1705)</i>		8. Laboratory ID <i>R1749</i>		11. Number of Samples <i>2</i>		13. Protocols ☒ None ☐ NQA-1 ☐ CERCLA ☐ RCRA ☐ Other	
				12. Volume of Samples			
<i>BY104AS2G1 CR1704</i>		<i>R1750</i>		14. Sample Type ☒ Solid ☐ Soil ☐ Slurry ☐ Gas ☐ Water ☐ Waste ☐ Solution ☐ Sludge ☐ Other (specify)			
9. Determination <i>Particle size Analysis</i>		10. Expected Range		15. Storage Requirements ☐ None ☐ Specify			
				16. Process Knowledge/Known Listed Wastes ☐ Unknown ☐ Known (Please attach list) ☐ Previously submitted for this Project			
<i>Polarized Light Microscopy</i>				17. Survey <i>BD</i> ☐ Reading (Contact/Uncorrected) <i>500 mrem/hr</i> ☐ mRem/hr <i>corrected</i>			
<i>X-Ray Diffraction</i>				18. Disposition of Waste ☐ Return to Client ☒ Dispose per 222-S Procedures ☐ Other Date Disposed:			
				19. Additional Information <i>In soluble solids from water digestion residue.</i>			
20. Chain of Custody ☐ No ☐ Yes Number:				21. Assigned Custodial Group (circle one) PCL PDSU ENV Process			
22. Sample Received By: <i>Det Honale</i> Date: <i>6-30-92</i> Time: <i>1510</i>				23. Laboratory Manager (if required) <i>[Signature]</i> Date: <i>9/8/92</i> BC 6700			

00060941282

429

REQUEST FOR SPECIAL ANALYSIS (RSA)

WHC-SD-WM-TI-540, REV. 1

1. Sample Origin BY104		2. Date Submitted 6/16/92		4. Requester Name Mark Beck		6. Charge Code/Work Package N233L	
3. Date Required		5. Requester Phone/MSIN 7-2182-7890		11. Number of Samples 2		13. Protocols ☐ None ☐ NQA-1 ☐ CERCLA ☐ RCRA <i>duplicate</i> ☒ Other <i>per sample</i>	
7. Customer ID BY104AS160 (R1705)		8. Laboratory ID R1753		12. Volume of Samples <i>~4g each</i> <i>~8g total</i>			
9. Determination WATER Digestion LA-504-101		10. Expected Range		14. Sample Type ☒ Solid ☐ Gas ☐ Solution ☐ Other (specify) ☐ Soil ☐ Water ☐ Sludge ☐ Slurry ☐ Waste			
15. Storage Requirements ☐ None ☐ Specify				16. Process Knowledge/Known Listed Wastes ☐ Unknown ☐ Known (Please attach list) ☒ Previously submitted for this Project			
17. Survey TOC LA-344-105				18. Disposition of Waste ☒ Return to Client ☐ Dispose per 222-S Procedures ☐ Other Date Disposed:		19. Additional Information <i>Save residue from water digest, deliver to PCL</i>	
20. Chain of Custody ☒ No ☐ Yes Number:				21. Assigned Custodial Group (circle one) ☐ PCL ☒ PDSU ☐ ENV ☐ Process			
22. Sample Received By: <i>Vicki Johnson</i> Date: <i>6/15/92</i> Time: <i>1450</i>				23. Laboratory Manager (if required) <i>[Signature]</i> Date: <i>9/8/92</i>			

00360941292

REQUEST FOR SPECIAL ANALYSIS (RSA)

WHC-SD-WM-TI-540, REV. 1

1. Sample Origin <i>BY104</i>		2. Date Submitted <i>6/16/92</i>		4. Requester Name <i>Mark Beck</i>		18. Charge Code/Work Package <i>N233L</i>	
		3. Date Required		5. Requester Phone/MSIN <i>7-2182 78-50</i>			
7. Customer ID <i>BY104AL1FO</i>		8. Laboratory ID <i>R157 R1757</i>		11. Number of Samples <i>2</i>		13. Protocols ☐ None ☐ NQA-1 ☐ CERCLA ☒ RCRA ☒ Other <i>duplicate per sample</i>	
				12. Volume of Samples			
BY104AL2FO		R1758		14. Sample Type ☐ Solid ☐ Soil ☐ Slurry ☐ Gas ☐ Water ☐ Waste ☐ Solution ☐ Sludge ☒ Other (specify) <i>aqueous liquid</i>			
				15. Storage Requirements ☐ None ☐ Specify _____			
9. Determination <i>Ion Chromatography</i>		10. Expected Range <i>Very high</i>		16. Process Knowledge/Known Listed Wastes ☐ Unknown ☐ Known (Please attach list) ☐ Previously submitted for this Project			
<i>LA 504</i>		<i>NO₂, NO₃</i>					
<i>A-533-105</i>		<i>other anions high</i>		17. Survey _____ mRem/hr HPT			
<i>Deleted per Mark Beck</i>		18. Disposition of Waste ☐ Return to Client ☐ Dispose per 222-S Procedures ☐ Other _____ Date Disposed: _____					
		19. Additional Information					
20. Chain of Custody ☐ No ☐ Yes Number: _____				21. Assigned Custodial Group (circle one) PCL FDSU ENV Process			
22. Sample Received By: _____ Date: _____ Time: _____				23. Laboratory Manager (if required) <i>[Signature]</i> Date: <i>7/22/92</i>			

BC-8700-181 (03/92)

REQUEST FOR SPECIAL ANALYSIS (RSA)

WHC-SD-WM-TI-540, REV. 1

1. Sample Origin 104 BY		2. Date Submitted 6/19/92		4. Requester Name DAVE SPARKS		6. Charge Code/Work Package 2E-91-00797W N2331	
		3. Date Required ASAP		5. Requester Phone/MSIN 3-3913 5503			
7. Customer ID RISER #5 RISER #10B		8. Laboratory ID R1705 R1704		11. Number of Samples 2		13. Protocols ☐ None ☐ NQA-1 ☐ CERCLA ☐ RCRA ☐ Other _____	
				12. Volume of Samples			
				14. Sample Type ☐ Solid ☐ Soil ☐ Slurry ☐ Gas ☐ Water ☒ Waste ☐ Solution ☐ Sludge ☐ Other (specify) TANK SAMPLE			
				15. Storage Requirements ☐ None ☐ Specify _____			
9. Determination		10. Expected Range		16. Process Knowledge/Known Listed Wastes ☐ Unknown ☐ Known (Please attach list) ☒ Previously submitted for this Project			
				<div style="text-align: right;"> Reading (Contact/Uncorrected) 110 mRem/hr </div>			
				<div style="text-align: right;"> of Waste ☐ Return to Client ☒ Dispose per 222-S Procedures ☐ Other _____ </div>			
				Date Disposed: _____			
				19. Additional Information Sample submitted to PCL.			
20. Chain of Custody ☒ Yes ☐ No Number: PM# 91-178				21. Assigned Custodial Group (circle one) PCL PDSU ENV Process			
22. Sample Received By: [Signature] Date: 6/19/92 Time: 1432				23. Laboratory Manager (if required) [Signature] Date: 6/29/92			

do not
 dispose of
 discussed
 m. Beck

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REQUEST FOR SPECIAL ANALYSIS (RSA)

WHC-SD-WM-TI-540, REV. 1

1. Sample Origin BY104		2. Date Submitted 6/22/92		4. Requester Name Mark A. Beck		6. Charge Code/Work Package N233L	
		3. Date Required ASAP		5. Requester Phone/MSIN 3-2182			
7. Customer ID		8. Laboratory ID		11. Number of Samples 4		13. Protocols ☒ None ☐ NQA-1 ☐ CERCLA ☐ RCRA ☐ Other	
BY104ASIM1		R1772		4			
BY104ASIM2		R1773		~20ml each			
BY104AS2M1		R1774		4			
BY104AS2M2		R1775		4			
				14. Sample Type. ☒ Solid ☐ Gas ☐ Solution ☐ Other (specify) _____ ☐ Soil ☐ Water ☐ Sludge ☐ Slurry ☐ Waste			
				15. Storage Requirements ☐ None ☐ Specify _____			
9. Determination		10. Expected Range		16. Process Knowledge/Known Listed Wastes ☐ Unknown ☐ Known (Please attach list) ☐ Previously submitted for this Project			
Adiabatic calorimetry				17. Survey _____ HPT _____ mRem/hr			
				18. Disposition of Waste ☐ Return to Client ☒ Dispose per 222-S Procedures ☐ Other _____			
				Date Disposed: _____			
				19. Additional Information 1M1 bottom of Auger 8/26/92 1M2 composite 2M1 bottom of Auger 8/26/92 2M2 composite			
20. Chain of Custody ☒ No ☐ Yes Number: _____				21. Assigned Custodial Group (circle one) PCL PDSU ENV Process			
22. Sample Received By: Vida Johnson Date: 8/20/92 Time: 0800				23. Laboratory Manager (if required) 298 Date: _____			

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REQUEST FOR SPECIAL ANALYSIS (RSA)

WHC-SD-WM-TI-540, REV. 1

(1) Sample Point BY104		(2) Date/Time Issued 6/24/92	(3) Date/Time Required	(4) Charge Code
(6) Number of Samples 2		Dose Rate mRad/Hr 1400 2 mRad/Hr LOWE 6-20-92	(7) Customer I.D. BY104AS1FO	(8) Laboratory I.D. R1778 R1778 6-24-92
(10) Release JAN Ewan RPT		(9) Requester Name/Phone Mark Beck 3-2182	(11) Volume of Sample	
(12) Determination Acid Digest		(13) Expected Range	(14) Minimum Detection Level	(15) Method
I G P				
Al, Na, Cu				
K, P, Zr, Ca				
Co, Fe, Cr, Ni				
nn				
LA-505-151				
(16) Matrix (Other Metals or Anions Present) Fe CN salt cake				
(17) Radioactivity Level (Actual ☐ Estimated ☐ Total Alpha _____ μ Ci/L Total Beta _____ μ Ci/L Total Gamma _____ μ Ci/L			(18) Additional Info. Pertinent Information Replate do not dispose contact mixed 9-14-92 yes	
(19) Estimated Cost			(20) Samples Received	
Laboratory Manager 9/1/92			By H. H. H.	From Date 6-30-92 Time 10:50
(21) Distribution of Final Results/Sample Disposal Instructions 299				

SAMPLE ANALYSIS REQUEST

PART 1: FIELD SECTION

Collector Mark Beck Date Sampled 6/30/82 Time hours
Company Contact Mark Beck Telephone () 3-2182

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
BY104A5100	1 glass I-chem 30ml	wastetank salt cake	TOC PNL Procedure 7.40.37
	10.27g sample		"persulfate" method
BY104A5200	1 glass I-chem 20ml	wastetank salt cake	TOC PNL Procedure 7.40.37
	8.41g sample		"persulfate" method

Field Information**

Special Handling and/or Storage Return Lead pack cans

Possible Sample Hazards Radioactive, Corrosive.

PART II: LABORATORY SECTION

Received by _____ Title _____ Date _____

Analysis Required

*Indicate whether sample is soil, sludge, water, etc.

****Use back of page for additional information relative to sample location.**

WHC-SD-WM-TI-540, REV.1

SAMPLE RECEIPT FORM

Delivered by: B-PLANT OVERPAK Date/Time: 7-30-92 2020

Received by: John K. Brown

Customer Sample Number(s): J918, J919, J920, J921, J962, J963, J960

CONF. BEING

ALO Sample Number(s): _____

1. Customer Chain-of-Custody Form: Present X Absent _____

2. Additional Shipping Forms (list):

ORSR

3. Custody Seals on Shipping and/or Sample Containers and their Conditions.

Present X Absent _____

If Present, Condition: GOOD

4. Sample Tag(s) ID Numbers if not Recorded on the Chain-of-Custody Record or on Sample Vial.

Notes:

N/A

5. Condition of Shipping Container (i.e., broken container, dented, breached plastic bag, temperature of sample container as defined in Section 3.0 in PNL-ALO-051, etc.)

OK

29°C

AMBIENT

6. Condition of Sample Vials.

GOOD

7. Verification of Agreement or Nonagreement of Information on Receiving Documents.

Agree

8. Resolution of Problems or Discrepancies.

N/A

RETURN COMPLETED FORM TO PROJECT MANAGER

J859, J857, J856, J915, J795, BY104A51C0, BY104A52

Project No.: M 85508

TANK BY-104

TC / TIC / TOC

Sample ID.	Spl. Size	TC	OC
BIK 1)	2	26	130
2)	2	20	122
STD 1)	20.1 + 6.5 mg.	2360	2625
2)	16.2 + 2.5 mg.	1880	1091
92-09445-J1)	0.1335 g.	2470	1256
92-09445-J2)	0.0966 g.	1825	982
92-09446-J1)	0.0567 g.	2123	718
92-09446-J2)	0.0992 g.	3752	1126
BIK 3)	—	24	128
STD 3)	18.6 + 3.8 mg.	2209	1527

Analyst:

Date:

Reviewer:

Date:

Franklin D. Roosevelt

9/9/92

DKR Edwin

9-10-92

Procedures Used:

WHC-SD-WM-TI-540, REV.1

- PNL-ALO-101, Acid Digestion for Metals Analysis
 PNL-ALO-102, Fusion of Hanford Tank Waste Solids
 PNL-ALO-103, Water Leach of Sludges, Soils, and Other Solid Samples
 PNL-ALO-104, Extraction Procedure Toxicity
 PNL-ALO-106, Acid Digestion for Preparation of Samples for Radiochemical Analysis
 PNL-ALO-107, Leach Procedure for Preparing Sludges, Soils and Other Solid Samples for Free Cyanide Analysis
 PNL-ALO-108, Aqueous Leach of Sludges, Soils and Other Solid Samples for Anion Analysis
 PNL-ALO-330 Hexadecane Extracts for Volatile Organic Compounds
 PNL-ALO-504, Percent Solids Determination of Soils/Sludges/Solids
 PNL-ALO-120, Procedure for Extraction of Single Shell Tank Samples for the Analysis of Semivolatile Organic Compounds
 PNL-ALO-130, Procedure for the Receipt and Inspection of Single Shell Tank (SST) Samples
 WHC-053-1, Laboratory Procedure for Measurement of Physical and Rheological Properties of Solutions, Slurries and Sludges
 7.40.9 Laboratory Procedure for the Physical Characterization of Fluids
 7.40.16 Separation of Carbon from Soil/Sediment/Sludge Samples
 7.40.24 Measurement of Carbon-14 in Zircaloy Cladding Crud Layer
 7.40.25 Distillation of Caustic Trap Solutions for C-14 Separation
 7.40.29 Specific Gravity of Highly Radioactive Solutions
 7.40.30 Bulk Density of Highly Radioactive Free-Flowing Granular Solids
 7.40.34 Tritium in Irradiated Cladding Materials
 7.40.36 Analysis of Solid Samples for Carbonate by Use of Coulometrics Model 5011 Coulometer.
 7.40.37 Determination of Carbon in Solids Using the Coulometrics Carbon Dioxide Coulometer
 7.40.42 Determination of Carbon-14 in Radioactive Liquids, Soils, and Sludges
 7.40.47 Determination of TC, TOC and TIC in Radioactive Liquids, Soils, and Sludges by Hot Persulfate Method

Other

~~TI-SST-162~~ ~~TI-FSP-1~~

RFS 9-30-92

M&TE Used:

X Cell 2 Balance 360-06-01-016 Mettler AE 160
 Cell 6 Balance 362-06-01-038 Mettler AE 200
 Counter Balance 360-06-01-024 Sartorius R 2000
 Corning pH meter Model 240 S/N 6629

CURRENT DATE: September 24, 1992

WHC-SD-WM-TI-540, REV.1

QUALITY CONTROL DATA REVIEW

I have reviewed the following data for completeness of the QC data and for compliance with project QC requirements as defined in the TPP 16021 and the QAPJP ALO-003.

Analyte - TOC/TIC/TC - FeCN Safety Study

Data Package/Report - 2/SAM

ALO Numbers - 92-09445-J1 92-09445-J2 92-09446-J1 92-09446-J2

Kristine J. Kuhj-Klinger
Kristine J. Kuhj-Klinger
PNL ACL Quality Representative

9/29/92
Date

00300749116

0 0 8 6 0 4 1 2 5 0

REVIEW COMMENT RECORD (RCR)		1. Date	2. Review No. 00435	
		3. Project No.	4. Page 1 of 2	
5. Document Number(s)/Title(s) ECN 166535, DIRECT REVISION OF WHC-SD-WM-TP-114 REV.1, "TEST PLAN FOR SAMPLING AND ANALYSIS OF AUGERED SURFACE SAMPLES FROM TANKS CONTAINING FERROCYANIDE WASTES".	6. Program/Project/ Building Number TANK FARMS/BY-104	7. Reviewer TOM WHELAN	8. Organization/Group ESQ/WTQE/38220	9. Location/Phone 200E/M0234/3-5346
17. Comment Submittal Approval: _____ Organization Manager (Optional)	10. Agreement with indicated comment disposition(s) 6-4-92 Date Tom Whelan Reviewer Mark G. Beed Project/Cognizant Engineer	11. CLOSED 6-4-92 Date Tom Whelan Reviewer Mark G. Beed Project/Cognizant Engineer		
12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status

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WHC-SD-WM-TI-540, REV. 1

REVIEW COMMENT RECORD (RCR)	1. Date	2. Review No. 00435
	3. Project No.	4. Page 2 of 2

306	THE JUSTIFICATION FOR DELETING VOA IS UNCLEAR. REFERRING TO WHC-SOW-91-004 SECTION 3.3 ANALYTICAL REQUIREMENTS THE FOLLOWING IS STATED: If WHC's Laboratory is unable to perform the required analysis, such as Volatile Organics or Total Organic Carbon, the Laboratory may subcontract to the PNL's 325 Laboratory for performance of these analyses. Also the Laboratory shall be required to perform analysis based upon WHC-SD-WM-TP-114. Deleting VOA Analysis completely from the Test Plan implies the analysis will not be conducted. Is this what is intended? A statement such as that for TOC found in the Test Plan, Section 2.0, would clarify that PNL is to do it if that is the case or a statement in the Test Plan stating that VOA analysis has been deleted would suffice. This would cross link the two documents and clarify to the initiator of a Technical Project Plan the intent of VOA analysis.	TW	The VOA analyses are intended to be deleted. The difficulty is not with the fact that WHC laboratories cannot analyse these samples, but that the test is useless, as the sampling device (the auger) is configured. Any other laboratory would likely experience the same problems. The current tank (BY-104) has headspace sampling equipment attached to it, which gives better (not perfect, but better) data than the VOA analysis could hope to achieve. The intent of the auger sampling is to determine high temperature ignitability near a rotating coring drill bit. Since elevated temperatures may be present during coring, all volatiles will have been driven off. Therefore, the volatile organics measurement is not necessary.

WHC-SD-WM-TI-540

WHC-SD-WM-TI-540, REV. 1

CORRESPONDENCE
AND
MISCELLANEOUS INFORMATION

Battelle

Pacific Northwest Laboratories
P.O. Box 999
Richland, Washington U.S.A. 99352
Telephone (509) 376-2639
Telex 15-2874

WHC-SD-WM-TI-540, REV.1

September 30, 1992

Kurt Silvers, T6-08
Office of Sample Management
Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

Dear Kurt,

TRANSMITTAL OF TOC/TIC/TC DATA FOR FERROCYANIDE SAFETY PROJECT - BY-104
AUGER SAMPLES

The PNL-ACL has completed the analysis of the TOC/TIC/TC BY-104 Auger Samples. This work was performed under the Ferrocyanide Safety Analysis Project (15497) as directed by the Letter of Instruction (August 10, 1992 from JH Kessner to AG King). This data package includes a summary data report, the raw data and the supporting documentation.

Please sign and return the attached PNL Analytical Chemistry Laboratory Data Report/Package Acknowledgement Form for this data summary report. This letter is to verify that the data report has been received by WHC-OSM.

Please call me (376-2639) if you have any questions or concerns.

Sincerely,

S.G. McKinley
PNL SST Project Manager
Analytical Laboratory Operations

SGM:jlr

Enclosures

Pacific Northwest Laboratories

WHC-SD-WM-TI-540, REV.1

Project Number _____

Internal Distribution :

SG McKinley
MW Urie
RT Steele
ALO Office
File/LB

Date Sept 22, 1992

To SST Project Management Office ✓

From DL Baldwin *D Baldwin*

Subject SST TOC/TIC/TC Results, FeCN Safety Study,
Tank By-104

This work is done by the hot persulfate oxidation method, Test Procedure PNL-ALO-381, rev. 0, "Determination of TC, TOC, and TIC in Radioactive Liquids, Soils and Sludges by Hot Persulfate Method". The M&TE No. for the carbon measurements is WC01713, M&TE No. for weights is WB69133 or 087306-90. The data is located in LRB BNW54033 p 25, or on file in the Records Office. TOC standard used is glucose, lot# Kodak B1F. The TIC standard is CaCO₃, lot N364. The estimated error is ± 10%.

The procedure states that this method is applicable to organic carbon species and inorganic carbonates, but not to other forms of carbon such as elemental graphite. Another carbon form to which this method may be poorly applicable is the inorganic form of cyanide. Initial indications are that recoveries for sodium ferrocyanide are in the 10-55% range. For the analysis of carbon in the form of the inorganic cyanide, the use of the total combustion, high-temperature furnace oxidation method described in PNL-ALO-380 may be more appropriate.

Note concerning blanks: Three system blanks, for both TIC and TOC, are run during the batch analysis, two at the beginning and one at the end of the batch. The three are averaged, and the respective TIC or TOC blank average is subtracted from the measured TIC and TOC results. The reported values shown below are blank-corrected. The system blank average is considered equal to the methods blank, therefore no methods blank is reported.

	<u>ALO No.</u>	<u>weight(q)</u>	<u>TOC (ug/q)</u>	<u>TIC (ug/q)</u>	<u>TC (ug/q)</u>
<i>125</i>	92-09445-J1	0.1335	1.9 E+4	8.9 E+3	2.8 E+4
	92-09445-J2	0.0966	1.9 E+4	9.3 E+3	2.8 E+4
<i>114</i>	92-09446-J1	0.0567	3.8 E+4	1.1 E+4	4.9 E+4
	92-09446-J2	0.0992	3.9 E+4	1.1 E+4	5.0 E+4

1) Only TOC and TIC are actually measured. The TC is the addition of TOC and TIC.

SST Project Management Office
August 3, 1992
Page 2

WHC-SD-WM-TI-540, REV.1

2) Percent recovery is determined for TOC and TIC, respectively, using the respective standards. All results are corrected for either percent TOC or TIC recovery.

Concur by:
File: SSTTCFE

Rick L. Stuck

Date: 9/22/92

00800 40105

CORRESPONDENCE DISTRIBUTION COVERSHEET

WHC-SD-WM-TI-540, REV. 1

Author

Addressee

Correspondence No.

R. J. Cash, 3-3132

R. E. Gerton, RL

9353674

Subject: FERROCYANIDE SAFETY PROGRAM: COMPLETION OF MILESTONE 207 - DATA
INTERPRETATION REPORT ON TANK 241-BY-104 AUGER SAMPLES

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	A3-01	X
		President's Office	B3-01	
		H. Babad	R2-08	
		M. A. Beck	T6-10	T6-09
		D. C. Board	S1-57	
X	5/9/93	G. L. Borsheim	R2-11	
		S. L. Bradley	B3-06	
X	5/7/93	R. J. Cash (2)	R2-32	
		G. M. Christensen	H4-21	
		R. D. Crowe	H4-62	
		C. DeFigh-Price	R2-31	
		G. T. Dukelow	R2-32	
		C. J. Forbes	R1-08	
		J. C. Fulton	R2-31	
		K. A. Gasper	R2-08	
		J. M. Grigsby	H5-32	
		H. D. Harmon	R2-52	
		L. L. Humphreys	R2-50	
		M. N. Islam	R3-08	
X	7/10/93	N. W. Kirch	R2-11	
	5-10-93	D. W. Jeppson	L5-31	
		J. R. Jewett	T6-09	
		D. R. Johnson	R2-08	
		J. E. Meacham	R2-32	
X		J. W. Neskas	R2-11	
		J. C. Propson	R2-18	
		I. E. Reep	R2-08	
		D. C. Richardson	R2-31	
		C. P. Schroeder	L7-06	
		N. L. Simon	R2-78	
		TFIC	R1-20	
		File	R2-32	

310.1

"ENC", MAY 10 1993

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

May 10, 1993

WHC-SD-WM-TI-540, REV. 1

9353674

Mr. R. E. Gerton, Director
Tank Waste Storage Division
U.S. Department of Energy
Richland Operations Office
Richland, Washington 99352

Dear Mr. Gerton:

**FERROCYANIDE SAFETY PROGRAM: COMPLETION OF MILESTONE 207 - DATA INTERPRETATION
REPORT ON TANK 241-BY-104 AUGER SAMPLES**

Reference: Letter, D. C. Richardson, WHC, to R. E. Gerton, RL, "Completion of
Milestone 2032: Complete Analysis Report on Two Ferrocyanide Tank
Auger Samples (241-BY-104)," 9259355, dated December 18, 1992.

This letter transmits the Data Interpretation Report for Tank 241-BY-104 Auger
Samples, WHC-SD-WM-RPT-068, Rev. 0, as promised in the reference letter. The
report evaluates the data obtained by laboratory analysis of two auger samples
obtained from tank 241-BY-104 in fiscal year 1992. The purpose for taking
these samples was to determine important chemical and physical properties of
the saltcake layer (common to many of the ferrocyanide tanks), including
chemical composition, reactivity, and moisture content. This information is
necessary to assure the safety of rotary mode core sampling in ferrocyanide
waste tanks that contain saltcake layers.

The results show that the fuel content of the samples was low and the
energetic response mild, with no propagating reaction characteristics
observed. It is concluded that rotary mode core sampling of the ferrocyanide
tanks that contain a saltcake layer will be safe with regard to chemical
reactivity.

The report was processed for clearance release on April 30, 1993. Transmittal
is now being made after incorporating information requested by the U.S.
Department of Energy, Richland Operations Office reviewer. Westinghouse
Hanford Company apologizes for the mixup earlier this week where the original
report was transmitted by mistake and then withdrawn. During incorporation of
comments the original file did not get replaced with the corrected version.

3102

Mr. R. E. Gerton

Page 2

May 10, 1993

WHC-SD-WM-TI-540,REV.1

9353674

If there are any questions, please call Dr. R. J. Cash of my staff on 373-3132.

Very truly yours,

J. C. Fulton, Manager
Waste Tank Safety Programs
Tank Waste Remediation System

fm

Attachment

RL - R. F. Christensen
W. F. Hendrickson
R. O. Puthoff (w/o attachment)

3103

WESTINGHOUSE HANFORD COMPANY

INSPECTION/SURVEILLANCE REPORT

Section 1 - Initiation

☐ Response☐ Corrected☒ Information

Date Initiated: 11/17/92

Copies To:	Mark Beck	T6-50	R.D. Moerman	B5-20
	D.G. Farwick	H4-16	S.T. Smith	H4-25
	J.G. Kristofyzski	T6-20	EQA File	H4-16
	J.C. Langford	S1-52	Quest	L4-86

* CC: Mail

Subject: Verify analyses requested were actually done.
System: N/A Equipment Number: N/A
Location: 222-S Survey Item: Anal. Rpt. WHC-SD-WM-TI-540
Reference: LA-505-151 and WHC-SD-WM-TI-540

Initiated By: J.C. Langford Organization Code: 38610

J.C. Langford 11/24/92
Signature Date

D.G. Farwick 11/30/92
Concur Date

Response Requested: ☒ No

☐ Yes,
Organization Code:
By:

QUEST Trending Code: AD-04, PN-004

Priority Planning Grid (PPG) Value:

Reference Documents: WHC-SD-WM-TI-540

ISR: X

NCR:

CAR:

Hold Tag:

Person Contacted: Mark Beck, John Kristofzski, Rich Storm, Brian Wels
Surveillance Checklist Attached: Yes ☒ No ☐
Checklist Name: Verification ICP Surveillance Checklist
Number of Checklist Pages: 2

Report: This surveillance was to determine if spikes had been run on the samples per the Analytical Procedure in spite of the no spike request on the analysis request. It was interesting that the lab followed the procedure and did run the spikes. The spikes were not reportable though. This led to an ambiguous reporting of the results. Everyone was very cooperative in the search for the true situation and the end result was no violations.

WHC-SD-WM-TI-540, REV. 1

Section 2 - Response

Responder: _____

Date _____

Response Evaluation

Evaluation of Response: ☐ Acceptable ☐ Unacceptable (explain below)

Comments:

Evaluated By: _____

Date: _____

Follow-up/Closure Verification Results: ☐ Acceptable
☐ Unacceptable (explain below)

Additional Verification Required: ☐ No ☐ Yes, _____
(identify new document)

Closed By:

J. C. Langford
Initiator

11/24/92
Date

3105

WHC-SD-WM-TI-540, REV. 1

Date: 11/17/92

Persons Contacted: Mark Beck, 3-2182

Facility: 222-S laboratory

John K. Cristofyski 3-3830

Rich Storm 3-2484

Surveillant: J.C. Langford

Brian Wells 3-3589

Purpose: Since verification is the process of confirming that the agreed upon action was performed, this surveillance is to determine that the correct procedures were followed in analysis of samples at 222-S. Three analyses were chosen that were believed to have problems in completing all the data:

References:

1. LA-505-151, ICPs Emission Spectrograph Method for Trace Element Analysis of Water and Wastes, p10, #2 says that at least one spike sample analysis on each group of samples of similar matrix shall be run.
2. WHC-SD-WM-TI-540, Analysis Report for 241-BY-104 Auger Samples, p3-14. says that no spike analyses were run for silicon, chromium, and manganese. Also no spikes were run on water-digested samples.

Digestion

Checklist:

1. Were there spike solutions available to run on these analyses?

SAT/UNSAT/NA

Comments: Yes, per Brian. Wels, in the labor law

2. Who made the decision to run no spikes?

(SAT)/UNSAT/NA

Comments: Mark Beck, customer said not to run spikes on the original sample. However, the data sheets show that the lab did run spikes for Si, Cr, Mn but that the spikes didn't come out properly. Nothing further was done.

3. Is there a record of conversation between the customer and the lab concerning this decision?

SAT/UNSAT/NA

Comments: On the analysis request, - it states do not do the CHP package (per mark Book). He just wanted rough numbers.

4. Are deviations from procedures recorded?

SAT/UNSAT/NA

(see next page)

3106

Comments: there was no deviation from the procedure. The real problem was in the manner data was reported in reference #2.

WHC-SD-WM-TI-540, REV. 1

VERIFICATION ICP SURVEILLANCE CHECKLIST--ESQA

5. Is there a signature and date affixed to the deviation recording to show responsibility and ownership?

(SAT)/UNSAT/NA

Comments: The Test plan was signed off and the analysis request RSA (request for Special Analysis)

6. Is the information regarding deviations passed on to the Data Evaluations group?

(SAT)/UNSAT/NA

Comments: Yes, on the RSA.

WESTINGHOUSE HANFORD COMPANY INSPECTION/SURVEILLANCE REPORT
WHC-SD-WM-TI-540, REV.1

Section 1 - Initiation

☐ Response☐ Corrected☒ Information

Date Initiated: 11/17/92

Copies To:	Mark Beck	T6-50	R.D.Moerman	B5-20
	D.G.Farwick	H4-16	S.T.Smith	H4-25
	J.G.Kristofyzski	T6-20	EQA File	H4-16
	J.C.Langford	S1-52	Quest	L4-86

* CC:Mail

Subject: Verify analyses requested were actually done.

System: N/A Equipment Number: N/A

Location: 222-S Survey Item: Anal.Rpt. WHC-SD-WM-TI-540

Reference: LA-505-151 and WHC-SD-WM-TI-540

Initiated By: J.C.Langford Organization Code: 38610

11/24/92
Date

Concur

11/30/92
DateResponse Requested: ☒ No☐ Yes,
Organization Code:
By:

QUEST Trending Code: AD-04, PN-004

Priority Planning Grid (PPG) Value:

Reference Documents: WHC-SD-WM-TI-540

ISR: X

NCR:

CAR:

Hold Tag:

Person Contacted: Mark Beck, John Kristofzski, Rich Storm, Brian Wells

Surveillance Checklist Attached: Yes ☒ No ☐

Checklist Name: Verification ICP Surveillance Checklist

Number of Checklist Pages: 2

Report: This surveillance was to determine if spikes had been run on the samples per the Analytical Procedure in spite of the no spike request on the analysis request. It was interesting that the lab followed the procedure and did run the spikes. The spikes were not reportable though. This led to an ambiguous reporting of the results. Everyone was very cooperative in the search for the true situation and the end result was no violations.

3108

WMC-SD-WM-TI-540, REV. 1

Section 2 - Response

Responder: _____

Date: _____

Response Evaluation

Evaluation of Response: ☐ Acceptable ☐ Unacceptable (explain below)

Comments: _____

Evaluated By: _____

Date: _____

Follow-up/Closure Verification Results: ☐ Acceptable ☐ Unacceptable (explain below)

Additional Verification Required: ☐ No ☐ Yes, _____ (identify new document)

Closed By: _____

Initiator: _____

J. C. Longford

Date: _____

11/24/92

3109

VERIFICATION ICP SURVEILLANCE CHECKLIST--ESQA
WHC-SD-WM-TI-540, REV.1

Date: 11/17/92

Persons Contacted: Mark Beck 3-2182

Facility: 222-S laboratory

John Kristofyski 3-3830

Surveillant: J.C. Langford

Rich Storm 3-2484

Brian Wels 3-3589

Purpose: Since verification is the process of confirming that the agreed upon action was performed, this surveillance is to determine that the correct procedures were followed in analysis of samples at 222-S. Three analyses were chosen that were believed to have problems in completing all the data.

References:

1. LA-505-151, ICPs Emission Spectrograph Method for Trace Element Analysis of Water and Wastes, p10, #2 says that at least one spike sample analysis on each group of samples of similar matrix shall be run.

2. WHC-SD-WM-TI-540, Analysis Report for 241-BY-104 Auger Samples, p3-14. says that no spike analyses were run for silicon, chromium, and manganese. Also no spikes were run on ~~water~~ ^{Digestate} digested samples.

Checklist:

1. Were there spike solutions available to run on these analyses?

(SAT) UNSAT/NA

Comments: Yes, per Brian Wels, in the laboratory

2. Who made the decision to run no spikes?

(SAT) UNSAT/NA

Comments: Mark Beck, customer said not to run spikes on the original sample. However, the data sheets show that the lab did run spikes for Si, Cr, Mn but that the spikes didn't come out properly. Nothing further was done.

3. Is there a record of conversation between the customer and the lab concerning this decision?

(SAT) UNSAT/NA

Comments: On the analysis request, it states do not do the CLP package (per Mark Beck). He just wanted rough numbers.

4. Are deviations from procedures recorded?

(SAT) UNSAT/NA

(see next page)

31010

Comments: *there was no deviation from the procedure. The real problem was in the manner data was reported in reference #2.*

VERIFICATION ICP SURVEILLANCE CHECKLIST--ESQA

5. Is there a signature and date affixed to the deviation recording to show responsibility and ownership?

(SAT)/UNSAT/NA

Comments: *The Test plan was signed off and the analysis request RSA (request for Special Analysis)*

6. Is the information regarding deviations passed on to the Data Evaluations group?

(SAT)/UNSAT/NA

Comments: *Yes, on the RSA.*

TOC/TIC Calculations "Review" Report - Hot Persulfate Method PNL-ALO-381
 Batch: Tank By-104, FacN Safety Project, LRB BNW54033 P. 25

Instrument WC01713
 TIC STD: CaCO3 (lot N364)

Bal MAT: WB69133
 TOC STD: Glucose (lot B1F)

Procedure: PNL-ALO-381
 Archive File: SSTCAR02.WQ1

Preparer/date: DeB... 9/22/92
 Reviewer/date: ... 9/22/92

Blank Averages: TIC (26, 20, 24): 23 TOC (130,122,128): 127
 Standard Calculations

measured	TIC (ug)	Blk (ug)	wt (g)	% Recov	TIC	measured	TOC (ug)	blk (ug)	wt (g)	% Recov	TOC
STD 1	2360	23	0.0201	97.0	2625	127	0.0065	96.1			
STD 2	1880	23	0.0162	95.6	1091	127	0.0025	96.4			
STD 3	2209	23	0.0186	98.0	1527	127	0.0038	92.1			
			avg:	96.9			avg:	94.9			

measured	TIC (ug)	blk (ug)	wt (g)	sample	TIC	measured	TOC (ug)	blk (ug)	wt (g)	sample	TOC
92-09445-1	2470	23	0.1335	1.9E+04	18916	1256	0.1335	8.9E+03	8025	2.8E+04	8025
92-09445-12	1825	23	0.0966	1.9E+04	142510	982	0.0966	9.3E+03	932C	2.8E+04	932C
92-09446-1	2123	23	0.0567	3.8E+04	35222	718	0.0567	1.1E+04	10983	4.8E+04	10983
92-09446-12	3752	23	0.0992	3.9E+04	35793	1126	0.0992	1.1E+04	10611	5.0E+04	10611
			Equations								

% TIC Recovery = [(TIC-Blk)/(Sample Wt(e+6)*0.1199)]*100
 % TOC Recovery = [(TOC-Blk)/(Sample Wt(e+6)*0.400)]*100
 TIC (ug/g) = (TIC-Blk)/(Sample Wt*Avg TIC Recov/100)
 TOC (ug/g) = (TOC-Blk)/(Sample Wt*Avg TOC Recov/100)
 TC (ug/g) = TIC (ug/g) + TOC (ug/g)
 Carbon Fraction in TIC Standard = 0.1199
 Carbon Fraction in TOC Standard = 0.400

Westinghouse
Hanford Company

WHC-SD-WM-TI-540,REV.1

Internal
Memo

From: Process Chemistry Laboratory 12110-PCL92-044
Phone: 3-2182 T6-50
Date: May 27, 1992
Subject: FECN TANK AUGER SAMPLING READINESS REVIEW; COMPLETION OF CHECKLIST
ITEM 3.6.2

To: P. B. Bourne H3-22

cc: J. E. Bjorklund R1-62
G. L. Dunford R1-51
B. Griffin T6-08
S. G. Hodge R3-35
R. W. Jacobson S5-01
J. R. Jewett T6-50
J. D. Martin L7-05
E. H. Neilsen R2-18
K. L. Silvers T6-08
D. L. Sparks S5-01
MAB File/LB

- References: (1) Internal Memo, K. L. Silvers to P. B. Bourne, "FeCN Tank Auger Sampling Readiness Review; Completion of Checklist Item 3.6.2," dated October 14, 1991
- (2) Beck, M. A., WHC-SD-WM-TP-114, Revision 2, "Waste Characterization Plan for Sampling and Analysis of Augered Surface Samples from Tanks Containing Ferrocyanide Wastes," dated May 14, 1992.

Item 3.6.2

Description

Analytical procedures are in place.

Acceptance Criteria

Affidavit listing the analytical methods and procedures to be used on FeCN crust samples and confirming they are approved. Procedures should include sample receipt, handling, storage, and archiving.

Response

This affidavit is a response to FeCN auger sampling readiness review checklist item 3.6.2, and as such updates and supersedes the previous affidavit (Reference 1). Reference 2 controls the analytical work to be done on auger samples from Ferrocyanide Watch List tanks. This plan may be modified as new facts or changes in program requirements may dictate. All

00740941909

P. B. Bourne
Page 2
May 27, 1992

12110-PCL92-044

WHC-SD-WM-TI-540, REV.1

applicable analytical procedures and analyses referenced explicitly or implicitly in the test plan are approved for use, current and active. These procedures are listed in Table 1 (attached).

This closes out item 3.6.2 of the readiness review checklist.

Mark A. Beck

M. A. Beck, Scientist
Process Chemistry Laboratory

tth

Attachments (1)

APPROVED BY:

R. P. Marshall
R. P. Marshall, Manager
Facility Operations

6/1/92
Date

J. P. Slough
J. P. Slough, Manager
Process Laboratories and Technology

5/28/92
Date

D. A. Dodd
D. A. Dodd, Manager
Analytical Chemistry

5/28/92
Date

0074041910

WHC-SD-WM-TI-540,REV.1

Table 1
Analytical Analyses and Procedures

Description of Procedure	Preparation Procedure	Measurement Procedure
Core Segment Receipt and Preparation	LT-150-101	N/A
Core Segment Extrusion	LT-549-101	N/A
Homogenization	LT-549-102	N/A
Sample Storage, Room 2E and 2B and 222-S Laboratory Hot Cells	LO-150-132	N/A
Particle Size	T-044 A01 712 F	T-044 A01 712 F
Differential Scanning Calorimetry	Direct	LA-514-113
Thermal Gravimetric Analysis	Direct	LA-560-112
Weight % Water	Direct	LA-564-101
Adiabatic Calorimetry	WHC-SD-WM-TP-104	WHC-SD-WM-TP-104
ICP - Acid Digestion	LA-505-159	LA-505-151
ICP - Water Digestion	LA-504-101	LA-505-151
ICP - Fusion	LA-549-141	LA-505-151
Ion Chromatography, Anions	LA-504-101	LA-533-105
Total Organic Carbon for Solids	PNL-ALO-103	7-40.37
Cyanide by Direct Distillation	N/A	LA-695-102
Polarized Light Microscopy	WHC-MR-0375	WHC-MR-0375
X-Ray Diffraction	LA-504-101 LA-507-151	LA-507-152
Total Alpha/Total Beta by Gas Proportional Counter	LA-508-101	LA-508-111

00740941911

WHC-SD-WM-TI-540,REV.1

Description of Procedure	Preparation Procedure	Measurement Procedure
Gamma Energy Analysis (GEA)	LA-548-121	LA-508-052
Sr-90	LA-220-101	LA-508-111
Am-241, Pu-239, Pu-240, Pu-238	LA-503-156	LA-508-104 LA-508-051
Total Uranium	LA-549-141	LA-925-106
pH Direct	N/A	LA-212-102

*no
mao 8/17/92*

water defect

00740 41912

From: Office of Sample Management, 28600-91-134
Phone: 3-3507 T6-08
Date: October 14, 1991
Subject: FECN TANK AUGER SAMPLING READINESS REVIEW; COMPLETION OF CHECKLIST
ITEM 3.6.2

WHC-SD-WM-TI-540, REV. 1

To: P. B. Bourne

cc: J. E. Bjorklund	S5-03	R. W. Jacobson	S5-01
G. L. Dunford	S5-15	J. D. Martin	H5-72
S. G. Hodge	R3-54	E. H. Neilsen	L6-29
J. L. Homan	H5-72	D. L. Sparks	S5-01

ITEM 3.6.2

Description

Analytical procedures are in place.

Acceptance Criteria

Affidavit listing the analytical methods and procedures to be used on FeCN crust samples and confirming they are approved. Procedures should include sample receipt, handling, storage, and archiving.

Response

A Statement of Work, WHC-SOW-91-0004 Rev 0, was specifically prepared for Auger sampling tank 241-BY-104. All applicable analytical procedures referenced in the Statement of Work are approved for use. All applicable procedures are listed below or in table 1 (attached).

LT-151-101 ✓	Core Segment Receipt and preparation
LT-549-101 ✓	Core Segment Extrusion
LT-549-102 ✓	Homogenization and Homogenized Segment
	Sampling
LO-150-132 ✓	Sample Storage, Room 2E and 2B and 222-S
	Laboratory Hot Cells

This closes out item 3.6.2 of the readiness review checklist.

K. L. Silvers
Office of Sample Management

jok

Attachments

316

00330941234

P. B. Bourne
Page 2
October 15, 1991

28600-91-134

WHC-SD-WM-TI-540, REV. 1

Rob Marshall

J. H. Keyser, Manager
Office of Sample Management

J. P. Slough, Manager
Process Laboratory and Technology

D. A. Dodd, Manager
Analytical Chemistry

P. B. Bourne, Chairman
Readiness Review Board

0096041237

TABLE 1
ANALYTICAL ANALYSIS AND PROCEDURES (CONT)

WHC-SD-WM-TI-540, REV. 1

Total Organic Carbon - Liquid	LA-504-101 ✓	LA-344-105 ✓	
- Solid	PNL-ALO-103	7-40.7	0.01 ug/g
Cyanide by Direct Distillation	N/A	LA-695-102 ✓	0.004 ug/g
Polarized Light Microscopy	RHO-RE-ST-28P	RHO-RE-ST-28P WHC-17K-0375	NA
X-Ray Diffraction	LA-507-151 ✓	LA-507-152 ^{near to} 3/16/91	NA
Total Alpha by Gas Proportional Counter	LA-508-101 ✓	LA-508-104 ?	0.01 uCi/g
Total Beta by Gas Proportional Counter	LA-508-101 ^{going to be made}	LA-508-105 ^{counter}	0.02 uCi/g
Gamma Energy Analysis (GEA)	LA-548-121 ✓ E-0	LA-508-052 ^{near to} 7/1/90 JOS-262-GEA-10/25/93 A=0	0.04 uCi/g
Sr-90, Determination	LA-220-101 ✓	LA-508-105 ^{near to} 7/1/90 JOS-262-GEA-10/25/93 A=0	0.02 uCi/g
Am-241, Pu-239, Pu-240 Pu-238, Determination	LA-503-156 ✓	LA-508-104 ✓ LA-508-051 ✓	Am-241 3E-05 uCi/g, Pu 3E-05 uCi/g
Total Uranium	LA-549-141 ✓	LA-925-106 ✓	7E-08 uCi/g
pH Direct	Direct	LA-212-102 ✓	N/A
Volatile Organic Analysis	PNL-ALO-335 LA-523-401 ^{not used}	PNL-ALO-335 LA-523-401 ^{not used}	Exhibit C, CLP- SOW Organics 3/90

M/MA 11/18/94

0 0 3 6 0 7 4 . 1 2 3 5

TABLE 1 WHC-SD-WM-TI-540, REV. 1
ANALYTICAL ANALYSIS AND PROCEDURES

Description of Procedure	Preparation Procedure	Measurement Procedure	Detection Limits
Homogenization	LT-549-102	NA	NA
Particle Size	DISPERSIVE	T-044 A01 7/2 F	± 0.5 microns
Differential Scanning Calorimetry/Thermal Gravimetric Analysis	Direct	T-042 / T-045 LA-560-112 514-113	Exotherm
Weight % Water	Direct	LA-564-101 ✓	1%
Bulk Density	Direct	NA	NA
Adiabatic Calorimetry	WHC-SD-WM-TP-104	WHC-SD-WM-TP-104	NA
ICP - Acid Digestion	LA-505-159 ✓	LA-505-151 ✓	(conc.= ug/g) Ag-19, Al-6, Ba-0.9, Be-0.003 Bi-4, Ca-18, Cd-0.5, Co-100, Cr-0.01, Cu-5, Fe-44, K-400, Mg-0.5, Mn-2, Na-44, Ni-4, Pb-3, Sn-45, Tl-1000, H ₂ O-0.5, Zn-2, Si-13, Th-100, U-1000, Zr-400
- Water Digestion	LA-504-101 ✓		
- Fusion	LA-549-141 ✓		
IC - Anions (Dionex) F, Cl, NO ₃ , PO ₄ , SO ₄ , NO ₂	LA-504-101 ✓	LA-533-105 ✓	(conc.=ug/g) F-1, NO ₃ -1, NO ₂ -0.04, CL-1, SO ₄ -400, PO ₄ -43

map 11/19/94

Westinghouse
Hanford Company

Internal
Memo

From: Process Chemistry Laboratory
Phone: 3-1228 T6-50
Date: April 1, 1992
Subject: CONTROLLING DOCUMENT FOR CHARACTERIZATION OF 104-BY AUGERS

12110-PCL92-025 Rev. 1

To: G. T. Dukelow

R2-32

WHC-SD-WM-TI-540, REV. 1

cc: M. A. Beck T6-50
M. L. Bell T6-16
R. J. Cash R2-31
J. P. Sloughter T6-07
JRJ File/LB

I wish to inform you that the single controlling document for laboratory characterization of 104-BY auger samples is "Waste Characterization Plan for Sampling and Analysis of Augered Surface Samples from Tanks Containing Ferrocyanide Wastes," WHC-SD-WM-TP-114, D. B. Bechtold, as revised. This test plan indicates how sample material is to be allocated for analysis, and what procedures will be used to perform the analyses. Since 104-BY auger sample characterization is not in support of the Tri-Party Agreement, no Statement of Work or Technical Project Plan will be used. Use of a test plan to control laboratory activities is described and authorized in WHC-CM-5-4, Section 5.4, "Laboratories Administration," dated March 27, 1992. Test plans are also used to control sampling and other Waste Tank Safety work performed in the tank farms.

If you have any questions on this matter, please call me at 373-1228.

J. R. Jewett
Manager

tth

0 3 3 6 0 9 4 1 2 3 8

Westinghouse
Hanford Company

Internal
Memo

From: Process Chemistry Laboratory
Phone: 3-1228 T6-50
Date: March 25, 1992
Subject: CONTROLLING DOCUMENT FOR LABORATORY CHARACTERIZATION

12110-PCL92-025

WHC-SD-WM-TI-540, REV.1

To: G. T. Dukelow R2-32

cc: M. A. Beck T6-50
M. L. Bell T6-16
R. J. Cash R2-31
J. P. Sloughter T6-07
JRJ File/LB

I wish to inform you that the single controlling document for laboratory characterization is "Waste Characterization Plan for Sampling and Analysis of Augered Surface Samples from Tanks Containing Ferrocyanide Wastes," WHC-SD-WM-TP-114, D. B. Bechtold, as revised. This test plan indicates how sample materials is to be allocated for analysis, and what procedures will be used to perform the analyses. Since auger sample characterization is not in support of the Tri-Party Agreement, no Statement of Work or Technical Project Plan will be used. Use of a test plan to control laboratory activities is described and authorized in WHC-CM-5-4, Section 5.4, "Laboratories Administration," dated March 27, 1992. Test plans are also used to control sampling and other Waste Tank Safety work performed in the tank farms.

If you have any questions on this matter, please call me at 373-1228.

J. R. Jewett
Manager

tth

0036041239

DON'T SAY IT --- WRITE IT!

DATE: June 29, 1992

TO: Jim Jewett

FROM: Mark A. Beck
phone 3-2182

cc: Gary Dukelow

WHC-SD-WM-TI-540, REV.1

Subject: Analyses deleted due to lack of sample, possible PCL and customer response.

The following is a table from SD-WM-TP-114 Rev.2 that details how it was planned that the sample would be broken down. Not included in the Figure, but implied in the body of the test plan, are samples for adiabatic calorimetry for the top and bottom of the auger.

Figure 3-2

Sample Breakdown (All weights in gram)						
All aliquots refer to homogenized composite unless stated otherwise. The order of priority of aliquoting is shown in letter form, example: (A). The order in which the aliquoting is done is found in the associated procedure.						
Solids	Vial #	Gross wt.	Tare Wt.	Net Wt.	Wt Needed for analysis	Original sample must be greater than:
DSC/TGA Top of Sample (A)					3	3
DSC/TGA Bottom of Sample (A')					3	6
DSC/TGA Composite (A'')					3	9
Cyanide (B)					2	11
TOC-PNL (C)					5	16
%Water (D)					3	19
Fusion- ICP, radiochem (E)					7	26
Acid-ICP (F)					5	31

DRAFT

Water Digestion- IC, TOC, ICP, PSA, PLM, XRD (G)					18	49
Adiabatic Calorimetry (H)					15/run	140-for 6 runs per auger, 80-for 2 runs per auger
Archive- FeCN, COD (I)					12-36	any remainder

All samples have been or will be taken for all analyses with the following exceptions.: Adiabatic calorimetry for the top and bottom portions of the auger and archiving for Riser 10B. These analyses were deleted because of an apparent lack of sample, and the relative priority of the analyses (as listed in Figure 3-2). The decision to delete these analyses, based on the amount of available sample, was made by me as the cognizant scientist.

It has come to my attention that equipment exists to take more sample. I advise against this, due to the lack of information gained, the cost involved and ALARA considerations. No additional information will be gained by taking "top" and "bottom" auger samples for adiabatic calorimetry, because of the visually confirmed homogeneity of the auger samples. Also, a new auger sample may not have the same material at the top and bottom as the presently available samples. ALARA considerations must be taken into account in both taking the sample (tank farm personnel), loading the sample into the hot cell (PCL), and the analysis (~300 mrem extremity per adiabatic calorimetry analysis run).

Mark

: System Configuration (C) Copyright 1985-1989, American Megatrends Inc.,
: System Configuration (C) Copyright 1985-1989, American Megatrends Inc.,

WHC-SD-WM-TI-540,REV.1

DON'T SAY IT --- WRITE IT!
DATE: April 8,1992

TO: J. R. Jewett
FROM: Mark A. Beck
phone 3-2182

cc: G. T. Dukelow
D A Dodd
Subject: ALTERNATIVE VOLATILE ORGANIC SAMPLING/ANALYSES FOR BY-104 AUGER

As I stated in my March 27th letter to H. Babad, I have explored some alternative methods of sampling volatile organics, and found all current methods to be inadequate.

H. Babad insists that volatile organics be done at some point, because A) tank headspace measurement may not be representative of the contents, due to intra-tank convection, B) There is a thin crust that may prevent volatile organics from diffusing from deep portions of the tank into the headspace.

As a trade-off for deleting the VOA from the auger sampling, Dr. Babad wishes PCL to be ready (some time in the future) to be able to sample the headspace of a cask, given that the cask will be modified by Dr. Babad's organization to allow such sampling.

Just thought I should give you a heads-up regarding this "committment".

Sincerely,
Mark A. Beck, Scientist
Process Chemistry Laboratories

[11] From: Douglas M Zoucha at ~WHC235 4/23/92 3:55PM (645 bytes: 7 ln)

To: Mark A Beck at ~WHC168, Douglas M Zoucha, Muhammad N Islam

Subject: AUGER SAMPLE REVIEW

WHC-SD-WM-TI-540, REV.1

----- Message Contents -----

Mark, I've reviewed your reply to my RCR comment concerning ECN 166535. At this point, I'm still not convinced that volatile organic analysis can be deleted.

My reasoning is: since the auger sample is being done to determine waste stability, volatile organic analysis is important. I would like to see a method of analyzing for volatile organics developed.

high temp ignitability

125000/gram

[2] From: Mark A Beck at ~WHC168 3/26/92 1:37PM (1645 bytes: 26 ln)
To: Harry Babad at ~WHC142
Receipt Requested
cc: Jim R Jewett at ~WHC167, Mark A Beck
Subject: VOA analysis request for 104-BY

WHC-SD-WM-TI-540,REV.1

----- Message Contents -----

Dear Mr. Babad:

As a member of Process Chemistry Laboratories working on the auger surface sampling of 104-BY, I was wondering if you could shed some light on the following question. Who requested VOA's (Volatile Organic's), and would they mind if it were deleted from the list of analyses to be performed. PCL asks this question because: A) VOA analysis is the limiting factor in turnaround time for the requested report, B) VOA analysis will not meet virtually any of the required sampling, or analysis protocols needed for regulatory decisions C) The auger sampling technique, combined with VOA's current low priority for analysis, makes it likely that the analysis would not be run anyway because of lack of sample, D) VOA analysis would not likely produce any results because of the problems stated previously under B).

A letter from yourself or the responsible engineer to the effect of deleting VOA analysis would be appreciated, should the decision to delete VOA analysis be made.

Sincerely,
Mark A. Beck
Scientist,
Process Chemistry Laboratories

*DSI
VOA letter to
Alternatives*
Fe CHX off 104.04

[3] From: Denise J Hert at ~WHC169 8/12/92 2:31PM (377 bytes: 7 ln) .
To: Mark A Beck at ~WHC168
Receipt Requested
Subject: R1754

WHC-SD-WM-TI-540,REV.1

----- Message Contents -----

MARK,

WE ARE UNABLE TO GET RESULTS THAT AGREE BETWEEN THE SAMPLE
AND DUPLICATE FOR THIS SAMPLE. OUR RESULTS ARE
REPRODUCIBLE. DO YOU WISH TO RESUBMIT THE SAMPLE??

DENISE

BEST AVAILABLE COPY

00860741255

DON'T SAY IT --- Write It!

DATE: July 31, 1992

TO: J. R. Smith III

FROM: D. B. Bechtold T6-50

Telephone: 3-2162

cc: M. A. Beck T6-50

SUBJECT: ADIABATIC CALORIMETRY OF BY-104 AUGER SAMPLE COMPOSITES

PCL vial # 1773 contains BY-104 composite of auger samples from riser 5. PCL vial # 1775 is from riser 10B. Their detailed origin is described in WHC-N-412-1.

Please prepare each sample for adiabatic calorimetry according to the following steps in 1-A cubicle. (log all weights, observations, etc. in WHC-N-442-1):

1. Tare a drying beaker and stirring spatula.
2. Weigh in an appropriate amount of sample to get ~ 11-12 g of dried, ground material after processing (The TGA of this stuff suggests you will need at least 15 g of wet sample; use more to account for mechanical losses per your previous experience).
3. Place the drying beaker (with spatula) on a hot plate previously tuned to heat the mass to ~ 125°C (the DSC of this material indicates only moisture loss here) .
4. Dry for ~ 48 hours, occasionally stirring the contents to expose new material to the air.
5. Cool the sample and reweigh (with spatula) to get the net weight loss on drying.
6. Grind as much dried sample as you need to fill the RSST sample flask. Use the alumina mortar, and grind sufficiently to get a pourable powder.
7. Load and run the RSST per the normal procedures. Charge the bomb with ~ 70 psig nitrogen backpressure. Scan from ambient to 75° at 2°/min, and from then on at 1°/min. Set the logger to collect data at 1 minute or 2° or 1 psi intervals.
8. Let me know if you have any additional questions.

7] From: Gary T Dukelow at ~WHC129 9/17/92 4:00PM (600 bytes: 5 ln)
To: Mark A Beck at ~WHC168
cc: Jim R Jewett at ~WHC167, Robert J (Bob) Cash, Harry Babad at ~WHC142
Subject: Additional Auger Analyses WHC-SD-WM-TI-540.REV.1

----- Message Contents -----

You are authorized to perform the additional analyses on the 104-BY auger samples for total inorganic carbon and hydroxide. You should insure the methods have the same level of approvals and QA as the rest of the analyses performed on the samples.

00350 41257

[9] From: Mark A Beck at ~WHC168 8/3/92 12:54PM (1177 bytes: 22 ln)
To: Marsha L Bell at ~WHC121
cc: Jim R Jewett at ~WHC167, Mark A Beck, Daniel M Thornton at ~WHC32
Subject: Auger Cleaning

----- Message Contents -----

Marsha,

WHC-SD-WM-TI-540,REV.1

On 7/27 you asked Jim Jewett how much waste would be generated by deconning the augers.

The short answer is 5-10 gallons.

The long answer is that the auger drill and sleeve have already been cleaned and returned to Tank Farms (July 13th) while the inside of the casks have yet to be dealt with as of 7/31. Dan Thornton says deconning the casks should be no problem, but currently the decon sinks have a problem (no specifics were mentioned), and the casks can't be done at this time.

These casks need to be cleaned eventually, but are not a priority item.

If you have any further questions, please call me at 3-2182.

Mark Beck
Process Chemistry Laboratory

[81] From: Daniel M Thornton at ~WHC32 7/24/92 10:05AM (1933 bytes: 26 ln)
To: Robert P Marshall Jr at ~WHC30, Jim R Jewett at ~WHC167
Subject: AUGER CLEANING WHC-SD-WM-TI-540,REV.1

----- Forwarded with Changes -----
From: Robert P Marshall Jr at ~WHC30 7/23/92 7:35PM (1273 bytes: 13 ln)
To: Daniel M Thornton at ~WHC32
Subject: AUGER CLEANING

----- Forwarded -----
From: Jim R Jewett at ~WHC167 7/23/92 2:43PM (1070 bytes: 13 ln)
To: Robert P Marshall Jr at ~WHC30, Mark A Beck at ~WHC168, Marsha L Bell at ~WHC121
Subject: AUGER CLEANING

----- Forwarded -----
From: Robert J (Bob) Cash at ~WHC129 7/20/92 5:02PM (841 bytes: 13 ln)
To: Alan G Hanson at ~WHC95, Jim R Jewett at ~WHC167
Receipt Requested
cc: Robert J (Bob) Cash, Gary T Dukelow
Subject: AUGER CLEANING

----- Message Contents -----

The augers have been deconned and were picked up by Tank Farms the week of July 13. The drums the augers came in and the auger overpacks in the drums are still in room 1D. If these need to be cleaned/saved and Jim Jewetts folks don't want to decon them please let me know.

Thanks,

Dan Thornton

The week before last, the question came up about saving the auger drill. Since it is a very expensive piece of equipment, we ask that it be cleaned in the 222-S [or T-Plant] lab for future use. Although we do not have plans to auger sample additional tanks at this time, DOE is still asking Why Not? I feel there will undoubtedly be a need in the future.

Pls have the augers cleaned to acceptable levels for reuse?

TNX,

Bob and Gary

1-4479

Action for you?
J.T.

From: Marsha L Bell at ~WHC121 7/27/92 11:07AM (936 bytes: 19 ln)

To: Jim R Jewett at ~WHC167

cc: Robert P Marshall Jr at ~WHC30, Marsha L Bell

Subject: AUGER CLEANING

WHC-SD-WM-TI-540,REV.1

----- Message Contents -----

Jim, how much waste will this generate?

~5-10 gal - map

Marsha

From Dan Thornton

The week before last, the question came up about saving the auger drill. Since it is a very expensive piece of equipment, we ask that it be cleaned in the 222-S [or T-Plant] lab for future use. Although we do not have plans to auger sample additional tanks at this time, DOE is still asking Why Not? I feel there will undoubtedly be a need in the future.

Pls have the augers cleaned to acceptable levels for reuse.

TNX,

Bob and Gary

0 3 3 5 0 3 4 1 2 4 8

[6] From: Jim R Jewett at ~WHC167 6/11/92 11:01AM (1595 bytes: 22 ln) 11
To: Gary T Dukelow at ~WHC129, Robert J (Bob) Cash at ~WHC129, Marsha L Bell at
~WHC121, James P Slougher at ~WHC168, Robert P Marshall Jr at ~WHC30
cc: Mark A Beck at ~WHC168, Larry P Diediker at ~WHC171, Randy K PPool at
~WHC171

Subject: Readiness review hold on characterization of auger samples , WHC-SD-WM-TI-540.REV.1
----- Message Contents -----

This note is to inform the interested parties that, when the
auger samples from Tank 104-Bx arrive at the lab, they will
not be processed until authorized by official notice of
closure on the unsatisfactory readiness review surveillance
HS-92-0466 performed by Facility Compliance. Here is the
background:

An unsatisfactory surveillance was received by the
laboratory on 5/12/92 concerning the currency of its
procedures. Since the "response due" date on the
surveillance was also 5/12/92, it became delinquent as soon
as it was received. A response was issued on 5/26/92, and
the affidavit for the readiness review review item on
laboratory procedures was re-issued on 5/27/92.

We have not yet received a notice of closure on the
surveillance, although the inspector indicated on the
telephone that the response seemed to be adequate. We are
concerned that the closure may not be timely due to the
inspector's other work.

Jim Jewett 3-1228 T6-50

BEST AVAILABLE COPY

*Randy P'pool stated 6/16/92
that the acceptance was in
distribution. mab*

[50] From: Daniel J Bishop at ~WHC23 7/7/92 9:29AM (722 bytes: 19 ln)
To: Daniel M Thornton at ~WHC32, Jim R. Jewett at ~WHC167
Subject: BY-104 Augers

----- Message Contents -----

WHC-SD-WM-TI-540, REV.1

The augers have been removed from the hot cell and turned over to operations. Do you want them cleaned for reuse or can they be thrown away?

Thanks,

Dan Thornton

DAN I TALKED TO ALLEN HANSON THE ENGINEER AND THEY DON'T SEE ANY MORE AUGER SAMPLING BEING DONE IN THE FUTURE. ALLEN SAID THAT WE CAN GO AHEAD AND THROW THEM AWAY. SORRY IT TOOK ME SO LONG TO GET BACK TO YOU.

TANKS,

DAN BISHOP

334

cc Moore FocN

00860241214

[9] From: Alan G Hanson at WWC95 7/7/92 9:24AM (602 bytes: 6 ln)

To: Mark A Beck at WWC168

Subject: AUGER SAMPLING EQUIPMENT

WHC-SD-WM-TI-540,REV.1

----- Message Contents -----

BY-104 was the only tank requiring auger samples. At this point it would be a waste of money to try to decon the equipment. Go ahead and use the 55 gallon drum to package the auger equipment for disposal. It would be nice if you could triple rinse the equipment so that it can be buried as low level waste rather than mixed waste.

*auger/sleeve
more*

Wayne,

BEST AVAILABLE COPY

335

00360-41245

CORRESPONDENCE DISTRIBUTION COVERSHEET

WHC-SD-WM-TI-540, REV. 1

Author

Addressee

Correspondence No.

K. L. Silvers, 373-3319

Mr. A. G. King, PNL

9255871

Subject: LETTER OF INSTRUCTION TO PERFORM TOTAL ORGANIC CARBON ANALYSIS BY HOT PERSULFATE METHOD ON SINGLE-SHELL TANK BY-104 AUGER SAMPLES

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	R1-03	
		President's Office	B3-01	
		M. A. Beck	T6-50	
		M. L. Bell	T6-16	
		R. J. Bliss	B3-04	
		J. R. Jewett	T6-50	
		J. H. Kessner	T6-08	
		<i>new</i> K. L. Silvers	T6-08	
		JHK:KLS File/LB	T6-08	

000000041213

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-TI-540, REV. 1

August 10, 1992

9255871

Mr. A. G. King, Department Manager
Analytical Chemistry Laboratory
Pacific Northwest Laboratory
Post Office Box 999
Richland, Washington 99352

Dear Mr. King:

LETTER OF INSTRUCTION TO PERFORM TOTAL ORGANIC CARBON ANALYSIS BY HOT
PERSULFATE METHOD ON SINGLE-SHELL TANK BY-104 AUGER SAMPLES

Reference: WHC-SD-WM-TP-114, "Waste Characterization Plan for Sampling and
Analysis of Augured Surface Samples from Tanks Containing
Ferrocyanide Wastes," Revision 2, dated May 11, 1992.

This Letter of Instruction (LOI) provides direction to the Pacific Northwest
Laboratory (PNL) to perform Total Organic Carbon analysis, by the hot
persulfate method (PNL procedure 7-40.47), on two solid auger samples from
Single-Shell Tank (SST) BY-104. The samples and analyses are in support of
the unresolved safety question in ferrocyanide containing SST's. The data
deliverables shall contain all quality assurance records to support Impact
Level 2 reports.

Funding will be provided via Work Order Number M85508 upon receipt of a cost
and schedule estimate from PNL. All work covered in this LOI shall be
performed to PNL Impact Level 2.

If you have any questions or any comments, please contact Mr. K. L. Silvers
of my staff on 373-3319.

Very truly yours,

J. H. Kessner, Manager
Office of Sample Management
Facility Operations

jok

PNL - T. E. Jones
S. G. McKinley
G. F. Schiefelbein

337

Battelle Northwest Laboratories
Battelle Boulevard
P.O. Box 999
Richland, Washington 99352

MATERIALS APPLICATIONS SECTION
Materials Sciences Department
Component Analysis Group

FAX MACHINE - (509) 376-6336

FTS 444-6336

VERIFICATION - (509) 376-0552

FTS 444-0552

DATE 8-12-92

WHC-SD-WM-TI-540, REV.1

NO. OF PAGES 5

(Excluding Cover)

TO Mark Beck

ADDRESSEE PHONE _____

COMPANY WHC

CITY/STATE _____

FACSIMILE NO. (____) 3-1180FROM S. PoolPHONE 6-1753MAIL STOP P8-44

MESSAGE: Here is draft, uncorrected, un QA reviewed,
unofficial total expenditure procedure.

Please get a copy to Bill Winters - I promised
him you would. Bill

Title:

~~POL-450-XXX~~, Total Cyanide by Remote Microdistillation and Argentometric Titration

Applicability

WHC-SD-WM-TI-540.REV.1

This procedure provides a method for determining total cyanide in waste tank matrices where the total concentration of cyanide is greater than 0.2 weight percent.

Definitions

Batch - A group of samples of similar matrix processed at the same time.

Responsible Staff

Cognizant Scientist
Analyst/Technician

Procedure

1.0 Equipment and Materials

Micro-Distillation Tubes (Lachat® part no. 1700-001)

Temperature controlled heating block designed to accomodate Micro-Distillation tubes simultaneously (at least 7)

Micro-Distillation Tube Assembler/Disassembler (MDTA/D)

Eppendorf pipets, 500 uL, 1000 uL

Disposable pipet tips

Repipetor, 500 mL

Analytical four place balance

Buret, 10 mL

Magnetic stirrer

Vials, glass, 15 mL

Stir bars, glass

Drug cartons

Kleenex

Be careful to cook better

*In farm } problems w/ non water preheating
w plant } methods*

DRAFT

DRAFT

DRAFT

2.0 Reagents

WHC-SD-WM-TI-540, REV.1

0.0192 M AgNO_3 solution (Titer: 1.00 mg CN^-/mL)

Sample pretreatment solution: 5 wt% acidic EDTA and 5 wt% Ethylene Diamine in DIW

Releasing solution: 7.11M H_2SO_4 + 0.79M MgSO_4

Type II DIW

Indicator Solution: 0.25M NaOH (10.0g Reagent grade NaOH pellets dissolved in DIW to a total volume of 1.0 liter)

Stock Standard CN^- solution(s): $\text{K}_4\text{Fe}(\text{CN})_6$ and/or $\text{Na}_2\text{NiFe}(\text{CN})_6$ dissolved in the sample pretreatment solution.

DRAFT

3.0 Predistillation Preparation

- 1) Unpackage the required number of micro-dist tubes to complete the batch. Verify that the upper portion of each tube contains approximately 1.5 mL of trap solution.
- 2) Using a marking pen, label the upper and lower halves of each micro-dist tube with the appropriate sample or standard identification information. Every batch will consist of distilled standards, samples, spikes and a blank. Label the required number of 15 mL glass vials that will be used to transfer the distillates out of the hot cell. Place a disposable glass stir bar in each vial. Place the vials in secondary containment to keep them externally free of radioactive contamination.
- 3) Lightly grease the joint where the upper and lower portions of each tube join. Use silicon grease.
- 4) Check and document the delivery of all pipets that will be used both in-cell and out. Document the checks on the bench sheet.
- 5) Turn on the power to the heat block. Allow at least 30 minutes for the unit to warm up. Verify that the temperature of the heating block is $125^\circ \pm 3$ degrees C.
- 6) Using the analytical check weights provided by the standards laboratory, check the performance of the analytical balance. Record the check information in the appropriate LRB for the balance in use. Ensure that the balance is reading the weight within the acceptable range for the given weight in use.

WHC-SD-WM-TI-540,REV.1

- 7) Pipet the appropriate amount of standard solutions and spike solutions into the lower parts of the appropriate micro-distillation tubes prior to introducing them into the hot cells. The pipetting information will be provided by the cognizant scientist. Place the lower tube sections into an ice cream carton to keep them upright while they are being transferred into the cells. Should the analyst prefer, this step could be performed following Distillation step 3 in the hot cell.

4.0 Distillation

- 1) Transfer the still separated micro-distillation tube sections in the hot cell.
- 2) Place the upper tube sections in the large holding block in a logical sequential order.
- 3) Place the bottom tube sections in the small holding block in logical order.
- 4) Weigh the sample material into the appropriate lower tube sections and record the data on the bench sheet.
- 5) Add the sample pretreatment solution to the flange in each lower tube section. Agitate the contents of each lower tube section to facilitate sample dissolution.
- 6) Using the MDTA/D, add 0.5 mL of the $H_2SO_4/MgSO_4$ releasing solution and seal the upper and lower tube sections together. This sealing operation must be done as quickly as possible to minimize the potential loss of HCN. Place the sealed tubes in the heating block.
- 7) Allow the heating/distillation process to proceed for at least 30 minutes but no longer than 45 minutes.
- 8) Using the MDTA/D, disconnect the lower portions of the tubes from the upper and discard the lower section. The elapsed time between the removal of the tube from the heat block and parting the upper and lower sections should be minimized to prevent the potential "suck-back" of distillate in the lower tube sections. Failure to minimize the time interval may result in apparent low recoveries.
- 9) With each upper tube section, hold horizontally and rotate slowly to rinse the walls with the distillate. Tap the tube section on the hot cell floor to ensure that all of the trap solution is in the bottom tube portion just above the semi-permeable membrane. Break the upper tube section in the location pre-scored by the manufacturer. Transfer the distillate into a prelabeled 15 mL glass vial. Rinse each

WHC-SD-WM-TI-540, REV. 1

half of the upper tube section with approximately 5 mLs of 0.25M NaOH (squeeze bottle) and add the rinses to the glass vial.

- 10) Transfer the glass vials containing the distillates and rinses out of the hot cell and to the fume hood where the titrations are to be done.

5.0 Titrations

DRAFT

For each sample:

- 1) Fill a clean 10 mL buret with 0.0192M AgNO_3 .
- 2) Add 3 drops of Rhodamine indicator to the vial.
- 3) Titrate to the first permanent appearance of a "salmon" color. Record the volume of AgNO_3 used on the bench sheet.

6.0 Calculations

- 1) Since the titer of 0.0192M AgNO_3 is 1.00 CN^-/mL , the volume of the tirant used (in mL) is numerically equal to the mg CN^- in the distillate. Therefore,

mg CN⁻ found = (mL AgNO₃ use to titrate - (mL AgNO₃ used to titrate
distillate) distillation blank)

- 2) For samples, standards and/or blank spikes:

$$\% \text{CN}^- = \frac{\text{mg CN}^- \text{ found}}{\text{mg sample taken}} \times 100$$

- 3) Spiked samples; $W_s \times \frac{A}{100}$

$$\text{Spike Recover (\%)} = \frac{(V_{sp} - V_{sp})}{W_{sp}}$$

where V_{sp} = mL AgNO_3 used to titrate spiked sample distillate

$$W_{sp} = \text{weight (mg) of } CN^- \text{ spike}$$

W_s = weight (mg) of sample included in the spiked sample

A = % CN^- found for unspiked sample

7.0 Quality Control

WHC-SD-WM-TI-540, REV.1

Each analytical session (distillation + titration) shall include as a minimum: one blank, one spiked sample and one spiked blank a.k.a. control sample.

Spike recoveries or control sample recoveries outside the 85-110% range render all results for the analytical session suspect. The cognizant scientist shall investigate the situation and modify the procedure (if necessary) to restore observed recoveries to the acceptable range.

DRAFT

00860' 41220

**Westinghouse
Hanford Company**

**Internal
Memo**

From: Processing and Chemistry Laboratories
Phone: 373-2182 T6-50
Date: May 21, 1992
Subject: AFFIDAVIT CONFIRMING APPROVAL OF ANALYTICAL METHODS AND PROCEDURES

12110-
WHC-SD-WM-TI-540, REV.1

To: P. B. Bourne

H3-22

cc: J. R. Jewett T6-50
K. L. Silvers T6-08
J. E. Bjorklund R1-62
G. L. Dunford R1-51
S. G. Hodge R3-35
J. L. Homan E6-42
R. W. Jacobson S5-01
J. D. Martin R7-05
E. H. Neilsen R2-18
D. L. Sparks S5-01
Process Aids

REFERENCES:

1) Internal Memo, K.L. Silvers to P.B. Bourne, "FECN TANK AUGER SAMPLING READINESS REVIEW; COMPLETION OF CHECKLIST ITEM 3.6.2" October 14, 1991, 28600-91-134.

This affidavit is a response to FECN Auger sampling readiness review checklist item 3.6.2, and as such updates and supersedes the previous affidavit (Reference 1). A Test Plan, WHC-SD-WM-TP-114 Rev 2, controls analytical work done for FECN Auger laboratory work. All applicable analytical procedures and analyses referenced in the Test Plan are approved for use. All applicable procedures are listed in Table 1 (attached).

Mark A. Beck, Scientist
Processing and Chemistry Laboratories

tth

Attachment

duh
Page 2
da date

duhnumber

WHC-SD-WM-TI-540, REV. 1

TABLE 1
Analytical Analyses and Procedures

Description of Procedure	Preparation Procedure	Measurement Procedure
Core Segment Receipt and Preparation	LT-150-101	N/A
Core Segment Extrusion	LT-549-101	N/A
Homogenization	LT-549-102	N/A
Sample Storage, Room 2E and 2B and 222-S Laboratory Hot Cells	LO-150-132	N/A
Particle Size	T-044 A01 712 F	T-044 A01 712 F
Differential Scanning Calorimetry	Direct	LA-514-113
Thermal Gravimetric Analysis	Direct	LA-560-112
Weight % Water	Direct	LA-564-101
Adiabatic Calorimetry	WHC-SD-WM-TP-104	WHC-SD-WM-TP-104
ICP - Acid Digestion	LA-505-159	LA-505-151
ICP - Water Digestion	LA-504-101	LA-505-151
ICP - Fusion	LA-549-141	LA-505-151
Ion Chromatography, Anions	LA-504-101	LA-533-105
Total Organic Carbon for Solids	PNL-ALO-103	7-40.747
Cyanide by Direct Distillation	N/A	LA-695-102
Polarized Light Microscopy	WHC-MR-0375	WHC-MR-0375
X-Ray Diffraction	LA-504-101 LA-507-151	LA-507-152
Total Alpha/Total Beta by Gas Proportional Counter	LA-508-101	LA-508-111

345

0036041393

duh
Page 3
da date

duhnumber

WHC-SD-WM-TI-540, REV. 1

Description of Procedure	Preparation Procedure	Measurement Procedure
Gamma Energy Analysis (GEA)	LA-548-121	LA-508-052
Sr-90	LA-220-101	LA-508-111
Am-241, Pu-239, Pu-240, Pu-238	LA-503-156	LA-508-104 LA-508-051
Total Uranium	LA-549-141	LA-925-106
pH -Direct	Direct	LA-212-102

0 3 3 6 0 7 4 ! 3 9 4

half of the upper tube section with approximately 5 mLs of 0.25M NaOH (squeeze bottle) and add the rinses to the glass vial.

- 10) Transfer the glass vials containing the distillates and rinses out of the hot cell and to the fume hood where the titrations are to be done.

For each sample:

- 1) Fill a clean 10 mL buret with 0.0192M AgNO_3 .
- 2) Add 3 drops of Rhodamine indicator to the vial.
- 3) Titrate to the first permanent appearance of a "salmon" color. Record the volume of AgNO_3 used on the bench sheet.

1) Since the titer of 0.0192M AgNO_3 is 1.00 CN^-/mL , the volume of the tirant used (in mL) is numerically equal to the mg CN in the distillate. Therefore,

mg CN ⁻ found	(mL AgNO ₃ use to titrate distillate)	(mL AgNO ₃ used to titrate distillation blank)

- 2) For samples, standards and/or blank spikes;

$$\% \text{CN}^- = \frac{\text{mg CN}^- \text{ found}}{\text{mg sample taken}} \times 100$$

- ### 3) Spiked samples;

3) Spiked samples;

$$\text{Spike Recover (\%)} = \frac{(V_{sp} - W_s \times \frac{A}{100})}{W_{sn}}$$

where V_{sp} = mL $AgNO_3$ used to titrate spiked sample distillate

W_{sp} = weight (mg) of CN^- spike

W_s = weight (mg) of sample included in the spiked sample

A = % CN⁻ found for unspiked sample

007350-41230

7.0 Quality Control

WHC-SD-WM-TI-540.REV.1

Each analytical session (distillation + titration) shall include as a minimum: one blank, one spiked sample and one spiked blank a.k.a. control sample.

Spike recoveries or control sample recoveries outside the 85-110% range render all results for the analytical session suspect. The cognizant scientist shall investigate the situation and modify the procedure (if necessary) to restore observed recoveries to the acceptable range.

0 1 8 5 0 4 2 3 1

DON'T SAY IT --- Write It!

WHC-SD-WM-TI-540, REV. 1

DATE: June 10, 1992

TO: ISR No. S-92-0466FROM: R. K. P'Pool *RP*Telephone: 3-1060

cc:	G. D. Carpenter	82-16
	L. P. Diediker	T1-30
	C. N. Hogan	S1-57
	R. D. House	R2-83
	J. R. Jewett	T6-50
	R. Malhan	S1-57

SUBJECT: Acceptance of Response to ISR No. S-92-0466

The Internal Memo #12110-PCL92-041, "Response to Inspection/Surveillance Report S-92-0466" was reviewed against the findings of ISR # S-92-0466 and found to be acceptable. This surveillance is closed.

00860241233

WEEKLY REPORT; 08-12-92
PNL Ferrocyanide Safety Project

11-01-92
Mark Beck
11-01-92
WHC-SD-WM-TI-540, REV.1

Analysis For Total Cyanide Using The Microdistillation Procedure

Investigation of the microdistillation procedure for the determination of total cyanide in waste tank samples by PNL's Karl Pool is continuing. Suspect results obtained by WHC during the analysis of samples from tank 101-SY led to an investigation to reevaluate the microdistillation procedure. In initial tests, the microdistillation procedure gave very poor results (low recoveries-less than 15% in some cases) when tested on various ferrocyanide samples including ferrocyanide flowsheet simulated wastes prepared by WHC. Improved results were obtained when the samples were subjected to a pretreatment dissolution step using a mixture of ethylenediamine and ethylenediaminetetraacetic acid (EDTA) prior to acidification and distillation. In recent tests, a series of analytical trials were carried out with 101-SY simulant spiked with ferrocyanide. Spikes of representative organic compounds were added to some samples. The samples were then subjected to the microdistillation procedure followed by both colorimetric and ion chromatographic determination of total recoverable cyanide present in the collected distillates. One set of spiked 101-SY aliquots was distilled using the vendor (Lachat Instruments, Inc.) recommended conditions; 0.75 mL of 7.11 M H_2SO_4 + 0.79 M $MgSO_4$ releasing agent. A second set of spiked 101-SY aliquots was pretreated in a dissolution mixture of 1 mL of 25% ethylenediaminetetraacetic acid (EDTA) / 25% ethylenediamine / 50% water plus 0.5 mL of 0.79 M $MgSO_4$ releasing agent prior to distillation. Results from both the colorimetric and ion chromatographic determinations indicate that a false positive cyanide result is found for mixtures containing both simulant and organics. Since the ion chromatographic determination should be quite specific for cyanide, the apparent conclusion is that additional cyanide is being formed when organics are present in the sample.

[159] From: Francis M Matthews at ~WHC129 8/10/92 3:59PM (4143 bytes: 49 ln)

Priority: Urgent

WHC-SD-WM-TI-540.REV.1

To: H K (Yogi) Ananda at ~WHC235, John M Atwood at ~WHC144, Harry Babad at ~WHC142, William D Bancroft at ~WHC23, David B (Dave) Bechtold at ~WHC168, George L Borsheim at ~WHC140, Samuel A Bryan at ~PNL26, Robert J (Bob) Cash, Roger F Christensen at ~DOE15, Lori D Crass at ~WHC220, Beverly A Crawford at ~WHC167, Monte D Crippen at ~WHC220, Ralph D Crowe at ~WHC240, David A Dodd at ~WHC32, Gary T Dukelow, Wayne G Farley at ~WHC150, Betty M Fulton at ~WHC75, Kenneth A Gasper, John I Gould at ~WHC137, J Mike Grigsby at ~WHC150, Marilyn J (Jane) Groff at ~WHC163, Richard T Hallen at ~PNL26, Russell G Harwood at ~DOE15, Damon L Heer at ~WHC71, Wally F Hendrickson at ~DOE15, John W Hunt at ~WHC215, James A (Jim) Hunter at ~WHC220, Muhammad N Islam at ~WHC235, David W (Dave) Jeppson at ~WHC220, Jim R Jewett at ~WHC167, Joan H Kessner at ~WHC169, Michael J Klem at ~WHC14, Walter L Knecht at ~WHC63, Francis M Matthews, Donna F McCue at ~WHC220, Norton G McDuffie, Jim M McLaren at ~WHC63, Stephen J (Steve) Mech at ~WHC224, Curtis R Miska at ~WHC281, Christiane M Newman at ~WHC75, Dennis C Richardson at ~WHC91, Gary W Rosenwald at ~DOE15, Randall D Scheele at ~PNL26, Gary F Schiefelbein at ~PNL26, Michael J Schliebe at ~WHC215, David J Shrimpton at ~SWE1, Kurt L Silvers at ~WHC32, Nancie L Simon at ~WHC89, Brett C Simpson at ~WHC14, Herbert E Smith at ~WHC14, Hans Toffer at ~WHC191, Gary L Troyer at ~WHC32, Johnathon J Wong at ~WHC215

Subject: WEEKLY LAB MEETING

----- Message Contents -----

DUE TO THE TANK WASTE REMEDIATION SYSTEM ALL EMPLOYEE MEETING BEING HELD ON WEDNESDAY MORNING THE WEEKLY LAB MEETING HAS BEEN RESCHEDULED TO THE AFTERNOON INSTEAD OF THE MORNING. SORRY FOR ANY INCONVENIENCE.

FERROCYANIDE LAB MEETING
345 HILLS - CONFERENCE ROOM 9
August 12, 1992

*****PLEASE NOTE THE TIME HAS BEEN CHANGED TO 3:00PM*****
AGENDA

BEST AVAILABLE COPY

RECENT HIGHLIGHTS

- Latest C-112 Core Sample Results (BRETT SIMPSON)
- Latest Auger Sample Results [BY-104] (JIM JEWETT) - CN rerun
- Status of Thermocouple Tree Installation

REPORTS - STATUS

- Fauske Test Report (Milestone #2029) - DAVE JEPPSON
- Position Paper (WHC-EP-0531) - CURTIS MISKA
- Hazards Assessment Interim Report - RALPH CROWE
- DNFSB Quarterly [Final] - CURTIS MISKA
- DNFSB Implementation Plan - CURTIS MISKA
- FeCN Program Plan - CURTIS MISKA
- Mitigation/Remediation Concepts Report (due 8/28) - BOB CASH

STATUS OF SELECTED WORK PACKAGES

- Thermal Modeling - JIM McLAREN
- C-112 Vapor Data Analysis - KEN FOWLER/GEO BORSHEIM
- Hydraulic Properties Testing - JOHN WONG/SCHLIEBE
- Ferrocyanide Speciation at PNL and FSU - GARY SCHIEFELBEIN/FRED REICH

as problems - Adiabatic cal. may not be worth it
c) A/GH3 x talline insoluble
b) FFA of Kier 103 DSC shows definite small exotherm ~ 380°C < 125
c) CN may need special prep CN ~ 50 ppm
d) added ICP to water digest sample as per TP
on track
Lehting's report
out man
Karl / John Tillman
foale

- Ferrocyanide Flowsheet Characterization - WONG
- Fauske Propagation Tests - DAVE JEPPSON
- LANL Sensitivity Tests - RANDY SCHEELE/SCHIEFELBEIN
- TY 101/103 Archive Sample Tests Report - JIM JEWETT

in review

PROBLEM AREAS -

WHC-SD-WM-TI-540.REV.1

SCHEDULES - Nancie Simon

1999 in 2 weeks

UPCOMING MEETINGS - TAP September 1-3

OTHER ITEMS -

NEXT MEETING - August 19, 1992, Room 28

0 2 3 6 0 9 4 1 2 2 6

send
TY #01/103
X04/ Anandhar

WHC-SD-WM-TI-540.REV.11

very hot
5-104

radiometric

3521

WHC-SD-WM-TI-540, REV. 1

UNDIGESTED SAMPLE ANALYSES

WHC-SD-WM-TI-540, REV.1

~~CUSTOMER ID:~~ BY-104

ANALYSIS:

TLA

SAMPLE PREP:

Undigested
Direct Sample

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS	11C11AD-17.86mg			
		354		

R. Woodland 7/26/92

WHC-SD-WM-TI-540, REV.1

CONFIGURATION

18-JUL-92 12:02

C1	83.7
C2	-0.185
C3	0.12

BEST AVAILABLE COPY

MAX. TEMP.	1000
MIN. TEMP.	-20
A PT100	0.22
B PT100	0.75
C PT100	-0.1
HEAT P	1000
HEAT I	750
HEAT D	30

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

TGA Calibration performed
15 July-92 + printed out
the 18-July-92.

Heise & Vent
July 18, 1992

WHC-SD-WM-TI-540, REV.1

ANALYTICAL BATCH

July 18, 1992 calibration

Lab Segment Serial No.	R1740, R1741, R1742	Customer ID:	BY-104
Analysis:	TGA	Sample Prep:	undigested none - direct sample

Instrument: WC 16129	Procedure/ Rev: LA-560-112 A-1
Technologist: T. McColloch	Date: 7-30-92
Starting Time:	Temperature:
Ending Time: 1300	Chemist: D. J. Hert

	Description	Lab ID
1	Std	R1739-5512
2	BY-104	R1740-5712
3	BY-104	R1740-5512
4	BY-104	R1741-5712
5	BY-104	R1741-5812
6	BY-104	R1742-5712
7	BY-104	R1742-5812
8		
9		
10		

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

[illegible]

WHC-SD-WM-TI-540, REV.1

CONFIGURATION

18-JUL-92 12:02

C1 83.7
C2 -0.185
C3 0.12

MAX. TEMP. 1000
MIN. TEMP. -20
A PT100 0.22
B PT100 0.75
C PT100 -0.1
HEAT P 1000
HEAT I 750
HEAT D 30

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

TGA Calibration performed
15 July-92 + printed out
the 18-July-92.

Heise J. Vent
July 18, 1992

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
Analytical Batch

WHC-SD-WM-TI-540, REV.1

LAB SEGMENT SERIAL #: R1744, R1745

BY-104
 CUSTOMER ID: 38-10-92
38-10-92 RSA # 377 / RSA # 426

ANALYSIS: DSC

INSTRUMENT	<u>WC16134</u>
PROCEDURE/REV	<u>LA-514-113 A-1</u>
TECHNOLOGIST	<u>SLCobb</u>
DATE	<u>07-10-92</u>
TEMPERATURE	<u>22.5°C</u>
STARTING TIME	<u>0800</u>
ENDING TIME	<u>1500</u>
CHEMIST	<u>Hert</u>

SAMPLE PREP: Direct
pasty rock like formations

0000049050

	DESCRIPTION	LAB ID
1	<u>STD</u>	<u>R1743-5511</u>
2	<u>Sample RSA 426</u>	<u>R1744-5711</u>
3	<u>Sample Dup</u>	<u>R1744-5811</u>
4	<u>Sample</u>	<u>R1745-5711</u>
5	<u>Sample Dup</u>	<u>R1745-5811</u>
6	<u>Sample 3/18-19-92</u>	
7		
8		
9		
10		

	DESCRIPTION	LAB ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
<u>38-19-92</u> <u>BTA LMCS</u>	<u>27C11-BU 102</u>	<u>38-19-92</u>		

CALIBRATION 2-DSC

29-JUN-92 0:11

WHC-SD-WM-TI-540, REV.1

START TEMP. °C 35
END TEMP. °C 500

IDENT. NO.
WEIGHT mG 7.57

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->

A	PT100	.21322
B	PT100	.74576
C	PT100	-.10476
E	INDIUM	272.23

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

James J. West

CONFIGURATION - DSC

WHC-SD-WM-TI-540, REV.1

8-JUL-92

8:41

Configuration for Calibration of 29-Jun-92

Walter J. Kent

E INDIUM	192
DSC SIGN ICTA	1
TAU LAG	29
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	.21322
B PT100	.74576
C PT100	-.10476
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.: R1734, R1735

Customer ID: 12-12

Analysis:

QH R1732-R-1735
CN - 9-29-92

Sample Prep:

RSA # 424 BY-104

DIRECT - Undigested

Instrument:	A1, 10724	Procedure/Rev:	LA-695-102 / B-0
Technologist:		Date:	9/8/92
Starting Time:	13:00 9/4/92	Temperature:	NA
Ending Time:	14:30 9/8/92	Chemist:	J. S. Lachut

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R 1732-5578	11		
2	REAGENT BLANK	R 1733-5678	12	* testing new procedure	
3	SAMPLE	R 1734-5778	13		
4	SAMPLE Dup.	R 1734-5878	14		
5	SAMPLE SPIKE	R 1734-5978	15		
6	SAMPLE	R 1735-5778	16		
7	SAMPLE Dup.	R 1735-5878	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				
CN STANDARD	75C11-AE (0.1 ml - 10 ml - 0.5 ml)		9-29-92	
QH 9-29-92				
Spike	75C11AE - 0.5 ml			

00000940076

CYANIDE ANALYSIS REPORT

WHC-SD-WM-TI-540,REV.1

TODAYS DATE: 9/8/92

PAYROLL NO.:

Y-INTERCEPT= 0.01002

SLOPE= 0.162679

SAMPLE ID#: BLANK

SAMPLE SIZE: 0

WVL AND ABS= 580NM 0.025 A

SAMPLE ID#: LMCS CN STD.

SAMPLE SIZE: 0.1 ML-10 ML-0.5 ML

WVL AND ABS= 580NM 0.691 A

SAMPLE ID#: R-1734

SAMPLE SIZE: 0.0078 GRAMS

WVL AND ABS= 580NM 0.129 A

SAMPLE ID#: R-1734 DUP.

SAMPLE SIZE: 0.0105 GRAMS

WVL AND ABS= 580NM 0.145 A

~~SAMPLE ID#:~~

~~SAMPLE SIZE:~~

~~WVL AND ABS= 580NM 0.145 A~~

SAMPLE ID#: R-1734 SAMPLE + SPIKE

SAMPLE SIZE: 0.0101 GRAMS + 0.1ML-10ML-0.5ML

WVL AND ABS= 580NM 0.658 A

SAMPLE ID#: R-1735

SAMPLE SIZE: 0.0078 GRAMS

WVL AND ABS= 580NM 0.130 A

SAMPLE ID#: R-1735 DUP.

SAMPLE SIZE: 0.0049 GRAMS

WVL AND ABS= 580NM 0.095 A

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TECHNOLOGIST SIGNATURE: J. S. Lachut

DATE SIGNED: 9/8/92

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

Analytical Batch

WHC-SD-WM-TI-540, REV. 1

BY-104

Rerun #1

LAB SEGMENT SERIAL #: R-1732-1735

CUSTOMER ID: RSA#424

INSTRUMENT	AL 10124 AL 110 Mettler balance
PROCEDURE/REV	LA 695-102 B-0
TECHNOLOGIST	
DATE	7-28-92
TEMPERATURE	N/A
STARTING TIME	08:10 am 7-28-92
ENDING TIME	13:30 pm 7-28-92
CHEMIST	D. Bisenius

ANALYSIS: Cyanide

SAMPLE PREP: Original Sample
fine sand with granules.
R 1734 - more liquid in sample
R 1735 - very dry

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	DESCRIPTION	LAB ID
1	LMCS Std	R1732-5678
2	Reagent Blank	R1733-5678
3	Sample RSA#424	R1734-5778
4	Sample Dup RSA#424	R1734-5878
5	Sample + Spike RSA#424	R1734-5978
6	Sample RSA#424	R1735-5778
7	Sample Dup RSA#424	R1735-5878
8	Sample + Spike RSA#424	R1735-5978
9		
10		

	DESCRIPTION	LAB ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS Cyanide Std JH 8-19-92	75C11 AD-1000	5000 JH 8-19-92		

CYANIDE ANALYSIS REPORT

WHC-SD-WM-TI-540,REV.1

TODAYS DATE: 7-28-92

PAYROLL NO.:

Y-INTERCEPT= .010020

SLOPE= .162679

SAMPLE ID#: R-1733 BLANK

SAMPLE SIZE: 0

WVL AND ABS= 580NM 0.005 A

SAMPLE ID#: R-1732 STD 75C11-AD

SAMPLE SIZE: 100UL-10ML-500UL

WVL AND ABS= 580NM 0.738 A

SAMPLE ID#: R-1734 SAMPLE

SAMPLE SIZE: .0224 GRAMS

WVL AND ABS= 580NM 0.172 A

SAMPLE ID#: R-1734 DUPLICATE

SAMPLE SIZE: .0265 GRAMS

WVL AND ABS= 580NM 0.199 A

SAMPLE ID#: R-1734 SPIKE

SAMPLE SIZE: .0248 GRAMS

WVL AND ABS= 580NM 0.927 A

SAMPLE ID#: R-1735 SAMPLE

SAMPLE SIZE: .0236

WVL AND ABS= 580NM 0.363 A

SAMPLE ID#: R-1735 DUPLICATE

SAMPLE SIZE: .0211 GRAMS

WVL AND ABS= 580NM 0.294 A

SAMPLE ID#: R-1735 SPIKE

SAMPLE SIZE: .0220 GRAMS

WVL AND ABS= 580NM 0.929 A

BEST AVAILABLE COPY

Valerie L Massie

7-28-92

365

CYANIDE JULY 14, 1992

DILUTION FACTOR = $10/.1 = 100$, WORKING STANDARD $995/10 = 9.9500$

VOLUME	MG CN	ABS	NET ABS
BLANK	0	0.003	0
50	0.4975	0.091	0.088
500	4.975	0.848	0.845
1000	9.95	1.619	1.616

Regression Output:

Constant	0.010020
Std Err of Y Est	0.021538
R Squared	0.999457
No. of Observations	4
Degrees of Freedom	2

X Coefficient(s)	0.162679
Std Err of Coef.	0.002681

- The y-intercept is .010020.
- The slope is .162679.
- The R-squared is .999457.

Deborah Y. Bisenius
7/29/92

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
Analytical Batch

WHC-SD-WM-TI-540, REV. 1

LAB SEGMENT SERIAL #: R1732-1735

CUSTOMER ID: RSA #424

INSTRUMENT	AL10724, AL1101
PROCEDURE/REV	LA-695-102 8-0
TECHNOLOGIST	Valerie Massie
DATE	7-17-92 7-20-92
TEMPERATURE	N/A
STARTING TIME	10:30am 7-16-92
ENDING TIME	10:30am 7-17-92
CHEMIST	D. Biserino

ANALYSIS:

Cyanide

SAMPLE PREP: original sample
semidry sand with larger
granules.

OUT FOR RERUN
BEST AVAILABLE COPY

	DESCRIPTION	LAB ID
1	LMCS Std 7-20-92	R1732-5578
2	Reagent Blank	R1733-5678
3	Sample RSA#424	R1734-5778
4	Sample Dup RSA#424	R1734-5878
5	Sample + Spike RSA#424	R1734-5978
6	Sample RSA#424	R1735-5778
7	Sample Dup RSA#424	R1735-5878
8	Sample + Spike RSA#424	R1735-5978
9		
10		

	DESCRIPTION	LAB ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
Cyanide Std	75C11 AD-100ml-10ml-500ml			

CYANIDE ANALYSIS REPORT
WHC-SD-WM-TI-540,REV.1

JDAYS DATE: 7-17-92

PAYROLL NO.:

Y-INTERCEPT= .010020
SLOPE= .162679

SAMPLE ID#: R-1733 BLANK
SAMPLE SIZE: 0
WVL AND ABS= 580NM 0.007 A

SAMPLE ID#: R-1732 STD 75C11 AD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.820 A

SAMPLE ID#: R-1734 SAMPLE
SAMPLE SIZE: .0206 GRAMS
WVL AND ABS= 580NM 0.120 A

SAMPLE ID#: R-1734 DUPLICATE
SAMPLE SIZE: .0205 GRAMS
WVL AND ABS= 580NM 0.162 A

SAMPLE ID#: R-1734 SPIKE
SAMPLE SIZE: .0202 GRAMS
WVL AND ABS= 580NM 0.959 A

SAMPLE ID#: R-1735 SAMPLE
SAMPLE SIZE: .0201 GRAMS
WVL AND ABS= 580NM 0.218 A

SAMPLE ID#: R-1735 DUPLICATE
SAMPLE SIZE: .0203 GRAMS
WVL AND ABS= 580NM 0.284 A

SAMPLE ID#: R-1735 SPIKE
SAMPLE SIZE: .0203 GRAMS
WVL AND ABS= 580NM 1.119 A

BEST AVAILABLE COPY

TECHNOLOGIST SIGNATURE: Valerie J Massie

DATE SIGNED: 7-17-92

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
Analytical Batch

LAB SEGMENT SERIAL #:

⁰⁴⁸⁻¹⁵⁻⁹²
~~JR~~ **R1737, R1738**

CUSTOMER ID:

^{BY 104}
~~PSA #425~~
⁰⁴⁸⁻¹⁹⁻⁹²

ANALYSIS:

% H₂O

WHC-SD-WM-TI-540, REV. 1

SAMPLE PREP:

undigested
Direct

INSTRUMENT	⁰⁴⁸⁻¹⁵⁻⁹² 1105 Mettler Balance WA90787
PROCEDURE/REV.	564-101 E-1
TECHNOLOGIST	SLCobb
DATE	06-27-92
TEMPERATURE	26°C
STARTING TIME	0800
ENDING TIME	1300
CHEMIST	Lochat

	DESCRIPTION	LAB ID
1	STD	R1736-5510
2	Sample ^{PSA425}	R1737-5710
3	Sample Dup	R1737-5810
4	Sample	R1738-5710
5	Sample Dup ✓	R1738-5810
6		
7		
8		
9		
10		

	DESCRIPTION	LAB ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
Tentig Lmcs ⁰⁴⁸⁻¹⁹⁻⁹²	11C11-A0 - 1ml			

WHC-SD-WM-TI-540, REV. 1

Customer ID: ¹²⁶⁻⁹²
BY-104

Sample Prep: Undigested

Procedure/Rev:
LA-514-113

Date: 8-11-92 and 8-12-92

Temperature: 26°C

Chemist: D. J. Hest

0.73.00-40001

A-6000-881 (03/92)

WHC-SD-WM-TI-540, REV. 1

Customer ID: ^{add} 10-4-82

B4-104

Sample Prep:

Undigested

Procedure/Rev:

LA-514-113 A-O

Date: _____

9-11-92 Ran 7-23-92

Temperature:

VIA

Chemist:

Dr. Hert

Cards lost and Duplicated by D. Hert.

[illegible]

CONFIGURATION - DSC

8-JUL-92

8:41

Configuration for Calibration of 29-Jun-92

Alena J. Kent

E INDIUM	192
DSC SIGN ICTA	1
TAU LAG	29
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.	800.
MIN. TEMP.	-50.
A PT100	.21322
B PT100	.74576
C PT100	-.10476
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

000040014

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

CALIBRATION 2-DSC

29-JUN-92 0:11

START TEMP. °C 35
END TEMP. °C 500

IDENT. NO.
WEIGHT mg 7.57

WHC-SD-WM-TI-540,REV.1

TEMPERATURE °C
HEAT FLOW
EXOTHERMAL-->

A	PT100	.21322
B	PT100	.74576
C	PT100	-.10476
E	INDIUM	272.23

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

Steven J. Hart

WHC-SD-WM-TI-540.REV.1

ANALYTICAL BATCH

8-24-92
del-MET Calibration

Lab Segment Serial No.:

R 1753

Customer ID: ⁶²²10-2-72

BY-104 . RSA# 429

~~9~~-DEC 9-16-92

Analysis:

IC

Sample Prep:

H₂O Digest

Instrument:

WB54428 Diorex 4800i

Procedure/Rev:

LA-533-105 (B-1)

Technologist:

David R. Jackson

Date:

9-16-92

Starting Time:

1430

Temperature:

24³ C

Ending Time:

16:23

Chemist:

D. J. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R1751-7571	11		
2	REAGENT BLANK	R1752-7671	12		
3	Sample	R1753-7771	13		
4	Duplicate Sample	R1753-7871	14		
5	Spiked Sample	R1753-7971	15		
6			16		
7			17		
8			18		
9			19		
10			20		

[illegible]

A-6000-881 (03/92)

=====

Sample Name: LMCS/73C11EM	Date: Wed Sep 16 15:05:56 1992
Data File : c:\dx\data\92091641.D02	
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1
	Inject#: 2
	Detector: CDM-1

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	41	2465	5Hz	0.00	8.22		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.97		19429.900	102	474	1	
2	1.15	FLUORIDE	52.994	3408	19716	1	0.00
3	1.78	CHLORIDE	77.057	2960	17898	2	-1.89
4	2.15	NITRITE	504.054	12625	88450	2	-2.75
5	3.26		2722739.796	7862	66408	2	
6	3.71	NITRATE	585.577	7866	87277	2	-6.21
7	5.50	PHOSPHATE	532.196	2606	36696	1	-1.63
8	7.14	SULFATE	603.802	6899	114444	1	-3.72

File: c:\dx\data\92091641.D02 Sample: LMCS/73C11EM

=====

Sample Name: R1752/BLK	Date: Wed Sep 16 15:15:33 1992
Data File : c:\dx\data\92091621.D03	
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1 Inject#: 3 Detector: CDM-1

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2465	5Hz	0.00	8.22		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.43		119.600	21	120	1	
2	1.79	CHLORIDE	-0.006	36	265	1	-2.19
3	2.16	NITRITE	0.391	105	659	1	-3.14
4	3.81	NITRATE	0.179	61	485	1	-4.51

File: c:\dx\data\92091621.D03 Sample: R1752/BLK

=====

Sample Name: 1753	Date: Wed Sep 16 15:25:01 1992
Data File : c:\dx\data\92091621.D04	
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1
Inject#: 4	Detector: CDM-1

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	41	2465	5Hz	0.00	8.22		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.16	FLUORIDE	86.135	5609	32289	3	0.00
2	1.58		114583.443	282	2795	4	
3	1.81	CHLORIDE	23.920	896	5677	2	-1.09
4	2.18	NITRITE	229.291	6076	39107	2	-2.24
5	2.85		105214.200	237	2566	1	
6	3.73	NITRATE	504.807	7031	74832	1	-6.52
7	5.55	PHOSPHATE	74.427	309	4212	1	-1.60
8	7.18	SULFATE	283.407	3152	51714	1	-4.01

File: c:\dx\data\92091621.D04 Sample: 1753

=====

Sample Name: R1753/DUP	Date: Wed Sep 16 15:34:40 1992
Data File : c:\dx\data\92091621.D05	
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1
Inject#: 5	Detector: CDM-1

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	41	2465	5Hz	0.00	8.22		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.16	FLUORIDE	90.051	6156	33809	2	0.00
2	1.58		100454.648	256	2450	2	
3	1.81	CHLORIDE	21.052	860	5030	2	-1.09
4	2.18	NITRITE	247.709	6601	42421	2	-2.24
5	2.85		105985.000	236	2585	1	
6	3.73	NITRATE	522.618	7283	77567	1	-6.52
7	5.55	PHOSPHATE	91.012	383	5353	1	-1.60
8	7.18	SULFATE	288.119	3215	52620	1	-4.01

File: c:\dx\data\92091621.D05 Sample: R1753/DUP

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

WHC-SD-WM-TI-540, REV. 1

ANALYTICAL BATCH

Lab Segment Serial No.:

R1740

Customer ID: 102-72

BY-104

Analysis:

DSC

Sample Prep:

Direct-Undigested

Instrument:

WC16134

Procedure/Rev:

LA-514-113

Technologist:

Ken Monteth

Date:

23, July 92

Starting Time:

0800

Temperature:

25°C

Ending Time:

1500

Chemist:

D.J. Hert

	Description	Lab ID
1	INITIAL LMCS CHECK STD	R1737-5511
2	REAGENT BLANK	N/A
3	BY-104	R1740-5711
4	BY-104	R1740-5811
5		
6		
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8		
9		
10		

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

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard

A-6000-881 (03/92)

CALIBRATION 2-DSC

29-JUN-92 0:11

START TEMP. °C 35
END TEMP. °C 500

IDENT. NO.
WEIGHT mg 7.57

WHC-SD-WM-TI-540, REV.1

TEMPERATURE °C

HEAT FLOW
EXOTHERMAL-->

A	PT100	.21322
B	PT100	.74576
C	PT100	-.10476
E	INDIUM	272.23

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

William J. West

CONFIGURATION - DSC

WHC-SD-WM-TI-540, REV.1

8-JUL-92

8:41

Configuration for Calibration of 29-Jun-92

Alena Lobst

E INDIUM	192
DSC SIGN ICTA	1
TAU LAG	29
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	.21322
B PT100	.74576
C PT100	-.10476
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 #: R1732-1735

CUSTOMER ID: RSA #424

INSTRUMENT	AL10724, AL1101
PROCEDURE/REV	LA-695-102 8-0
TECHNOLOGIST	Valerie Massie
DATE	7-17-92 7-20-92
TEMPERATURE	N/A
STARTING TIME	10:30am 7-16-92
ENDING TIME	10:30am 7-17-92
CHEMIST	D. Bisenius

ANALYSIS:

Cyanide

WHC-SD-WM-TI-540, REV. 1

SAMPLE PREP: original sample
semi-dry sand with larger
granules.

OUT FOR RERUN

BEST AVAILABLE COPY

	DESCRIPTION	LAB ID
1	LMCS Std 7-20-92	R1732-5578
2	Reagent Blank	R1733-5678
3	Sample RSA#424	R1734-5778
4	Sample Dup RSA#424	R1734-5878
5	Sample + Spike RSA#424	R1734-5978
6	Sample RSA#424	R1735-5778
7	Sample Dup RSA#424	R1735-5878
8	Sample + Spike RSA#424	R1735-5978
9		
10		

	DESCRIPTION	LAB ID
11		
12		
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14		
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20		

STANDARD TYPE	PRIMARY BOOK # & ALLOQUY VOL.	SECOND BOOK # & ALLOQUY VOL.	THIRD BOOK # & ALLOQUY VOL.	FINAL VOL. OF STD.
Cyanide Std	75C11AD-100ml-10ml-500ml			

CYANIDE ANALYSIS REPORT

WHC-SD-WM-TI-540, REV.1

TODAYS DATE: 7-17-92

PAYROLL NO.:

Y-INTERCEPT= .010020
SLOPE= .162679

SAMPLE ID#: R-1733 BLANK
SAMPLE SIZE: 0
WVL AND ABS= 580NM 0.007 A

SAMPLE ID#: R-1732 STD 75C11 AD
SAMPLE SIZE: 100UL-10ML-500UL
WVL AND ABS= 580NM 0.820 A

SAMPLE ID#: R-1734 SAMPLE
SAMPLE SIZE: .0206 GRAMS
WVL AND ABS= 580NM 0.120 A

SAMPLE ID#: R-1734 DUPLICATE
SAMPLE SIZE: .0205 GRAMS
WVL AND ABS= 580NM 0.162 A

SAMPLE ID#: R-1734 SPIKE
SAMPLE SIZE: .0202 GRAMS
WVL AND ABS= 580NM 0.959 A

SAMPLE ID#: R-1735 SAMPLE
SAMPLE SIZE: .0201 GRAMS
WVL AND ABS= 580NM 0.218 A

SAMPLE ID#: R-1735 DUPLICATE
SAMPLE SIZE: .0203 GRAMS
WVL AND ABS= 580NM 0.284 A

SAMPLE ID#: R-1735 SPIKE
SAMPLE SIZE: .0203 GRAMS
WVL AND ABS= 580NM 1.119 A

TECHNOLOGIST SIGNATURE: Valerie J Massie

DATE SIGNED: 7-17-92

*TRACE metals Total: 2.0069g/L = Delution
check Fusion factor
of 50B in 250ml*

WHC-SD-WM-TI-540, REV. 1

r1753 dup run 1:59 8/17/92

Water digest				Fusion digest			
				R1712 dup			
sr	4.628	0.462153	ug/g rec	sr	3653	1802.704	
bi	-572	57.12003	ug/g rec	bi	50.6	24.97039	
ta-35	-35	3.495107	ug/g rec	ta-35	-16.9	8.339913	
Sn	14	1.398043	ug/g rec	Sn	21.4	10.5606	
Si	-736	73.4971	ug/g rec	Si	1987	980.5567	
W	70	6.990214	ug/g rec	W	59	29.11567	
Li	-42	4.194128	ug/g rec	Li	4.4	2.171338	
Zn	116	11.58378	ug/g rec	Zn	279	137.6826	
La	5.33	0.532255	ug/g rec	La	16	7.895776	
Eu	13.3	1.328141	ug/g rec	Eu	3.8	1.875247	
Nd	-11.9	1.188336	ug/g rec	Nd	61	30.10265	
Ce	-46.05	4.598562	ug/g rec	Ce	137	67.60758	
Sm	-7.23	0.721989	ug/g rec	Sm	-157	77.4773	
Ba	0.243	0.024266	ug/g rec	Ba	89	43.92025	
As	398.3	39.77432	ug/g rec	As	85	41.94631	
Se	35157	3510.785	ug/g rec	Se	4455	2198.48	
Ag	6.9	0.689035	ug/g rec	Ag	55	27.14173	
Pb	-189.7	18.94348	ug/g rec	Pb	937	462.3964	
Ti	0.916	0.091472	ug/g rec	Ti	46	22.70036	
Cd	1.4	0.139804	ug/g rec	Cd	210	103.6321	
B	87.59	8.746755	ug/g rec	B	16	7.895776	
Sb	110	10.98462	ug/g rec	Sb	1.7	0.838926	
V	12.5	1.248252	ug/g rec	V	40	19.73944	
Be	3.23	0.322548	ug/g rec	Be	4.7	2.319384	
Tl	-115	11.48392	ug/g rec	Tl	283	139.6565	
Total		3770.343	ug/g rec	Total		6251.727	
		@SUM(C4..C18)					
al	19313	1928.6		Aluminum	175071	86395.08	
		@ABS(B33)/10.014					

200005\REP104\BYMETLWKI

00360741267

BY104 water digest metals and anions

WHC-SD-WM-TI-540.REV.1

BY104 water digest mass balance

charge ba
Equivalen

R1754

Riser 10BRiser10B dup

sample std dev

zr	1.75	1.34	1.545	0.289914
al	318	300	309	12.72792
co	2.04	0	1.02	1.442498
Cu	0.945	0.892	0.9185	0.037477
Ni	4.17	2.39	3.28	1.25865
Fe	5.77	3.49	4.63	1.612203
Ca	42.1	48.3	45.2	4.384062
Cr	2670	1920	2295	530.3301
P	3910	1780	2845	1506.137
	20500	16000	18250	3181.981
	21.3	16.1	18.7	3.676955
K	2370	1780	2075	417.193
Mn	0	0	0	0
Na	266000	279000	272500	9192.388

Total metals mass bal.

277625.1

cation equivalents

TOC water soluble

474x104

492x104

TOC

10740

10760

10750

14.14214

Water ppm

151000

anions no OH

151900

mass balance Riser 10B

591275.1

R1754 anions

Riser10B Riser10Bd

Ave.

Smallsample std dev.

F	13100	11100	12100	1414.214	636.8421
Cl	1100	1240	1170	98.99495	33.00423
NO2	15100	16300	15700	848.5281	341.3043
NO3-	77600	71400	74500	4384.062	1201.613
PO4-3	4420	3260	3840	820.2439	121.2632
SO4-2	41900	47300	44600	3818.377	929.1667
OH-	Test #s		Test only		0

151910

TOC equ.

298.6111

Aluminum

11.44444

385

Anion equivalents 3573.249

Charge balance

Cation:Anion Charge Ratio

3.330553

TIC 2.1587 $\times 10^4$ ug/g rec
1753
CR1225 1.9288 $\times 10^4$ ug/g rec

std 7927 spike 9790 rec
mat 10/6/92

WHC-SD-WM-TI-540, REV. 1

FUSION DIGESTED SAMPLE ANALYSES

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
Analytical Batch

002757

WHC-SD-WM-TI-540, REV. 1

LAB SEGMENT SERIAL #: ^{QH7-24-92} X R1712, R1713

CUSTOMER ID: BY-104
¹⁸⁶⁵²

INSTRUMENT	^{QH7-24-92} AT W327807
PROCEDURE/REV.	LA-508-101
TECHNOLOGIST	<u>Sue L.</u>
DATE	7-21-92
TEMPERATURE	24°
STARTING TIME	10:00
ENDING TIME	15:10
CHEMIST	S. Catlow

ANALYSIS:

AT

SAMPLE PREP: Fusion

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	DESCRIPTION	LAB ID
1	STD	R1710-6525
2	BLK	R1711-6625
3	sample	R1712-6725
4	Duplicate Sample	R1712-6825
5	sample	R1713-6725
6	Duplicate Sample	R1713-6825
7		
8		
9		
10		

	DESCRIPTION	LAB ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LHC5	107B49(10ml)			

WHC-SD-WM-TI-540,REV.1

DATE START:

July 21, 1992

DATE COMPLETE:

July 22, 1992

NARRATIVE: NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:
SAMPLE ACTIVITY IS NEAR THE MDA PRODUCING HIGH RPD's. LARGER SAMPLES CAN NOT
BE USED DUE TO BETA ACTIVITY. NO ADDITIONAL RERUNS REQUESTED.

0 0 7 4 0 9 4 0 2

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

WHC-SD-WM-TI-540, REV. 1

ANALYTICAL BATCH

Lab Segment Serial No. <i>R1712, R1713</i>	Customer ID: <i>RSA# 418 BY-104</i>
Analysis: <i>Sr 90</i>	Sample Prep: <i>Fusion</i>

Instrument: <i>Ø</i>	Procedure/ Rev: <i>LA-220-101 D-0</i> <i>pac</i>
Technologist: <i>Kyrtomph</i>	Date: <i>7-14-92</i>
Starting Time: <i>1630</i>	Temperature <i>75°F</i>
Ending Time: <i>1930</i>	Chemist: <i>S. CATOW</i>

	Description	Lab ID
1	<i>LMCS</i>	<i>R1710-6586</i>
2	<i>BLK</i>	<i>R1711-6686</i>
3	<i>Sample</i>	<i>R1712-6786</i>
4	<i>Sample Dup.</i>	<i>R1712-6886</i>
5	<i>Sample</i>	<i>R1713-6786</i>
6	<i>Sample Dup.</i>	<i>R1713-6886</i>
7		
8		
9		
10		

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

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
<i>Ø 48-19-92</i> <i>ITS-LMCS</i>	<i>85B49 / 1ml</i>			<i>1ml</i>
<i>Strontium Carrier</i>	<i>23S1A / 1ml</i>			<i>1ml</i>

WHC-SD-WM-TI-540, REV. 1.

DATE START:

July 14, 1992

DATE COMPLETE:

July 15, 1992

NARRATIVE: ☒ NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

WESTINGHOUSE HANFORD COMPANY
222'S LABORATORY
Analytical Batch

WHC-SD-MM-TI-540, REV. 1

LAB SEGMENT SERIAL #: R1749 R1750

CUSTOMER ID: B4104

INSTRUMENT	X-RAY
PROCEDURE/REV	LA-507-151
TECHNOLOGIST	JOHN WORRELL
DATE	7-9-92
TEMPERATURE	20 th
STARTING TIME	7-1-92
ENDING TIME	7-1-92 13:00
CLIENT	K. FULLER

ANALYSIS: X-RAY

SAMPLE PREP: N/A

RSA # 428

0 0 7 4 0 4 2 0 4 2

	DESCRIPTION	LAB. ID
1	B4-104	R-1749-4606
2	B4-104	R-1750-4606
3		
4		
5		
6		
7		
8		
9		
10		

	DESCRIPTION	LAB. ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY Book # & ALLOCUT VOL.	SECOND Book # & ALLOCUT VOL.	THIRD Book # & ALLOCUT VOL.	FINAL VOL. OF STD.

WESTINGHOUSE HANFORD COMPANY
222'S LABORATORY
Analytical Batch

WHC-SD-WM-TI-540, REV. 1

LAB SEGMENT SERIAL #: R1710-R1713

BY-104
 CUSTOMER ID: RSA # 418

INSTRUMENT	#15 W826872 #16 W827806
PROCEDURE/REV	LA-508-101 C-2
TECHNOLOGIST	<i>Phyllis McLown</i>
DATE	7/14/92
TEMPERATURE	NA
STARTING TIME	16:30
ENDING TIME	19:20
CHEMIST	S. Catlow

ANALYSIS: TB

SAMPLE PREP: Fusion

	DESCRIPTION	LAB ID
1	STD.	R1710-6520
2	BLK	R1711-6620
3	Sample	R1712-6720
4	Sample Dup	R1712-6820
5	Sample	R1713-6720
6	Sample Dup.	R1713-6820
7		
8		
9		
10		

	DESCRIPTION	LAB ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
EV-CRB ^{LACS} JH 8-19-92	109849 10ML			10ML

WHC-SD-WM-TI-540, REV. 1

DATE START:

July 14, 1992

DATE COMPLETE:

July 15, 1992

NARRATIVE: ☒ **NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH**
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

0 0 7 4 0 4 2 0 4 6

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
Analytical Batch

WHC-SD-WM-TI-540, REV. 1

LAB SEGMENT SERIAL #:

^{R-1592} 1712, ^{R-1592} 1713

CUSTOMER ID:

BY-104

INSTRUMENT	WB53737, LG-520 ^{LP-530-FM} ^{503-156 (0-0)}
PROCEDURE/REV	LA 542-101 (C-0)
TECHNOLOGIST	W. J. C. Bismar
DATE	7/20/92
TEMPERATURE	25°C
STARTING TIME	0900
ENDING TIME	13:00
CHEMIST	Stan C. Hov

ANALYSIS:

PU239/40

SAMPLE PREP:

Fusion

	DESCRIPTION	LAB. ID.
1	LHCS	R1710-6581
2	Blank	R1711-6681
3	sample	R1712-6781
4	sample dup	R1712-6881
5	sample	R1713-6781
6	sample dup	R1713-6881
7		
8		
9		
10		

	DESCRIPTION	LAB. ID.
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
AR 0065 LHCS	50843-100ml			
Pro. Spike PU236	54843-100ml			
JH 8-15-92				

WHC-SD-WM-TI-540, REV. 1

LA-503-156

July 20, 1992

S. A. Catlow

July 23, 1992

NARRATIVE: NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:
ALTHOUGH THE RPD's ARE HIGH, THE PLUTONIUM RESULTS FOLLOW THE SAME GENERAL
PATTERN AS OTHER RADIONUCLIDE RESULTS ON THESE SAMPLES, THEREFORE, NO
RERUNS WERE REQUESTED.

0974043162

WESTINGHOUSE HANFORD COMPANY
222 S LABORATORY
Analytical Batch

WHC-SD-WM-TI-540, REV. 1

LAB SEGMENT SERIAL #: ^{RH-15-92} 1712, ^{RH-15-92} 1713

CUSTOMER ID: BY-104

INSTRUMENT	WB57237, LP-520-FM 503-156 (0-0)
PROCEDURE/REV	LA 592-101 (C-0)
TECHNOLOGIST	Aluc C. Bielman
DATE	7/21/92
TEMPERATURE	25°C
STARTING TIME	1000
ENDING TIME	9:45-92 13:00
CHEMIST	Stan Cutlow

ANALYSIS: AM241

SAMPLE PREP: Fusion

	DESCRIPTION	LAB ID
1	LMCS	R 1710-6582
2	Blank	R 1711-6682
3	sample	R 1712-6782
4	sample dup	R 1712-6882
5	sample	R 1713-6782
6	sample dup	R 1713-6882
7		
8		
9		
10		

	DESCRIPTION	LAB ID
11		
12		
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STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS	50 B43-100ml			
Proc. Spike	18 B43-100ml			

00740943165

WHC-SD-WM-TI-540, REV. 1

DATE START:

July 21, 1992

DATE COMPLETE:

July 27, 1992

NARRATIVE: ☒ NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

097404?1.66

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
Analytical Batch

WHC-SD-WM-TI-540, REV. 1

LAB SEGMENT SERIAL #: R1778, R1779
7-7-92

CUSTOMER ID: BY-104
10-6-92

INSTRUMENT	S/N <u>FO4495</u>
PROCEDURE/REV	<u>LA-505-159 B-0</u>
TECHNOLOGIST	<u>[Signature]</u>
DATE	<u>7-7-92</u>
TEMPERATURE	<u>95°C</u>
STARTING TIME	<u>0800</u>
ENDING TIME	<u>7-10-92 1000</u>
CHEMIST	<u>R. FULLER</u>

ANALYSIS: ACID-DIGEST

SAMPLE PREP: ACID-DIGEST. SOLID

	DESCRIPTION	LAB ID
1	LMCS STD	R-1776-8500
2	REAGENT BLK	R-1777-8600
3	SAMPLE	R-1778-8700
4	DUPLICATE	R-1778-8800
5	SPIKE	R-1778-8900
6	SAMPLE	R-1779-8700
7	DUPLICATE	R-1779-8800
8		
9		
10		

	DESCRIPTION	LAB ID
11		
12		
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STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS STD	1B48A0 / 10ml	2B48AP / 10ml	3B48AP / 10ml	50 ml

00740942169

WHC-SD-WM-TI-540, REV. 1

NARRATIVE: NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

1. Had to filter with smaller filter to get more particulates out.
2. Had to filter 3 times total.
3. Had to Boil the samples down twice, because of the filtering problems. (R1778) 400
4. 1779 sample was clear → Duplicate was Dark green → Spiked sample was light green.

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
Analytical Batch

LAB SEGMENT SERIAL #: QH8-1592 R1753
R1751-R1754

WHC-SD-WM-TI-540, REV. 1
 CUSTOMER ID: BY-104

INSTRUMENT	Mettler Balance F04495
PROCEDURE/REV	LA 212 103
TECHNOLOGIST	
DATE	6-30-92
TEMPERATURE	25°C
STARTING TIME	(0740) 6-30-92
ENDING TIME	(1030) 6-30-92
CHEMIST	K. Fuller

ANALYSIS: PH

SAMPLE PREP: SOLIDS undigested QH9-29-92

	DESCRIPTION	LAB ID
1	Lmcs 72011-P std	R1751
2	Smpl	R1753
3	dup	R1753
4	Smpl	R1754
5	dup	R1754
6		
7		
8		
9		
10		

	DESCRIPTION	LAB ID
11		
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17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
Lmcs	72011-P sml			

BY-104

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
Analytical Batch

WHC-SD-WM-TI-540, REV. 1

LAB SEGMENT SERIAL #: R1712, R1713

CUSTOMER ID: BY-104
R1711, R1712, R1713
248-19-92

ANALYSIS: FUSION

SAMPLE PREP: Fusion
Solids 7-7-92

INSTRUMENT	SN F04495 Mettler Balance
PROCEDURE/REV	LA 549 141
TECHNOLOGIST	MARY FRANZ
DATE	7-8-92
TEMPERATURE	450° F
STARTING TIME	7-7-92 (0800)
ENDING TIME	7-8-92 (1300)
CHEMIST	KIETH FULLER

	DESCRIPTION	LAB ID
1	Blk	R1711-6600
2	Smpl	R1712-6700
3	Wup	R1712-6800
4	Smpl	R1713-6700
5	Wup	R1713-6800
6		
7		
8		
9		
10		

	DESCRIPTION	LAB ID
11		
12		
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19		
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STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
NA				

007404213

WHC-SD-WM-TI-540, REV. 1

NARRATIVE: ☒ **NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH**
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
Analytical Batch

LAB SEGMENT SERIAL #: R1710 - R1713

BY-104
 CUSTOMER ID: RSA # 418

INSTRUMENT	#13 WB27810 #14 WB27807
PROCEDURE/REV	LA-508-101 C-2
TECHNOLOGIST	<u>Patrick J. McCann</u>
DATE	<u>7/14/92</u>
TEMPERATURE	<u>NA</u>
STARTING TIME	<u>16:30</u>
ENDING TIME	<u>19:20</u>
CHEMIST	<u>S. Catlow</u>

ANALYSIS: AT

WHC-SD-WM-TI-540, REV. 1

OUT FOR RERUN

SAMPLE PREP: FUSION

NOT USED IN FINAL RESULTS

	DESCRIPTION	LAB ID
1	STD	R1710-6525
2	BLK	R1711-6625
3	Sample	R1712-6725
4	Sample Dup.	R1712-6825
5	Sample	R1713-6725
6	Sample Dup.	R1713-6825
7		
8		
9		
10		

	DESCRIPTION	LAB ID
11		
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20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
EV-CRB	109849 10ML			10ML.

Calibration Standard : BLANK

12:55 PM 15/ 7/92

Task name : ALL_SIM

On-Peak Integrations : 3 Off-Peak Integrations : 1

Sandra K M Garland

All Sim. WHC-SD-WM-TI-540, REV. 1

July 15, 1994

R 1710 - R 1714 plus IDL run

	Ag (KPulses)	Al (KPulses)	As (KPulses)	B (KPulses)	Ba (KPulses)	Be (KPulses)	Ri (KPulses)	Ca (KPulses)
On Peak 1	1.616	7.231	0.592	1.186	3.308	1.145	2.168	0.350
On Peak 2	1.630	7.255	0.601	1.204	3.328	1.146	2.151	0.348
On Peak 3	1.631	7.202	0.597	1.205	3.319	1.145	2.170	0.350
OffPeak1 1	1.758	7.115	0.594	1.198	3.337		2.208	0.227
OffPeak2 1						1.151		
Mean	-0.132	0.114	0.003	0.000	-0.019	-0.006	-0.045	0.122
S.D.	0.008	0.027	0.005	0.011	0.010	0.001	0.010	0.001
% R.S.D.	6.337	23.212	169.097	3207.803	53.661	10.189	23.201	0.944

	Cd (KPulses)	Ce (KPulses)	Co (KPulses)	Cr (KPulses)	Cu (KPulses)	Eu (KPulses)	Fe (KPulses)	K (KPulses)
On Peak 1	3.202	3.427	1.290	0.985	1.756	2.228	0.727	2.245
On Peak 2	3.210	3.455	1.308	0.981	1.769	2.242	0.729	2.264
On Peak 3	3.235	3.442	1.283	0.987	1.763	2.248	0.719	2.255
OffPeak1 1	3.298	3.432	1.316	0.997	1.721	2.298	0.735	2.311
OffPeak2 1								
Mean	-0.082	0.009	-0.022	-0.013	0.042	-0.059	-0.010	-0.056
S.D.	0.017	0.014	0.013	0.003	0.007	0.010	0.005	0.010
% R.S.D.	20.908	150.127	57.748	24.119	15.615	17.494	52.915	16.872

	La (KPulses)	Li (KPulses)	Hg (KPulses)	Mn (KPulses)	Mo (KPulses)	Na (KPulses)	Ni (KPulses)	Ni (KPulses)
On Peak 1	0.325	2.856	0.221	0.596	0.776	5.278	8.638	1.471
On Peak 2	0.326	2.876	0.221	0.512	0.779	5.311	8.754	1.462
On Peak 3	0.326	2.860	0.221	0.505	0.782	5.302	8.656	1.479
OffPeak1 1	0.328	2.887	0.220	0.502	0.771	5.231	8.620	1.539
OffPeak2 1								
Mean	-0.002	-0.023	0.001	0.006	0.008	0.066	0.063	-0.068
S.D.	0.001	0.011	0.000	0.004	0.003	0.017	0.062	0.009
% R.S.D.	24.744	46.013	0.000	66.811	37.500	25.847	99.620	12.446

	F (KPulses)	Pb (KPulses)	S (KPulses)	Sb (KPulses)	Se (KPulses)	Si (KPulses)	Sm (KPulses)	Sn (KPulses)
On Peak 1	0.316	0.864	0.617	1.115	0.984	1.981	3.549	1.642
On Peak 2	0.315	0.881	0.615	1.147	0.990	1.998	3.586	1.650
On Peak 3	0.313	0.884	0.625	1.121	1.007	1.989	3.578	1.642
OffPeak1 1	0.303	0.897	0.616	1.104		1.912	3.599	1.640
OffPeak2 1					1.038			
Mean	0.012	-0.021	0.003	0.024	-0.044	0.077	-0.028	0.005
S.D.	0.002	0.011	0.005	0.017	0.012	0.009	0.019	0.005
% R.S.D.	13.093	52.189	176.383	71.872	26.911	10.998	67.528	98.974

	Sr (KPulses)	Ta (KPulses)	Ti (KPulses)	Tl (KPulses)	V (KPulses)	W (KPulses)	Zn (KPulses)	Zr (KPulses)
On Peak 1	2.710	2.060	2.189	2.440	1.363	2.277	0.780	3.078
On Peak 2	2.729	2.062	2.208	2.470	1.374	2.358	0.789	3.100
On Peak 3	2.721	2.063	2.200	2.456	1.365	2.359	0.769	3.087
OffPeak1 1	2.733	2.046	2.324			2.370	0.670	3.081
OffPeak2 1				2.524	1.357			
Mean	-0.013	0.016	-0.125	-0.069	0.010	-0.039	0.109	0.007

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S.D.	0.010	0.002	0.010	0.015	0.006	0.047	0.010	0.011
% R.S.D.	73.380	9.750	7.632	21.861	56.705	121.698	91.162	150.824

Calibration Standard : SIM 1

12:57 PM 15/ 7/92

WHC-SD-WM-TI-540,REV.1

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	378.272	91.525	130.043	6.660	236.305	88.293	44.072	525.424
On Peak 2	380.152	91.989	130.743	6.602	233.398	88.902	43.582	528.214
On Peak 3	384.161	92.964	132.031	6.603	235.517	89.695	43.857	533.618
OffPeak1 1	4.712		0.791	2.358	4.934	0.436	5.488	4.325
OffPeak2 1		1.949						
Mean	376.150	90.210	130.148	4.264	230.139	88.527	38.349	524.760
S.D.	3.008	0.734	1.008	0.033	1.503	0.703	0.246	4.166
% R.S.D.	0.800	0.814	0.775	0.779	0.656	0.794	0.640	0.794

Calibration Standard : SIM 2

12:59 PM 15/ 7/92

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	71.442	461.301	81.163	48.954	95.277	56.714	207.890	82.128
On Peak 2	71.604	462.132	81.623	49.350	95.413	57.123	208.942	82.477
On Peak 3	71.859	463.540	81.715	49.562	95.922	57.255	209.519	82.901
OffPeak1 1	2.461	4.837	1.626	1.281	2.070	1.032	1.087	1.844
OffPeak2 1								
Mean	69.174	457.487	79.874	48.008	93.467	55.999	207.697	80.658
S.D.	0.210	1.132	0.296	0.309	0.340	0.282	0.826	0.387
% R.S.D.	0.304	0.247	0.370	0.643	0.364	0.504	0.398	0.480

	V (KPulses)	Zn (KPulses)
On Peak 1	34.527	207.111
On Peak 2	34.697	207.651
On Peak 3	34.796	208.456
OffPeak1 1		1.458
OffPeak2 1	1.705	
Mean	32.968	206.281
S.D.	0.136	0.677
% R.S.D.	0.413	0.328

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Calibration Standard : SIM 3

1:01 PM 15/ 7/92

Task name : ALL_SIM

On-Peak Integrations : 3 Off-Peak Integrations : 1

Al	B	Mo	P	Si	Ta	Ti	W
----	---	----	---	----	----	----	---

	(KPulses)	(KPulses)	(KPulses)	(KPulses)	(KPulses)	(KPulses)	(KPulses)	(KPulses)
On Peak 1	59.239	109.137	56.781	2.444	26.959	28.490	153.341	65.971
On Peak 2	59.031	108.638	56.728	2.400	26.874	28.364	152.560	65.730
On Peak 3	58.695	108.302	56.322	2.406	26.740	28.165	151.377	65.142
OffPeak1 1	7.665	1.995	1.274	0.319	2.364	2.868	2.818	3.365
OffPeak2 1								
n	51.323	106.697	55.336	2.098	24.494	25.472	149.541	62.249
S.D.	0.274	0.420	0.251	0.024	0.110	0.164	0.899	0.426
% R.S.D.	0.535	0.394	0.454	1.137	0.451	0.643	0.601	0.685

Zr

	(KPulses)
On Peak 1	49.833
On Peak 2	49.629
On Peak 3	49.232
OffPeak1 1	3.371
OffPeak2 1	
Mean	46.194
S.D.	0.306
% R.S.D.	0.662

WHC-SD-WM-TI-540, REV.1

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Calibration Standard : SIM 4 1:03 PM 15/ 7/92

Task name : ALL_SIM

On-Peak Integrations : 3 Off-Peak Integrations : 1

	As	Bi	Pb	S	Sb	Se	Sn	Tl
	(KPulses)	(KPulses)	(KPulses)	(KPulses)	(KPulses)	(KPulses)	(KPulses)	(KPulses)
On Peak 1	15.423	22.270	11.885	15.834	5.602	6.555	85.806	5.670
On Peak 2	15.389	22.295	11.875	15.780	5.635	6.546	85.301	5.654
On Peak 3	15.317	22.109	11.865	15.636	5.557	6.454	84.667	5.646
OffPeak1 1	0.703	2.431	0.995	0.729	1.156		2.360	
OffPeak2 1						1.177		2.712
Mean	14.673	19.794	10.880	15.030	4.442	5.341	82.898	2.945
S.D.	0.054	0.101	0.010	0.102	0.039	0.056	0.571	0.012
% R.S.D.	0.369	0.510	0.092	0.681	0.881	1.046	0.688	0.415

Calibration Standard : SIM 5 1:05 PM 15/ 7/92

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	12.379	382.043	5.569	75.549	13.711
On Peak 2	12.332	379.846	5.544	74.817	13.647
On Peak 3	12.305	379.610	5.532	74.800	13.639
OffPeak1 1	5.740	5.799	0.586	13.915	5.154
OffPeak2 1					
Mean	6.599	374.701	4.962	61.140	8.512
S.D.	0.037	1.342	0.019	0.428	0.039
% R.S.D.	0.568	0.358	0.380	0.699	0.464

Calibration Standard : SIM_HIREF

1:08 PM 15/ 7/92

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Task name : ALL_SIM

WHC-SD-WM-TI-540,REV.1

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	8.168	15.479	2.157	12.100	41.610	10.675	4.261	15.194
On Peak 2	8.274	15.568	2.148	12.224	42.120	10.789	4.320	15.388
On Peak 3	8.230	15.542	2.151	12.200	41.750	10.696	4.304	15.234
OffPeak1 1	1.958	8.435	0.648	1.339	3.689		2.906	0.304
OffPeak2 1						1.283		
Mean	6.266	7.095	1.504	10.845	38.138	9.437	1.389	14.968
S.D.	0.053	0.046	0.005	0.066	0.264	0.061	0.031	0.102
% R.S.D.	0.850	0.645	0.305	0.606	0.691	0.643	2.197	0.684

	Cd (KPulses)	Ce (KPulses)	Co (KPulses)	Cr (KPulses)	Cu (KPulses)	Eu (KPulses)	Fe (KPulses)	K (KPulses)
On Peak 1	51.022	4.342	9.480	5.989	11.632	40.468	6.542	2.664
On Peak 2	51.451	4.336	9.541	6.055	11.750	41.007	6.622	2.658
On Peak 3	50.932	4.350	9.453	6.032	11.644	40.553	6.630	2.660
OffPeak1 1	3.623	3.640	1.389	1.077	1.826	2.661	0.760	2.284
OffPeak2 1								
Mean	47.512	0.703	8.102	4.948	9.849	38.015	5.838	0.377
S.D.	0.277	0.007	0.045	0.034	0.065	0.290	0.049	0.003
% R.S.D.	0.584	1.000	0.556	0.677	0.659	0.762	0.834	0.811

	La (KPulses)	Li (KPulses)	Mg (KPulses)	Mn (KPulses)	Mo (KPulses)	Na (KPulses)	Nd (KPulses)	Ni (KPulses)
On Peak 1	0.846	25.558	9.553	22.040	6.121	9.059	15.474	9.996
On Peak 2	0.857	25.703	9.659	22.278	6.192	9.039	15.672	10.078
On Peak 3	0.849	25.478	9.589	22.153	6.166	9.027	15.483	10.024
OffPeak1 1	0.353	3.057	0.247	0.590	0.876	5.237	9.225	1.627
OffPeak2 1								
Mean	0.498	22.523	9.353	21.567	5.284	3.805	6.318	8.406
S.D.	0.006	0.114	0.054	0.119	0.036	0.016	0.112	0.042
% R.S.D.	1.143	0.506	0.576	0.552	0.680	0.425	1.770	0.496

	P (KPulses)	Pb (KPulses)	S (KPulses)	Sb (KPulses)	Se (KPulses)	Si (KPulses)	Sm (KPulses)	Sn (KPulses)
On Peak 1	0.507	2.062	2.116	1.651	1.830	4.760	4.595	10.210
On Peak 2	0.505	2.033	2.127	1.606	1.830	4.780	4.592	10.188
On Peak 3	0.510	2.051	2.141	1.615	1.824	4.778	4.600	10.245
OffPeak1 1	0.304	0.979	0.652	1.188		2.217	3.821	1.911
OffPeak2 1					1.109			
Mean	0.203	1.070	1.476	0.436	0.719	2.556	0.775	8.303
S.D.	0.003	0.015	0.013	0.024	0.003	0.011	0.004	0.029
% R.S.D.	1.238	1.369	0.849	5.461	0.482	0.431	0.522	0.346

	Sr (KPulses)	Ta (KPulses)	Ti (KPulses)	Tl (KPulses)	V (KPulses)	W (KPulses)	Zn (KPulses)	Zr (KPulses)
On Peak 1	56.460	4.658	22.520	2.871	4.857	7.881	21.561	8.020
On Peak 2	57.190	4.686	22.745	2.874	4.898	8.077	21.773	8.074
On Peak 3	56.665	4.698	22.593	2.873	4.872	8.101	21.690	8.030
OffPeak1 1	2.924	2.300	2.501			2.584	0.796	3.725
OffPeak2 1				2.601	1.516			
Mean	53.848	2.381	20.118	0.272	3.360	5.436	20.879	4.316

S.D.	0.377	0.021	0.115	0.002	0.021	0.121	0.107	0.029
Z R.S.D.	0.699	0.862	0.571	0.562	0.617	2.220	0.912	0.666

Corrected Counts Statistics 1:16 PM July 15, 1992

WHC-SD-WM-TI-540, REV.1

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.025	0.009
Sr	2	248.122	3.039
Bi	3	-0.070	0.017
Ta	5	-0.030	0.022
Sn	7	19.273	0.310
Si	8	0.100	0.011
Al	9	-0.264	0.023
W	10	0.450	0.022
Co	11	38.045	0.503
Cu	12	22.740	0.268
Li	14	108.003	1.503
Fe	15	100.316	1.052
Ni	16	19.474	0.140
Eu	17	-0.004	0.001
Eu	18	-0.043	0.008
Fe	19	13.378	0.200
Ca	20	62.054	0.793
Cr	21	12.008	0.142
	22	0.342	0.046
	24	0.119	0.007
	25	-0.362	0.009
Ba	26	176.635	2.291
Zi	27	0.018	0.001
S	28	0.118	0.012
Ag	29	21.527	0.243
As	30	0.024	0.005
Ha	31	17.981	0.195
	32	0.003	0.005
Se	33	0.568	0.020
Ag	34	-0.109	0.006
Pb	35	-0.015	0.013
Ti	36	-0.135	0.005
Cd	37	221.926	2.269
B	38	25.565	0.297
K	39	0.981	0.002
Mn	40	48.382	0.586
Sb	42	0.990	0.025
V	43	0.021	0.003
Be	44	0.001	0.001
Tl	45	-0.042	0.007

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Identity 1: 1b4Bap Identity 2: direct

1:17 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WMC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-14.354	9335.363	-25.171	-37.038	4646.414	18.420	-147.630	137.047
S.D.	4.020	114.339	17.178	18.057	74.653	8.796	8.788	6.982
% R.S.D.	28.009	1.225	68.243	48.753	1.607	47.753	5.953	5.094

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	9449.861	4744.414	9484.991	9685.221	4726.134	-5.352	0.829	4679.403
S.D.	124.783	55.961	131.970	101.651	33.860	4.635	0.414	69.903
% R.S.D.	1.320	1.180	1.391	1.050	0.716	86.600	49.855	1.494

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	9519.637	4926.094	21.110	323.708	-807.949	9325.808	60.183	70.664
S.D.	121.866	58.118	15.408	19.714	21.502	120.899	11.533	16.524
% R.S.D.	1.280	1.180	72.986	6.090	2.661	1.296	19.163	23.384

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	4733.277	26.772	9469.834	-1.728	811.945	7.049	11.007	-1.292
S.D.	53.442	6.103	103.097	1.827	68.080	1.830	23.302	0.632
% R.S.D.	1.129	22.798	1.089	105.711	8.385	25.956	211.697	48.888

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	9516.222	4753.367	4797.787	4566.191	4521.180	6.622	1.445	174.779
S.D.	97.267	55.286	10.678	55.269	115.052	1.515	0.217	45.178
% R.S.D.	1.022	1.163	0.223	1.210	2.545	22.879	15.000	25.849

Corrected Counts Statistics 1:18 PM July 15, 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	-0.167	0.003
Sr	2	0.019	0.007
Bi	3	4.799	0.009
Ta	5	-0.035	0.011
Sn	7	-0.044	0.004
Si	8	0.015	0.006
Al	9	1.004	0.002
W	10	-0.047	0.014
Co	11	0.003	0.004
Cu	12	0.196	0.002
Li	14	-0.007	0.011
Zn	15	0.555	0.014
Ni	16	-0.034	0.002
La	17	1.220	0.005

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Eu	18	89.267	0.634
Fe	19	0.601	0.009
Ca	20	0.295	0.002
Cr	21	-0.011	0.006
Nd	22	15.099	0.181
	24	1.662	0.011
	25	2.020	0.014
Ba	26	-0.459	0.006
P	27	0.011	0.002
S	28	0.025	0.003
Mg	29	0.031	0.001
As	30	0.054	0.008
Na	31	0.072	0.016
Mo	32	0.009	0.002
Se	33	-0.020	0.011
Ag	34	16.361	0.119
Pb	35	2.722	0.012
Ti	36	-0.136	0.007
Cd	37	-0.051	0.025
B	38	0.008	0.003
K	39	-0.061	0.004
Mn	40	0.007	0.002
Sb	42	-0.026	0.038
	43	0.049	0.003
Be	44	-0.003	0.000
Zr	45	-0.044	0.008

WHC-SD-WM-TI-540, REV. 1

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Identity 1: 2b48aq Identity 2: direct 1:19 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-78.050	1.191	4854.008	-27.718	-11.735	-50.704	347.595	-2.679
S.D.	1.129	0.272	9.122	8.548	0.869	4.528	0.597	4.504
% R.S.D.	1.446	22.845	0.188	30.840	7.409	8.930	0.172	168.110

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	6.289	32.327	1.376	43.107	8.220	4906.659	4729.605	213.447
S.D.	1.082	0.319	0.947	1.319	0.503	20.858	33.565	3.054
% R.S.D.	17.206	0.988	68.845	3.061	6.125	0.425	0.710	1.431

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sr (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	26.609	0.819	4865.927	4893.238	4954.623	4.195	-9.733	29.790
S.D.	0.235	2.504	58.595	31.194	33.609	0.216	20.792	3.381
% R.S.D.	0.881	305.577	1.204	0.637	0.678	5.141	213.627	11.350

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	6.523	-68.611	3.002	0.494	91.358	4961.273	5031.482	-1.514
S.D.	0.127	11.339	8.594	0.771	41.422	35.689	22.014	0.890
% R.S.D.	1.946	16.526	286.295	156.094	45.340	0.719	0.438	58.750

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	1.329	1.364	-20.076	0.107	-232.259	23.478	0.578	161.504
S.D.	1.064	0.468	18.686	0.189	178.336	1.839	0.009	51.554
% R.S.D.	80.091	34.317	93.077	176.198	76.784	7.834	0.000	31.921

Corrected Counts Statistics 1:21 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540,REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	22.903	0.063
Sr	2	0.017	0.007
Bi	3	-1.462	0.033
Ta	5	12.332	0.118
Sn	7	0.069	0.023
Si	8	11.965	0.020
Al	9	12.192	0.057
Co	10	31.254	0.122
Co	11	-0.091	0.007
Co	12	0.059	0.002
Li	14	-0.038	0.007
Co	15	0.154	0.005
Ni	16	0.236	0.006
Ca	17	-0.005	0.001
Fe	18	-0.119	0.008
Fe	19	0.021	0.008
Co	20	0.041	0.000
Cr	21	0.022	0.006
Co	22	-0.192	0.072
Co	24	0.008	0.006
Co	25	-0.104	0.010
Co	26	-0.020	0.007
Co	27	1.056	0.007
Co	28	3.669	0.040
Hg	29	0.017	0.001
Co	30	3.509	0.025
Na	31	0.079	0.011
Mo	32	27.017	0.159
Se	33	1.204	0.014
Ag	34	0.251	0.022
Pb	35	-0.088	0.006
Ti	36	35.607	0.151
Cd	37	-0.404	0.040
B	38	0.086	0.007
K	39	-0.057	0.007
Mn	40	-0.000	0.004
Sb	42	0.048	0.018
V	43	16.009	0.045
Be	44	43.423	0.144
Tl	45	0.735	0.002

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Identity 1: 3b48aq Identity 2: direct 1:21 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	10270.291	1.141	-1428.123	10039.737	15.513	9667.380	4717.009	10047.572
S.D.	28.300	0.251	32.930	96.257	5.609	16.244	22.354	39.072
% R.S.D.	0.276	21.951	2.306	0.959	36.155	0.168	0.474	0.389

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-17.129	3.692	-1.288	4.349	73.517	-10.705	-3.212	10.719
S.D.	1.796	0.435	0.617	0.436	1.332	4.014	0.404	2.910
% R.S.D.	10.484	11.786	47.890	10.021	1.812	37.500	12.589	27.152

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-12.529	14.070	-82.327	-3.956	-182.985	-0.148	10434.301	4927.979
S.D.	0.003	2.401	23.409	17.765	25.180	0.352	70.860	53.137
% R.S.D.	0.025	17.067	28.434	449.051	13.761	238.272	0.679	1.078

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	3.445	4726.339	6.878	10000.802	4630.345	115.238	-122.913	4774.933
S.D.	0.127	33.338	5.886	58.783	52.313	6.482	10.592	20.203
% R.S.D.	3.685	0.705	85.577	0.588	1.130	5.625	8.617	0.423

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-13.802	15.929	-1.582	-0.558	114.070	9630.945	9412.934	5336.283
S.D.	1.733	1.341	33.448	0.358	82.269	26.965	31.286	10.138
% R.S.D.	12.555	8.418	2114.796	64.101	72.121	0.280	0.332	0.190

Corrected Counts Statistics 1:27 PM July 15, 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	0.003	0.001
Sr	2	-0.003	0.003
Bi	3	-0.034	0.030
Ta	5	-0.007	0.024
Sn	7	0.022	0.022
Si	8	0.521	0.001
Al	9	2.046	0.024
W	10	-0.037	0.036
Co	11	1.081	0.004
Cu	12	1.697	0.006
Li	14	-0.031	0.006
Zn	15	4.631	0.013

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Ni	16	0.846	0.016
La	17	-0.003	0.001
Eu	18	-0.083	0.001
Fe	19	2.342	0.018
Ca	20	0.087	0.001
Cr	21	0.681	0.011
Nd	22	0.001	0.029
Ce	24	-0.005	0.003
Sa	25	-0.041	0.005
Ba	26	-0.025	0.006
P	27	0.009	0.005
S	28	0.034	0.006
Mg	29	0.008	0.001
As	30	0.182	0.004
Na	31	0.935	0.005
Mo	32	0.007	0.003
Se	33	-0.008	0.008
Ag	34	-0.150	0.007
Pb	35	0.232	0.012
Ti	36	-0.147	0.006
Cd	37	0.876	0.042
B	38	0.289	0.013
K	39	-0.071	0.004
Mn	40	3.691	0.024
Sb	42	0.029	0.018
V	43	1.482	0.002
Be	44	1.085	0.002
H	45	-0.050	0.003

WHC-SD-WM-TI-540, REV. 1

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Identity 1: WP284 Identity 2: Quality Control 1:27 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-1.944	0.364	10.777	-18.723	4.180	360.790	754.555	-0.605
S.D.	0.449	0.095	30.093	19.419	5.222	0.813	9.449	11.487
% R.S.D.	23.079	26.034	279.221	103.717	124.941	0.225	1.252	1899.777
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	273.972	345.923	-0.673	437.064	221.201	-4.014	-1.306	821.980
S.D.	0.940	1.151	0.484	1.287	3.857	4.635	0.061	6.304
% R.S.D.	0.343	0.333	71.840	0.294	1.744	115.466	4.681	0.767
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-5.857	284.266	-19.916	-41.460	-30.575	-0.357	-29.708	42.174
S.D.	0.093	4.654	9.262	9.518	12.414	0.333	50.271	8.213
% R.S.D.	1.582	1.637	46.504	22.956	40.604	93.333	169.216	19.475
	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1.466	242.132	459.525	-0.370	49.251	-5.384	463.522	-2.940
S.D.	0.254	4.840	2.441	1.111	27.474	2.048	22.913	0.802

Z R.S.D.	17.321	1.999	0.531	300.078	55.784	38.030	4.943	27.273
	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mgan	41.064	53.736	-67.854	348.341	23.588	885.738	236.468	123.894
	1.810	2.420	20.154	2.255	85.319	0.920	0.451	17.560
R.S.D.	4.407	4.503	29.702	0.647	361.708	0.104	0.191	14.174

WHC-SD-WM-TI-540, REV. 1

Corrected Counts Statistics 1:40 PM July 15, 1992
Task name : ALL_SIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	ZR.S.D. Kpulses
3	1	0.023	0.005
Sr	2	0.004	0.005
Bi	3	0.025	0.034
Ca	5	-0.009	0.018
Sn	7	-0.071	0.005
Al	8	0.084	0.002
Al	9	0.130	0.011
Al	10	0.062	0.030
Al	11	-0.014	0.009
Cu	12	0.043	0.006
Al	14	-0.019	0.003
Zn	15	0.094	0.006
Hf	16	-0.033	0.011
La	17	-0.001	0.001
Eu	18	-0.051	0.004
Fe	19	0.013	0.007
Ca	20	0.112	0.001
Al	21	-0.007	0.009
Nd	22	0.139	0.074
Ce	24	0.017	0.006
Sm	25	-0.019	0.004
Ba	26	-0.008	0.002
P	27	0.007	0.003
S	28	0.058	0.005
Hg	29	0.008	0.001
As	30	-0.008	0.004
Na	31	0.041	0.012
Mo	32	0.005	0.008
Se	33	-0.031	0.004
Ag	34	-0.098	0.003
Pb	35	-0.011	0.004
Ti	36	-0.120	0.002
Cd	37	-0.137	0.046
B	38	0.022	0.010

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K	39	-0.059	0.003
Mn	40	-0.000	0.003
Sb	42	0.017	0.021
V	43	0.010	0.002
Be	44	-0.001	0.001
Tl	45	-0.062	0.001

Identity 1: cal blank Identity 2: direct 1:41 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	7.028	0.627	70.881	-19.910	-18.166	5.409	6.249	32.206
S.D.	2.331	0.178	34.128	14.573	1.140	1.409	4.102	9.520
% R.S.D.	33.166	28.355	48.148	73.194	6.273	26.042	65.650	29.559

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	1.986	0.348	0.380	-1.450	8.462	4.014	0.406	8.156
S.D.	2.140	1.151	0.282	0.532	2.664	2.318	0.191	2.455
% R.S.D.	107.777	331.215	74.178	36.713	31.483	57.737	47.033	30.102

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sb (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-1.644	2.459	24.605	21.704	21.842	0.603	-46.355	73.953
S.D.	0.087	3.485	23.830	17.349	8.723	0.107	29.964	7.113
% R.S.D.	5.315	141.760	96.849	79.932	39.936	17.744	64.640	9.618

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1.466	-14.489	-13.384	-0.987	48.784	10.258	17.122	0.668
S.D.	0.127	4.874	6.194	2.779	15.449	0.967	6.443	0.267
% R.S.D.	8.660	33.639	46.281	281.486	31.669	9.426	37.628	40.000

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-2.343	3.967	-12.370	-0.566	-31.014	-0.000	0.939	44.248
S.D.	1.977	1.806	16.017	0.238	98.282	0.920	0.125	6.637
% R.S.D.	84.381	45.528	129.479	42.019	316.901	664325.847	13.324	15.000

Corrected Counts Statistics 1:43 PM July 15, 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	0.095	0.005
Sr	2	1.933	0.013
Bi	3	0.149	0.016
Ta	5	0.051	0.004

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IDL data removed

R 11.12 2-10 duration
 5 ppm (3 ml)(5)/12 ml = 1.25 ppm in 1250 ppb
 10 ppm (3 ml)(5)/12 ml = 2.5 ppm in 2500 ppb

Zr $[(2625 - 11.96) / 2500] \times 100 = 104.57\%$

WMC-SD-WM-TI-540, REV. 1

Sr $[(3653 - 551.8) / 2500] \times 100 = 124.07\%$ 95.27%

Si ~~$[(2829 - 1988) / 2500] \times 100 = 38.29\%$~~ No spike recovery

Al ~~$[(26467 - 25557) / 1250] \times 100 = 72.87\%$~~ Sample 4X > spike added

Co $[(2508 - 268.5) / 2500] \times 100 = 89.67\%$

Cu $[(1203 - 491.7) / 1250] \times 100 = 56.99\%$

Zn $[(2539 - 89.3) / 2500] \times 100 = 98.07\%$

Ni Sample 4X > spike added

Fe Sample 4X > spike added

Ca $[(2941 - 596) / 2500] \times 100 = 93.89\%$

Cr No spike recovery

Ba $[(2363 - 22.7) / 2500] \times 100 = 93.67\%$

P $[(4112 - 1751) / 2500] \times 100 = 94.47\%$

S ~~Sample 4X spike added~~
 $[(5002 - 3794) / 1250] \times 100 = 96.6\%$
 BW 7-22-92
 418

R1712

WHC-SD-WM-TI-540, REV. 1

Hg $[(1290 - 74.25) / 1250] \times 100 = 97.370$

Na Sample > 4x spike added

Se $[(2169 - 1962) / 1250] \times 100 = 16.470$

Ag $[(1281 - 0) / 1250] \times 100 = 102.570$

Pb $[(1442 - 111) / 1250] \times 100 = 106.570$

Cd $[(2607 - 41.08) / 2500] \times 100 = 102.670$

K Sample > 4x spike added

Mn No Mn spike recovery

Co	11	-0.068	0.015
Cu	12	0.061	0.001
Li	14	-0.039	0.016
Zn	15	0.435	0.007
Ni	16	0.304	0.004
	17	-0.005	0.001
Eu	18	-0.134	0.013
Fe	19	0.041	0.015
Ca	20	0.503	0.008
Cr	21	0.011	0.004
Nd	22	-0.247	0.106
Ce	24	-0.005	0.016
Sm	25	-0.105	0.018
Ba	26	-0.023	0.015
P	27	1.093	0.014
S	28	3.800	0.053
Hg	29	0.028	0.001
As	30	3.783	0.041
Na	31	0.193	0.028
Mo	32	29.063	0.334
Se	33	1.297	0.008
Ag	34	0.208	0.031
Pb	35	-0.087	0.005
Ti	36	37.134	0.453
Cd	37	-0.355	0.008
K	38	0.061	0.007
Br	39	-0.000	0.012
Cl	40	0.009	0.003
Sb	42	0.009	0.027
Al	43	16.779	0.204
Be	44	46.176	0.604
H	45	0.803	0.004

WHC-SD-WM-TI-540, REV. 1

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Identity 1: SST3 Identity 2: Quality Control 4:57 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	10648.429	0.828	-1486.587	10946.392	38.663	9958.516	4797.464	10705.609
S.D.	131.687	0.164	10.711	90.698	5.671	143.578	61.145	145.808
% R.S.D.	1.237	19.813	0.720	0.829	14.667	1.442	1.275	1.362

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-11.254	4.110	-1.405	31.509	89.962	-12.043	-3.989	17.709
S.D.	3.685	0.241	1.380	0.686	0.977	4.635	0.694	5.093
% R.S.D.	32.743	5.873	98.228	2.176	1.086	38.490	17.409	28.760

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	58.591	9.562	-100.536	-41.460	-187.017	-0.314	10800.524	5103.910
S.D.	1.153	1.706	34.203	48.138	43.635	0.779	141.603	71.088
% R.S.D.	1.968	17.843	34.020	116.108	23.332	248.408	1.311	1.393

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	6.010	5094.759	67.313	10758.388	4979.520	102.504	-121.079	4978.898
S.D.	0.254	55.575	14.822	123.687	29.742	9.302	9.254	60.483
% R.S.D.	4.225	1.091	22.020	1.150	0.597	9.075	7.626	1.215

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-11.702	11.342	258.885	0.305	-70.015	10094.683	10009.632	5783.186
S.D.	0.327	1.345	53.189	0.303	126.652	122.534	130.919	27.633
% R.S.D.	2.798	11.859	20.545	99.329	180.893	1.214	1.308	0.478

WHC-SD-WM-TI-540, REV. 1

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Don & M Garland
July 15, 1992
All dim
R 1710-R1714
plus IDL run

00740942088

Mean	4856.267	18.487	9153.739	-0.864	851.503	-0.170	-12.230	-6.414
S.D.	75.442	10.926	182.379	0.214	22.343	2.196	4.817	1.541
% R.S.D.	1.553	59.099	1.992	24.746	2.624	1238.329	37.749	24.026

	Cd	B	K	Mn	Sb	V	Be	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9936.777	4796.876	4871.765	4687.313	4719.304	5.418	1.734	176.991
S.D.	122.757	95.206	44.429	66.111	124.089	2.433	0.545	86.283
% R.S.D.	1.235	1.985	0.912	1.410	2.629	44.906	31.458	48.750

Corrected Counts Statistics 4:54 PM July 15, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC--SD-WM-TI-540.REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.163	0.008
Sr	2	0.019	0.015
Bi	3	4.875	0.081
Ta	5	-0.020	0.011
Sn	7	-0.082	0.036
Si	8	0.014	0.003
Al	9	1.052	0.006
Co	10	-0.009	0.028
Co	11	-0.018	0.010
Cu	12	0.197	0.003
Li	14	-0.014	0.014
Li	15	0.982	0.027
Li	16	-0.032	0.030
La	17	1.228	0.015
Fe	18	89.459	1.622
Fe	19	0.656	0.062
Fe	20	0.312	0.004
Cr	21	-0.002	0.002
Mo	22	14.926	0.225
Mo	24	1.642	0.009
Mo	25	1.998	0.022
Mo	26	-0.467	0.019
P	27	0.013	0.001
S	28	0.042	0.008
Hg	29	0.034	0.001
As	30	0.054	0.003
Na	31	0.229	0.017
Mo	32	0.020	0.004
Se	33	-0.038	0.002
Ag	34	16.556	0.226
Pb	35	2.856	0.021
Ti	36	-0.169	0.015
Cd	37	-0.155	0.042
B	38	-0.017	0.013
K	39	0.052	0.011
Mn	40	0.016	0.002
Sb	42	0.001	0.035
V	43	0.060	0.006

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Be	44	-0.001	0.001
Tl	45	-0.019	0.008

Identity 1: SST2 Identity 2: Quality Control 4:54 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	H (ppb)
Mean	-76.255	1.191	4930.778	-14.723	-20.979	-51.246	366.212	9.402
S.D.	3.367	0.555	81.063	8.798	8.709	2.348	2.376	9.007
% R.S.D.	4.415	46.554	1.644	59.760	41.512	4.581	0.649	95.805

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	0.993	32.397	0.820	84.313	8.865	4937.434	4739.771	232.787
S.D.	2.584	0.672	1.186	2.639	7.192	58.493	85.866	21.696
% R.S.D.	260.238	2.074	144.673	3.130	81.130	1.185	1.812	9.320

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	29.219	4.234	4809.921	4834.022	4901.400	3.963	13.573	52.621
S.D.	0.640	0.853	72.710	26.647	53.058	0.680	9.988	10.866
% R.S.D.	2.192	20.146	1.512	0.551	1.082	17.158	73.589	20.649

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	7.183	-69.024	86.166	4.567	21.024	5020.030	5276.697	-5.924
S.D.	0.127	5.172	9.033	1.402	5.530	68.054	37.790	1.984
% R.S.D.	1.767	7.493	10.483	30.696	26.305	1.356	0.716	33.482

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-3.101	-3.161	499.316	0.925	-105.896	29.899	1.084	327.434
S.D.	1.811	2.354	50.930	0.145	163.804	3.352	0.250	49.816
% R.S.D.	58.413	74.484	10.200	15.666	154.685	11.210	23.094	15.214

Corrected Counts Statistics 4:57 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	23.746	0.294
Sr	2	0.009	0.004
Bi	3	-1.520	0.011
Ta	5	13.444	0.111
Sn	7	0.165	0.024
Si	8	12.323	0.177
Al	9	12.398	0.157
H	10	33.303	0.454

Identity 1: CCV Identity 2: Quality Control 4:49 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	0.000	0.426	-74.602	-32.014	-16.799	468.678	446.276	10.598
S.D.	3.182	0.178	12.197	14.202	4.427	3.287	7.170	5.820
% R.S.D.	1810947.145	41.699	16.350	44.361	26.351	0.701	1.607	54.915

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	496.394	482.411	-0.556	501.499	506.090	-0.000	-0.635	487.013
S.D.	5.754	3.145	0.963	5.600	4.572	4.635	0.200	1.455
% R.S.D.	1.159	0.652	173.211	1.117	0.903	3308568.104	31.548	0.299

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	490.677	506.652	13.045	-26.656	-82.991	467.980	33.548	11.829
S.D.	4.313	4.305	2.262	35.324	26.093	3.782	19.976	6.952
% R.S.D.	0.879	0.850	17.343	132.518	31.441	0.808	59.543	58.770

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	495.551	492.152	455.825	538.259	563.747	516.409	501.436	478.843
S.D.	4.400	9.304	1.856	1.827	30.065	3.028	14.941	3.342
% R.S.D.	0.888	1.890	0.407	0.339	5.333	0.586	2.980	0.698

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	510.855	463.046	4853.271	476.800	443.238	493.838	470.625	460.177
S.D.	4.717	7.608	18.686	3.366	92.346	0.920	3.933	21.336
% R.S.D.	0.923	1.643	0.385	0.706	20.834	0.186	0.836	4.636

Corrected Counts Statistics 4:52 PM July 15, 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	-0.040	0.013
Sr	2	248.602	4.431
Bi	3	-0.069	0.014
Ta	5	-0.035	0.017
Sn	7	20.092	0.390
Si	8	0.078	0.007
Al	9	-0.318	0.040
W	10	0.455	0.018
Co	11	39.041	0.622
Cu	12	22.648	0.394

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Li	14	103.206	2.426
Zn	15	102.822	1.527
Ni	16	20.132	0.277
La	17	-0.002	0.002
Eu	18	-0.061	0.015
Fe	19	13.776	0.249
Ca	20	62.055	1.099
Cr	21	12.283	0.182
Nd	22	0.130	0.035
Ce	24	0.094	0.020
Sm	25	-0.388	0.021
Ba	26	176.054	3.260
P	27	0.014	0.001
S	28	0.130	0.005
Hg	29	22.086	0.343
As	30	0.018	0.008
Na	31	17.383	0.345
Mo	32	0.006	0.001
Se	33	0.588	0.010
Ag	34	-0.133	0.007
Pb	35	-0.027	0.003
Ti	36	-0.173	0.012
Cd	37	231.738	2.864
Rb	38	25.799	0.512
K	39	0.997	0.010
Br	40	49.663	0.701
Sb	42	1.032	0.027
Bi	43	0.019	0.004
Be	44	0.002	0.003
Al	45	-0.042	0.013

WMC-SD-WM-TI-540, REV. 1

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Identity 1: SST1 Identity 2: Quality Control 4:52 PM July 15, 1992

Peak name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr	Sr	Bi	Ta	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-21.232	9353.435	-23.859	-41.655	4843.745	0.258	-168.720	138.414
S.D.	5.831	166.706	14.162	13.854	94.108	5.415	15.803	5.933
% R.S.D.	27.465	1.782	59.355	33.258	1.943	2095.697	9.367	4.286
	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9697.106	4725.045	9063.830	9927.465	4885.346	-0.000	-0.141	4818.749
S.D.	154.285	82.279	213.052	147.620	66.908	6.132	0.804	86.955
% R.S.D.	1.591	1.741	2.351	1.487	1.370	4376824.290	568.990	1.805
	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9519.644	5038.790	-47.498	249.687	-870.042	9295.148	20.231	87.244
S.D.	168.882	74.391	12.376	57.742	51.338	172.052	11.533	6.059
% R.S.D.	1.774	1.476	26.055	23.126	5.901	1.851	57.006	6.944
	Hg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)

Ni	16	-0.040	0.018
La	17	-0.004	0.002
Eu	18	-0.056	0.006
Fe	19	-0.004	0.003
Ca	20	0.074	0.001
	21	-0.004	0.004
	22	0.162	0.039
Ce	24	0.017	0.019
Sn	25	-0.022	0.015
Ba	26	-0.013	0.014
P	27	0.007	0.003
S	28	-0.001	0.013
Hg	29	0.005	0.001
As	30	-0.013	0.011
Na	31	0.093	0.018
Mo	32	0.009	0.009
Se	33	-0.024	0.002
Ag	34	-0.124	0.006
Pb	35	-0.026	0.008
Ti	36	-0.144	0.008
Cd	37	-0.081	0.015
B	38	0.014	0.008
K	39	-0.002	0.010
	40	0.010	0.003
Sb	42	-0.028	0.034
	43	0.012	0.002
Be	44	-0.002	0.002
	45	-0.059	0.009

WHC-SD-WM-TI-540, REV.1

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Entity 1: CCB Identity 2: Quality Control 4:46 PM July 15, 1992
 k 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)	Sn (ppb)	Si (ppb)	Al (ppb)	H (ppb)
Mean	5.383	0.514	-29.540	-35.691	-1.929	3.240	13.149	9.512
S.D.	4.712	0.371	29.228	7.191	1.694	5.165	8.829	2.786
% R.S.D.	87.530	72.189	98.945	20.147	87.797	159.394	67.144	29.287
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	8.192	1.602	1.112	-4.607	6.930	-5.352	0.141	2.214
S.D.	3.104	1.031	0.671	0.295	4.260	8.356	0.295	1.068
% R.S.D.	37.889	64.374	60.296	6.409	61.478	156.121	208.842	48.240
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-7.439	3.415	32.306	21.704	13.778	0.287	-46.355	-5.760
S.D.	0.156	1.656	12.574	55.021	35.252	0.755	26.426	17.075
% R.S.D.	2.096	48.500	38.921	253.504	255.863	263.294	57.007	296.440
	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	0.880	-20.966	14.455	0.247	74.495	2.437	-9.173	-2.584
S.D.	0.220	14.781	9.401	3.360	6.380	1.657	15.385	1.080

Z R.S.D.	25.000	70.499	65.041	1360.534	8.565	67.983	167.728	41.898
	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	0.057	2.479	251.179	0.415	240.059	1.003	0.867	61.947
S.D.	0.647	1.396	44.107	0.284	157.487	1.204	0.331	59.488
Z R.S.D.	1134.617	56.292	17.560	68.366	65.603	120.017	38.189	96.031

Corrected Counts Statistics 4:49 PM July 15, 1992
Task name : ALL_SIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540. REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	Z R.S.D. Kpulses
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Zr	1	0.007	0.007
Sr	2	-0.002	0.005
Bi	3	-0.119	0.012
Ta	5	-0.023	0.017
Sn	7	-0.065	0.018
Si	8	0.654	0.004
As	9	1.257	0.018
Hf	10	0.001	0.018
Co	11	1.977	0.023
Ni	12	2.350	0.015
Li	14	-0.029	0.011
Th	15	5.298	0.058
Mi	16	2.024	0.019
La	17	-0.002	0.001
Pr	18	-0.071	0.004
Fe	19	1.383	0.004
Mo	20	3.317	0.028
Cr	21	1.224	0.011
Mn	22	0.114	0.007
Ce	24	0.000	0.012
Sb	25	-0.062	0.011
Pb	26	8.846	0.072
P	27	0.015	0.002
Se	28	0.015	0.005
Mg	29	2.255	0.020
As	30	0.368	0.007
Na	31	0.928	0.004
Mo	32	1.462	0.005
Se	33	0.148	0.008
Ag	34	1.584	0.010
Pb	35	0.253	0.008
Ti	36	3.458	0.025
Cd	37	11.836	0.110
B	38	2.491	0.041
K	39	0.993	0.004
Mn	40	5.053	0.036
Sb	42	0.118	0.020
V	43	0.831	0.002
Be	44	2.166	0.018
Tl	45	0.001	0.003

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Identity 1: CCV Identity 2: Quality Control 4:44 PM July 15, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540. REV.1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	21.232	2.721	-47.126	21.071	19.773	526.960	542.222	43.807
S.D.	21.184	1.956	89.148	45.731	7.414	37.903	59.905	26.756
% R.S.D.	99.773	71.894	189.168	217.036	37.495	7.193	11.048	61.078

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	516.336	483.526	6.410	526.049	521.809	13.380	2.965	505.422
S.D.	14.386	8.759	5.365	31.472	15.780	12.043	2.573	11.267
% R.S.D.	2.786	1.811	83.696	5.983	3.024	90.001	86.794	2.229

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sb (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	484.243	525.913	62.175	282.256	166.995	463.762	3.585	24.880
S.D.	9.693	8.906	65.528	244.807	199.596	9.221	45.770	15.167
% R.S.D.	2.002	1.693	105.393	86.732	119.523	1.988	1276.861	60.959

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	499.509	499.407	556.081	553.070	570.405	521.021	562.587	486.950
S.D.	8.500	15.328	61.867	13.439	88.045	11.296	30.861	8.661
% R.S.D.	1.702	3.069	11.126	2.430	15.436	2.168	5.486	1.779

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	533.145	464.782	4959.615	483.610	532.160	508.687	473.154	792.035
S.D.	12.872	6.330	102.384	7.481	140.741	16.380	8.762	367.470
% R.S.D.	2.414	1.362	2.064	1.547	26.447	3.220	1.852	46.396

Corrected Counts Statistics 4:46 PM July 15, 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	0.019	0.011
Sr	2	0.001	0.010
Bi	3	-0.074	0.029
Ta	5	-0.028	0.009
Sn	7	-0.003	0.007
Si	8	0.081	0.006
Al	9	0.148	0.023
W	10	-0.009	0.009
Co	11	0.011	0.013
Cu	12	0.049	0.005
Li	14	-0.010	0.008
Zn	15	0.062	0.003

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	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	7.858	-2.789	332.864	30.371	-148.017	113.175	11.849	269.912
S.D.	1.580	1.319	60.344	0.526	53.974	1.935	0.217	46.460
% R.S.D.	20.108	47.297	18.129	1.732	36.465	1.710	1.829	17.213

Corrected Counts Statistics 4:44 PM July 15, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.055	0.047
Sr	2	0.059	0.052
Bi	3	-0.092	0.089
Ta	5	0.042	0.056
Sn	7	0.087	0.031
Si	8	0.725	0.047
Al	9	1.503	0.153
W	10	0.104	0.083
Co	11	2.058	0.058
Fe	12	2.355	0.042
Li	14	0.050	0.061
Ca	15	5.552	0.326
Ni	16	2.089	0.065
La	17	0.001	0.003
Eu	18	-0.003	0.049
Fe	19	1.436	0.032
Cr	20	3.275	0.063
Cr	21	1.271	0.022
Sn	22	0.266	0.202
Ce	24	0.105	0.083
Sm	25	0.041	0.083
Pa	26	8.765	0.175
P	27	0.012	0.005
U	28	0.025	0.011
Hg	29	2.273	0.039
U	30	0.374	0.012
Na	31	1.118	0.117
Mo	32	1.502	0.036
Se	33	0.151	0.024
Ag	34	1.600	0.038
Pb	35	0.286	0.017
Ti	36	3.519	0.065
Cd	37	12.356	0.300
B	38	2.500	0.034
K	39	1.016	0.022
Mn	40	5.125	0.079
Sb	42	0.137	0.030
V	43	0.855	0.027
Be	44	2.177	0.040
Tl	45	0.051	0.055

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Eu	18	-0.077	0.018
Fe	19	0.012	0.003
Ca	20	0.158	0.003
Cr	21	0.043	0.006
	22	-0.001	0.023
	24	-0.003	0.016
Sn	25	-0.042	0.016
Ba	26	-0.035	0.014
P	27	0.010	0.003
S	28	-0.008	0.008
Mg	29	0.019	0.001
As	30	0.008	0.010
Na	31	0.072	0.034
Mo	32	0.001	0.005
Se	33	-0.019	0.004
Ag	34	-0.058	0.004
Pb	35	-0.013	0.002
Ti	36	-0.147	0.012
Cd	37	0.101	0.037
B	38	-0.015	0.007
K	39	0.016	0.013
Mn	40	0.327	0.006
Sb	42	-0.008	0.012
	43	0.198	0.003
Be	44	0.049	0.001
	45	-0.028	0.007

WHC-SD-WM-TI-540. REV.1

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Identity 1: cri-f Identity 2: direct 4:41 PM July 15, 1992
 Ask 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-2.243	0.188	28.620	-39.874	5.466	10.017	-1.823	7.936
S.D.	5.768	0.444	19.784	10.238	3.769	8.958	15.643	10.505
% R.S.D.	257.184	235.798	69.126	25.675	68.961	89.425	858.303	132.376

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	106.991	51.626	-0.937	41.238	93.106	-9.367	-0.988	7.806
S.D.	2.022	0.319	1.367	1.172	3.702	6.132	0.965	1.124
% R.S.D.	1.890	0.618	145.944	2.842	3.976	65.464	97.657	14.394

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	5.405	22.812	-20.538	-36.525	-33.800	-0.915	-13.062	-14.835
S.D.	0.390	2.459	7.342	46.533	38.021	0.763	25.136	10.148
% R.S.D.	7.221	10.779	35.748	127.400	112.487	83.370	192.435	68.409

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	4.031	6.991	3.002	-2.715	87.301	22.390	14.676	-2.940
S.D.	0.127	13.380	17.982	1.750	13.610	1.311	3.819	1.620
% R.S.D.	3.149	191.386	599.055	64.445	15.590	5.856	26.021	55.111

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV.1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-1.645	0.138	-4.033	-17.134	-4.501	0.258	21.871	19.471
S.D.	2.120	0.377	16.213	4.893	0.241	2.484	4.976	8.820
% R.S.D.	128.900	273.184	402.059	28.557	5.357	961.572	22.752	45.297

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	0.165	-1.882	-0.527	-1.482	0.642	-0.000	-0.988	11.185
S.D.	1.003	0.734	0.697	0.443	1.555	2.318	0.186	6.184
% R.S.D.	606.639	39.004	132.292	29.683	242.188	1654291.212	18.813	55.287

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	29.120	2.185	-9.599	-10.865	-24.123	-0.774	-72.989	-7.425
S.D.	4.150	3.338	3.648	1.709	19.202	0.302	25.136	17.934
% R.S.D.	14.253	152.723	38.000	15.734	79.599	39.051	34.437	241.539

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	26.753	-27.854	56.213	0.000	21.632	-0.972	3.057	-2.984
S.D.	4.400	3.630	8.882	2.252	29.110	0.757	11.457	0.540
% R.S.D.	16.445	13.033	15.800	2333322.735	134.568	77.867	374.710	18.096

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-3.715	-2.789	562.506	-0.304	-371.102	7.424	0.795	250.000
S.D.	1.673	1.677	64.786	0.112	60.178	2.506	0.217	46.460
% R.S.D.	45.043	60.123	11.517	36.712	16.216	33.757	27.273	18.584

Corrected Counts Statistics 4:41 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.002	0.013
Sr	2	-0.008	0.012
Bi	3	-0.017	0.020
Ta	5	-0.033	0.013
Sn	7	0.027	0.016
Si	8	0.090	0.011
Al	9	0.110	0.040
W	10	-0.014	0.033
Co	11	0.409	0.008
Cu	12	0.289	0.002
Li	14	-0.034	0.016
Zn	15	0.536	0.012
Ni	16	0.317	0.015
La	17	-0.005	0.002

Mean	1021.596	-94.828	328.240	500.308	-151.137	497.450	487.531	19.912
S.D.	1.710	2.234	48.125	2.892	56.421	1.390	3.292	72.807
% R.S.D.	0.167	2.356	14.661	0.578	37.331	0.279	0.673	365.655

Corrected Counts Statistics 4:38 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
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Zr	1	0.004	0.005
Sr	2	-0.009	0.010
Bi	3	-0.049	0.016
Ta	5	-0.005	0.006
Sn	7	-0.014	0.001
Si	8	0.078	0.003
Al	9	0.170	0.013
H	10	0.022	0.027
Co	11	-0.022	0.004
Q	12	0.033	0.004
Li	14	-0.029	0.008
9	15	0.094	0.005
Ni	16	-0.066	0.006
Ed	17	-0.002	0.001
Fe	18	-0.077	0.004
Fe	19	0.022	0.018
4	20	0.312	0.027
Cr	21	-0.007	0.008
	22	0.034	0.011
24	24	0.006	0.001
25	25	-0.038	0.008
26	26	-0.033	0.006
27	27	0.004	0.003
28	28	-0.002	0.013
Hg	29	0.123	0.020
30	30	-0.018	0.003
Na	31	0.172	0.017
32	32	0.008	0.006
Se	33	-0.038	0.008
Ag	34	-0.136	0.003
Pb	35	-0.019	0.006
Ti	36	-0.147	0.004
Cd	37	-0.169	0.039
B	38	-0.015	0.009
K	39	0.065	0.014
Mn	40	0.003	0.001
Sb	42	-0.056	0.013
V	43	0.023	0.004
Be	44	-0.002	0.001
Tl	45	-0.031	0.007

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Identity 1: hno3 rinse Identity 2: direct

4:38 PM July 15, 1992

Ca	20	1204.653	4.659
Cr	21	1.274	0.014
Nd	22	4.045	0.042
Ce	24	0.020	0.013
Sm	25	-9.096	0.013
Ba	26	8.979	0.052
P	27	0.016	0.001
S	28	1.879	0.040
Mg	29	886.377	3.692
As	30	0.328	0.009
Na	31	0.157	0.021
Mo	32	0.000	-0.008
Se	33	0.015	0.021
Ag	34	3.275	0.017
Pb	35	0.435	0.007
Ti	36	-0.106	0.010
Cd	37	23.751	0.040
B	38	-0.510	0.012
K	39	0.015	0.010
Mn	40	6.685	0.036
Sb	42	-0.009	0.012
V	43	0.837	0.002
Be	44	2.244	0.015
Tl	45	-0.066	0.011

WHC-SD-WM-TI-540, REV.1

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Identity 1: ICSAB Identity 2: Quality Control 4:35 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	12.261	2.508	-41.309	-28.929	1362.110	415.547	249518.639	14.368
S.D.	4.045	0.220	15.419	20.996	15.875	8.771	1173.150	15.755
% R.S.D.	32.994	8.789	37.327	72.576	1.166	2.111	0.470	109.653

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	488.120	481.923	0.439	1000.904	971.875	-60.213	6.654	98642.622
S.D.	6.825	1.583	0.000	4.109	2.586	4.635	0.347	331.621
% R.S.D.	1.398	0.328	0.000	0.410	0.266	7.698	5.218	0.336

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	185275.193	527.415	-57.715	31.574	-21938.185	474.665	46.866	897.575
S.D.	716.547	5.579	11.519	38.718	30.823	2.730	5.767	53.214
% R.S.D.	0.387	1.058	19.959	122.626	0.141	0.575	12.304	5.929

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	194902.120	439.470	48.284	-2.962	63.676	1024.966	835.930	2.584
S.D.	811.787	12.400	11.142	2.796	78.263	5.060	12.030	1.270
% R.S.D.	0.417	2.822	23.076	94.376	122.907	0.494	1.439	49.161

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
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On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV.1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	12.859	2.307	-27.187	-24.268	1392.654	409.312	250460.271	12.754
S.D.	1.794	0.109	17.520	2.990	12.086	5.536	2461.027	7.540
% R.S.D.	13.953	4.707	64.442	12.322	0.868	1.352	0.983	59.121

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	6.868	5.434	1.171	10.116	0.481	-61.551	6.142	97860.838
S.D.	2.941	0.603	0.731	0.256	4.539	2.318	0.345	836.669
% R.S.D.	42.818	11.105	62.449	2.528	944.227	3.765	5.609	0.855

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	184817.328	22.266	-115.984	-1.982	-21516.436	2.700	86.817	888.147
S.D.	1038.659	3.287	15.770	19.035	13.470	0.284	37.814	34.445
% R.S.D.	0.562	14.762	13.596	960.308	0.063	10.514	43.555	3.878

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	195210.767	415.916	60.442	-0.247	-44.987	4.843	-159.603	2.895
S.D.	1115.794	19.632	8.913	0.771	43.255	0.967	14.941	0.736
% R.S.D.	0.572	4.720	14.747	312.372	96.149	19.964	9.362	25.420

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	18.660	-95.324	340.570	29.472	4.867	7.224	2.745	148.230
S.D.	1.694	1.420	16.238	0.604	68.518	1.935	0.000	7.664
% R.S.D.	9.076	1.490	4.768	2.051	1407.728	26.788	0.000	5.170

Corrected Counts Statistics 4:35 PM July 15, 1992

Task name : ALL_SIN

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	0.035	0.009
Sr	2	0.054	0.006
Bi	3	-0.086	0.015
Ta	5	-0.020	0.026
Sn	7	5.653	0.066
Si	8	0.588	0.011
Al	9	638.994	3.004
W	10	0.013	0.049
Co	11	1.944	0.027
Cu	12	2.347	0.008
Li	14	-0.018	0.000
Zn	15	10.465	0.043
Ni	16	3.950	0.011
La	17	-0.017	0.001
Eu	18	0.067	0.007
Fe	19	282.204	0.949

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Z R.S.D. 279.110 28.767 5.264 168.240 65.585 51.958 28.868 720.677

Corrected Counts Statistics 4:33 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.036	0.004
Sr	2	0.048	0.003
Ri	3	-0.072	0.017
Ta	5	-0.014	0.004
Sn	7	5.780	0.050
Si	8	0.581	0.007
Al	9	641.405	6.301
W	10	0.001	0.023
Co	11	0.005	0.012
Cu	12	0.068	0.003
Li	14	-0.010	0.008
Ni	15	0.214	0.003
Fe	16	-0.066	0.019
Fe	17	-0.018	0.001
Eu	18	0.057	0.007
Fe	19	279.968	2.394
Ca	20	1201.672	6.753
Cr	21	0.042	0.008
Cr	22	3.854	0.072
Ce	24	0.009	0.006
Ba	25	-8.922	0.006
Ba	26	0.039	0.005
La	27	0.020	0.004
La	28	1.869	0.030
Hg	29	887.781	5.074
La	30	0.310	0.015
Na	31	0.180	0.017
La	32	0.007	0.002
Se	33	-0.055	0.012
Hg	34	-0.116	0.003
Pb	35	-0.108	0.008
Ti	36	-0.103	0.006
Cd	37	0.353	0.040
B	38	-0.512	0.008
K	39	0.017	0.004
Mn	40	1.701	0.006
Sb	42	0.025	0.015
V	43	0.022	0.003
Be	44	0.007	0.000
Tl	45	-0.046	0.001

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Identity 1: icsa-f Identity 2: direct 4:34 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

Hd	22	-0.018	0.041
Ce	24	0.020	0.007
Sn	25	-0.026	0.007
Ba	26	-0.016	0.007
P	27	0.014	0.003
	28	-0.008	0.004
mg	29	0.001	0.001
As	30	0.001	0.010
Na	31	0.184	0.013
Mo	32	0.002	0.012
Se	33	-0.047	0.006
Ag	34	-0.129	0.006
Pb	35	-0.032	0.006
Ti	36	-0.140	0.005
Cd	37	-0.068	0.039
B	38	0.049	0.014
K	39	0.064	0.006
Mn	40	0.002	0.006
Sb	42	-0.005	0.019
V	43	0.007	0.002
Be	44	-0.002	0.001
Tl	45	-0.067	0.010

WHC-SN-WM-TI-540. RFV.1

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3
Identity 1: CCB Identity 2: Quality Control 4:30 PM July 15, 1992
Task name : ALL_SIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations: 3 Off-Peak Integrations: 1

	Zr	Sr	Bi	Ta	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1.495	0.602	13.146	-34.210	-0.804	-0.555	1.432	0.856
S.D.	2.213	0.235	11.895	13.588	7.163	2.856	5.167	0.561
% R.S.D.	147.969	39.031	90.485	39.719	891.123	514.723	360.784	65.520

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	5.378	0.417	1.054	-4.607	4.431	-6.690	0.176	3.029
S.D.	0.517	0.943	0.891	0.402	7.331	6.953	0.301	6.304
% R.S.D.	9.608	225.895	84.573	8.734	165.464	103.921	170.620	208.127

	Ca	Cr	Hd	Ce	Sn	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-7.947	-0.000	-14.507	31.574	4.907	0.086	26.890	-14.718
S.D.	0.093	3.103	13.334	20.726	16.761	0.377	30.514	5.861
% R.S.D.	1.168	1598990.781	91.908	65.642	341.555	439.562	113.477	39.820

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	0.073	-2.508	62.556	-2.098	-11.141	1.033	-20.180	-2.004
S.D.	0.127	12.945	6.899	4.448	23.951	1.879	11.794	0.707
% R.S.D.	173.206	516.115	11.028	212.019	214.986	181.820	58.446	35.277

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	0.600	9.049	557.882	-0.309	-132.416	-2.007	0.867	8.850
% R.S.D.	1.675	2.603	29.364	0.521	86.845	1.043	0.250	63.777

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-0.598	0.915	-153.196	-17.560	12.459	483.045	454.998	20.018
S.D.	4.418	0.399	14.121	3.892	4.552	3.667	10.187	8.347
% R.S.D.	738.881	43.557	9.217	22.162	36.536	0.759	2.239	41.697

WHC-SD-WM-TI-540, REV.1

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	507.482	480.391	-0.556	504.527	507.057	-6.690	-0.512	489.576
S.D.	9.084	4.942	1.648	7.362	10.164	8.028	0.632	19.082
% R.S.D.	1.790	1.029	296.387	1.459	2.005	119.997	123.409	3.898

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	488.627	506.242	26.436	-3.956	-65.250	467.169	10.243	20.361
S.D.	7.887	6.379	24.577	43.616	38.021	5.747	11.533	14.209
% R.S.D.	1.614	1.260	92.967	1102.490	58.270	1.230	112.592	69.783

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	498.996	490.093	541.633	543.813	540.350	516.008	522.839	481.738
S.D.	5.672	8.167	9.312	3.959	23.191	4.970	12.215	5.208
% R.S.D.	1.137	1.666	1.719	0.728	4.292	0.963	2.336	1.081

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	509.598	466.207	5198.505	477.715	468.199	501.664	471.058	761.062
S.D.	6.107	3.830	50.013	6.535	55.835	4.518	7.950	66.372
% R.S.D.	1.198	0.822	0.962	1.368	11.926	0.901	1.688	8.721

Corrected Counts Statistics 4:30 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	% R.S.D. Kpulses
Zr	1	0.011	0.005
Sr	2	0.003	0.006
Bi	3	-0.032	0.012
Ta	5	-0.026	0.017
Sn	7	0.001	0.030
Si	8	0.077	0.004
Al	9	0.118	0.013
W	10	-0.036	0.002
Co	11	-0.001	0.002
Cu	12	0.044	0.005
Li	14	-0.011	0.010
Zn	15	0.062	0.004
Ni	16	-0.050	0.030
La	17	-0.004	0.002
Eu	18	-0.055	0.006
Fe	19	-0.001	0.018
Ca	20	0.071	0.001
Cr	21	-0.013	0.008

Sm	25	-0.363	0.012
Ba	26	175.453	2.674
P	27	0.012	0.004
S	28	0.129	0.011
	29	22.091	0.310
	30	0.013	0.004
Na	31	17.420	0.275
Mo	32	-0.009	0.001
Se	33	0.563	0.009
Ag	34	-0.034	0.017
Pb	35	-0.024	0.024
Ti	36	-0.152	0.007
Cd	37	232.321	3.297
B	38	25.660	0.369
K	39	1.062	0.017
Mn	40	49.675	0.657
Sb	42	1.069	0.039
V	43	0.030	0.004
Be	44	0.002	0.002
Tl	45	-0.032	0.007

WHC-SD-WM-TI-540. REV. 1

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Identity 1: r1714 Identity 2: 1b48ap-direct 4:25 PM July 15, 1992

Task name: ALL_SIN

Sample Weight: 1.0000 Solution Volume: 1.00

On-Peak Integrations: 3 Off-Peak Integrations: 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-17.942	9322.860	0.992	-39.681	4838.923	9.475	-154.400	134.012
S.D.	4.515	136.771	8.745	18.832	64.818	6.657	7.623	6.151
% R.S.D.	25.166	1.467	881.417	47.457	1.340	70.254	4.937	4.590

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	9752.877	4706.442	9017.089	9927.529	4888.571	2.676	0.653	4813.506
S.D.	131.147	68.550	159.083	130.821	71.848	4.635	0.372	85.562
% R.S.D.	1.345	1.457	1.764	1.318	1.470	173.214	56.952	1.778

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	9493.559	5068.842	-19.153	290.152	-809.562	9263.436	0.255	86.129
S.D.	144.009	63.308	7.532	23.932	28.247	141.135	35.076	13.442
% R.S.D.	1.517	1.249	39.327	8.248	3.489	1.524	13739.497	15.607

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	4857.220	11.661	9173.120	-6.171	748.500	29.609	-6.115	-3.653
S.D.	68.244	5.411	145.200	0.214	42.828	5.006	44.824	0.948
% R.S.D.	1.405	46.404	1.583	3.464	5.722	16.908	732.998	25.956

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	9961.767	4771.093	5172.304	4688.466	4892.469	11.638	1.662	243.363
S.D.	141.316	68.692	78.783	61.978	183.124	2.506	0.375	45.984
% R.S.D.	1.419	1.440	1.523	1.322	3.743	21.535	22.592	18.895

Corrected Counts Statistics 4:28 PM July 15, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.006	0.010
Sr	2	0.011	0.011
Bi	3	-0.197	0.014
Ta	5	-0.005	0.005
Sn	7	0.056	0.019
Si	8	0.671	0.005
Al	9	1.279	0.026
W	10	0.030	0.026
Co	11	2.022	0.037
Cu	12	2.340	0.024
Li	14	-0.029	0.019
Zn	15	5.329	0.076
Ni	16	2.028	0.042
La	17	-0.004	0.002
Eu	18	-0.068	0.012
Gd	19	1.391	0.055
Ca	20	3.303	0.051
Y	21	1.223	0.016
Nd	22	0.155	0.076
Ce	24	0.008	0.015
Sm	25	-0.055	0.016
Ba	26	8.831	0.110
S	27	0.013	0.001
As	28	0.021	0.011
Hf	29	2.270	0.026
Mo	30	0.366	0.006
Se	31	1.091	0.018
Ag	32	1.477	0.011
Pb	33	0.142	0.007
Cd	34	1.583	0.017
B	35	0.264	0.007
K	36	3.480	0.039
Mn	37	11.806	0.142
Sb	38	2.508	0.021
V	39	1.068	0.011
Be	40	5.063	0.069
Tl	42	0.124	0.012
	43	0.844	0.008
	44	2.168	0.037
	45	0.046	0.010

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Identity 1: CCV Identity 2: Quality Control 4:28 PM July 15, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

Corrected Counts Statistics 4:19 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

Peak Integrations : 3 Off-Peak Integrations : 1

Analyte_Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	23.275	0.280
Sr	2	0.027	0.010
Bi	3	-1.497	0.015
Ta	5	12.761	0.098
Sn	7	0.138	0.015
Si	8	11.961	0.173
Al	9	11.987	0.104
W	10	32.865	0.319
Co	11	-0.052	0.004
Cu	12	0.066	0.010
Li	14	-0.021	0.015
Zn	15	0.375	0.007
Ni	16	0.282	0.014
La	17	-0.004	0.001
Eu	18	-0.121	0.008
Ca	19	0.019	0.013
Fe	20	0.484	0.006
Mn	21	-0.013	0.005
Ce	22	-0.134	0.007
Mo	24	0.025	0.018
Cr	25	-0.091	0.021
Ba	26	-0.007	0.018
As	27	1.011	0.006
Na	28	3.589	0.026
Se	29	0.026	0.001
Hg	30	3.665	0.043
Pb	31	0.278	0.035
Te	32	27.819	0.253
Br	33	1.253	0.015
Cl	34	0.019	0.016
I	35	-0.106	0.010
Ag	36	35.911	0.369
Cd	37	-0.441	0.044
B	38	0.047	0.007
K	39	0.124	0.016
Mn	40	-0.002	0.003
Sb	42	0.035	0.005
V	43	16.469	0.187
Be	44	45.050	0.522
Tl	45	0.762	0.010

WHC-SD-WM-TI-540. REV.1

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Identity 1: r1714 Identity 2: 3b48aq direct 4:20 PM July 15, 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	Sn	Si	Al	W
(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)

440

Z R.S.D.	12.937	1.241	132.099	33.307	1.088	12.386	3.589	5.163
	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	10054.818	4683.172	8883.454	10128.471	5017.633	-9.367	0.371	4885.509
	134.057	58.022	83.875	124.256	64.143	4.635	0.122	63.888
Z R.S.D.	1.333	1.239	0.944	1.227	1.278	49.486	32.994	1.308
	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9532.515	5194.378	-9.296	304.956	-826.497	9286.421	43.536	95.197
S.D.	125.491	76.511	25.852	22.998	10.072	120.494	26.426	13.475
Z R.S.D.	1.316	1.475	278.099	7.541	1.219	1.298	60.698	14.155
	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	4978.084	38.449	9157.086	-4.073	785.482	3.239	21.403	-2.673
S.D.	63.666	6.292	81.386	0.641	36.275	0.347	14.561	0.267
Z R.S.D.	1.279	16.365	0.889	15.746	4.618	10.723	68.034	10.000
	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	10332.113	4785.658	5505.208	4769.480	4995.431	9.632	1.878	247.788
S.D.	129.068	61.902	53.189	56.536	65.018	1.253	0.000	3.832
Z R.S.D.	1.249	1.293	0.966	1.185	1.302	13.011	0.000	1.546

Corrected Counts Statistics 4:15 PM July 15, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	ZR.S.D. Kpulses
1	-0.177	0.011	
2	0.001	0.010	
3	5.019	0.031	
5	-0.027	0.017	
7	-0.077	0.007	
8	0.017	0.009	
9	1.090	0.014	
10	-0.065	0.010	
11	-0.005	0.004	
12	0.204	0.006	
14	-0.008	0.017	
15	0.889	0.008	
16	-0.045	0.009	
17	1.273	0.009	
18	91.267	0.994	
19	0.626	0.029	
20	0.306	0.002	
21	0.002	0.009	
22	15.256	0.196	
24	1.697	0.010	
25	2.024	0.011	
26	-0.501	0.012	

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P	27	0.010	0.001
S	28	0.024	0.007
Hg	29	0.032	0.000
As	30	0.052	0.006
Na	31	0.304	0.019
Mo	32	0.023	0.002
Se	33	-0.031	0.003
Ag	34	17.119	0.139
Pb	35	2.978	0.034
Ti	36	-0.160	0.015
Cd	37	-0.043	0.021
B	38	-0.002	0.007
K	39	0.201	0.011
Mn	40	0.015	0.001
Sb	42	-0.005	0.009
V	43	0.059	0.002
Be	44	-0.001	0.001
Tl	45	-0.043	0.008

WHC-SD-WM-TI-540, REV.1

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Identity 1: r1714 Identity 2: 284PAQ
Task name: ALL_SIM
Sample Weight: 1.0000 Solution Volume: 1.00
On-Peak Integrations: 3 Off-Peak Integrations: 1
4:16 PM July 15, 1992

	Zr	Sr	Bi	Ta	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-82.834	0.514	5074.187	-20.565	-19.613	-48.806	381.053	-8.372
S.D.	5.042	0.377	31.135	13.879	1.569	6.916	5.426	3.219
% R.S.D.	6.087	73.293	0.614	67.490	8.000	14.171	1.424	38.442
	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	4.385	33.930	1.288	75.389	5.559	5119.410	4835.537	222.185
S.D.	1.033	1.305	1.481	0.725	2.247	34.995	52.616	10.144
% R.S.D.	23.567	3.847	114.968	0.962	40.419	0.684	1.088	4.566
	Ca	Cr	Nd	Ce	Sa	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	28.294	6.010	4916.724	4996.867	4964.299	3.168	-13.062	27.983
S.D.	0.325	3.573	63.341	30.049	27.477	0.423	11.533	9.410
% R.S.D.	1.147	59.441	1.288	0.601	0.553	13.359	88.295	33.627
	Hg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	6.816	-77.264	125.810	5.431	47.729	5189.382	5501.731	-4.722
S.D.	0.000	8.383	10.209	0.855	10.330	41.785	62.759	2.010
% R.S.D.	0.000	10.850	8.114	15.746	21.642	0.805	1.141	42.578
	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1.686	-0.372	1188.242	0.862	-132.416	29.096	1.084	172.566
S.D.	0.898	1.266	50.930	0.094	43.486	1.390	0.125	50.256
% R.S.D.	53.272	340.343	4.286	10.944	32.840	4.778	11.547	29.123

Mg	29	1.322	0.004
As	30	0.005	0.009
Na	31	169.029	0.671
Mo	32	0.019	0.005
Se	33	0.135	0.004
	34	-0.122	0.003
	35	0.001	0.003
Ti	36	0.169	0.006
Cd	37	0.261	0.029
B	38	0.039	0.008
K	39	483.335	1.487
Mn	40	0.495	0.009
Sb	42	-0.010	0.011
V	43	0.015	0.002
Be	44	-0.004	0.001
Tl	45	-0.056	0.004

WHC-SD-WM-TI-540, REV.1

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Identity 1: r1713 dup dilution Identity 2: 2ml-10ml 4:06 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	H (ppb)
Mean	15.102	215.889	22.819	-14.883	-13.825	1005.680	4294.948	24.655
S.D.	1.955	0.663	12.525	10.638	6.843	7.090	20.542	13.493
% R.S.D.	12.947	0.307	54.889	71.483	49.497	0.705	0.478	54.726

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	15.722	10.589	17.151	84.829	1730.772	5.352	-0.424	810.445
S.D.	1.382	0.870	0.183	1.140	2.386	4.014	0.336	7.175
% R.S.D.	8.791	8.218	1.066	1.343	0.138	75.002	79.379	0.885

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	310.393	1458.622	-0.640	34.535	-0.738	8.670	1445.174	6735.512
S.D.	1.114	9.312	17.192	32.970	17.501	0.539	55.009	35.809
% R.S.D.	0.359	0.638	2687.796	95.470	2372.613	6.222	3.806	0.532

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	290.543	2.364	89311.620	4.197	231.463	3.039	39.136	39.332
S.D.	0.915	11.630	354.714	1.670	13.927	0.757	5.897	0.760
% R.S.D.	0.315	491.868	0.397	39.787	6.017	24.914	15.068	1.932

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	14.702	7.252	2235042.967	46.068	-155.817	2.809	0.289	86.283
S.D.	1.229	1.491	6875.988	0.878	51.552	1.043	0.250	27.633
% R.S.D.	8.361	20.566	0.308	1.906	33.085	37.117	86.607	32.026

Corrected Counts Statistics 4:12 PM July 15, 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	-0.032	0.005
Sr	2	249.756	3.099
Bi	3	-0.060	0.020
Ta	5	-0.021	0.012
Sn	7	20.672	0.225
Si	8	0.098	0.003
Al	9	-0.249	0.013
W	10	0.516	0.026
Co	11	40.482	0.540
Cu	12	22.447	0.278
Li	14	101.152	0.955
Zn	15	104.902	1.286
Ni	16	20.679	0.265
La	17	-0.005	0.001
Eu	18	-0.052	0.002
Fe	19	13.967	0.183
Ca	20	62.140	0.817
Cr	21	12.663	0.187
Mn	22	0.248	0.082
K	24	0.112	0.008
Sa	25	-0.370	0.004
P	26	175.889	2.283
S	27	0.016	0.003
Mo	28	0.136	0.011
As	29	22.640	0.290
Se	30	0.033	0.005
Br	31	17.390	0.154
Rb	32	-0.003	0.002
Sr	33	0.583	0.016
Ag	34	-0.122	0.001
Hf	35	-0.009	0.008
Ti	36	-0.145	0.002
Ce	37	240.961	3.011
Pr	38	25.738	0.333
Nd	39	1.134	0.012
U	40	50.533	0.599
Sb	42	1.091	0.014
V	43	0.026	0.002
Be	44	0.003	0.000
Tl	45	-0.031	0.001

WHC-SD-WM-TI-540. REV.1

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Identity 1: r1714 Identity 2: 1b48ap direct

4:13 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-17.793	9396.838	-15.402	-29.942	4983.686	16.523	-142.032	157.377
S.D.	2.302	116.609	20.346	9.973	54.241	2.047	5.097	8.126

*This was rerun
OKM 7-15-92*

On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	ZR.S.D. Kpulses
Zr	1	0.184	0.003
	2	33.436	1.068
Bi	3	-0.079	0.014
Ta	5	-0.004	0.014
Sn	7	0.042	0.032
Si	8	6.454	0.182
Al	9	64.700	1.975
W	10	0.350	0.052
Co	11	0.242	0.009
Cu	12	0.342	0.003
Li	14	1.124	0.023
Zn	15	2.462	0.076
Ni	16	41.956	1.216
La	17	0.002	0.001
Eu	18	-0.032	0.009
Fe	19	13.386	0.353
Ca	20	10.719	0.335
Cr	21	20.678	0.642
Nd	22	0.204	0.032
Ce	24	0.044	0.016
Sr	25	-0.057	0.019
Ba	26	0.750	0.009
P	27	0.865	0.023
Ti	28	28.598	0.996
Hg	29	1.327	0.042
As	30	0.053	0.008
Na	31	966.926	30.485
	32	0.130	0.007
	33	0.907	0.021
Ag	34	-0.048	0.005
Q	35	0.130	0.002
Ti	36	1.659	0.051
Br	37	1.866	0.068
P	38	0.161	0.011
7	39	-35.409	0.000
4	40	2.949	0.092
Sb	42	0.022	0.008
Q	43	0.051	0.006
Be	44	-0.003	0.002
Tl	45	-0.034	0.007

WHC-SD-WM-TI-540, REV. 1

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Identity 1: r1713 dup Identity 2: .4979g in 250ml 4:00 PM July 15, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	79.097	1258.411	-34.045	-16.404	9.083	5185.676	25224.472	90.798
S.D.	1.370	40.180	13.686	11.525	7.661	148.249	771.187	15.910
% R.S.D.	1.733	3.193	40.202	70.258	84.345	2.859	3.057	17.522

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	65.618	62.774	100.710	227.392	10163.123	17.395	1.430	4682.315
S.D.	2.275	0.724	1.977	7.343	294.133	4.014	0.478	123.286
% R.S.D.	3.467	1.153	1.963	3.229	2.894	23.077	33.403	2.633

WHC-SD-WM-TI-540, REV. 1

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sr (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	1618.917	8479.079	33.864	102.633	-69.282	40.659	8523.279	38426.494
S.D.	51.237	262.907	10.779	48.471	44.957	0.470	230.373	1337.956
% R.S.D.	3.165	3.101	31.830	47.227	64.889	1.156	2.703	3.482

	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	291.643	63.684	511070.460	45.297	1015.475	25.398	275.790	238.352
S.D.	9.136	10.130	16114.194	2.729	6.606	1.378	3.819	6.837
% R.S.D.	3.133	15.907	3.153	6.025	0.651	5.427	1.385	2.868

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	83.514	29.936	-163459.065	277.114	-7.613	24.280	0.650	230.088
S.D.	2.925	2.005	0.000	8.671	36.553	3.476	0.331	46.460
% R.S.D.	3.502	6.699	0.000	3.129	480.133	14.315	50.919	20.192

4

1

Corrected Counts Statistics 4:05 PM July 15, 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	0.041	0.004	
Sr	2	5.725	0.018
3	-0.022	0.012	
5	-0.003	0.013	
7	-0.053	0.028	
8	1.314	0.009	
9	11.111	0.053	
10	0.056	0.042	
Co	11	0.041	0.006
Cu	12	0.092	0.004
Li	14	0.172	0.002
Zn	15	0.987	0.012
Ni	16	7.088	0.010
La	17	-0.001	0.001
Eu	18	-0.067	0.006
Fe	19	2.309	0.021
Ca	20	2.153	0.007
Cr	21	3.547	0.023
Nd	22	0.068	0.053
Ce	24	0.021	0.011
Sr	25	-0.028	0.007
Ba	26	0.145	0.010
P	27	0.156	0.006
S	28	5.015	0.027

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Mean	4.220	-0.976	-0.819	-5.284	5.076	-2.676	-0.830	3.612
S.D.	1.225	0.418	1.048	0.550	2.482	4.014	0.186	1.759
% R.S.D.	29.018	42.822	127.828	10.401	48.901	149.992	22.415	48.710

	Ca	Cr	Hd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-8.212	6.283	-40.503	-45.408	-38.639	-0.613	-16.391	0.520
S.D.	0.005	4.186	23.169	16.485	14.716	0.272	19.976	2.798
% R.S.D.	0.067	66.618	57.202	36.305	38.085	44.313	121.869	537.953

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-0.073	-3.971	51.103	-0.740	6.799	-0.571	42.194	-3.385
S.D.	0.336	9.760	4.496	0.641	34.005	0.626	16.646	0.659
% R.S.D.	458.254	245.777	8.797	86.614	500.178	109.641	39.451	19.472

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-2.658	0.310	594.872	-0.341	71.949	-4.013	0.506	-15.487
S.D.	1.314	3.393	20.849	0.378	56.743	0.920	0.125	35.121
% R.S.D.	49.457	1094.897	3.505	110.951	78.866	22.912	24.744	226.779

WHC-SD-WM-TI-540, REV. 1

Corrected Counts Statistics 3:54 PM July 15, 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	0.000	0.007	
Sr	2	-0.001	0.008
3	-0.150	0.013	
Ta	5	-0.020	0.006
7	-0.025	0.009	
Si	8	0.659	0.002
Al	9	1.267	0.014
10	0.029	0.042	
Co	11	2.030	0.034
12	2.330	0.010	
Li	14	-0.038	0.013
Zn	15	5.333	0.019
Ni	16	2.044	0.006
La	17	-0.003	0.002
Eu	18	-0.071	0.003
Fe	19	1.432	0.002
Ca	20	3.316	0.028
Cr	21	1.266	0.006
Nd	22	0.044	0.051
Ce	24	-0.007	0.010
Sm	25	-0.067	0.010
Ba	26	8.789	0.070
P	27	0.007	0.004
S	28	0.010	0.004
Mg	29	2.289	0.016
As	30	0.361	0.006

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Na	31	0.998	0.011
Mo	32	1.495	0.024
Se	33	0.142	0.004
Ag	34	1.567	0.012
Pb	35	0.255	0.008
Ti	36	3.481	0.023
Cd	37	12.306	0.177
B	38	2.475	0.040
K	39	1.017	0.004
Mn	40	5.164	0.038
Sb	42	0.037	0.023
V	43	0.843	0.003
Be	44	2.207	0.017
Tl	45	0.009	0.010

WHC-SD-WM-TI-540, REV. 1

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Identity 1: CCV Identity 2: Quality Control 3:55 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	H (ppb)
Mean	-3.140	0.464	-105.838	-29.385	-7.073	473.015	450.181	19.518
S.D.	2.987	0.304	13.222	5.064	2.175	1.626	5.283	13.500
% R.S.D.	95.124	65.537	12.492	17.232	30.745	0.344	1.174	69.165

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	509.551	478.231	-1.346	504.882	510.926	-2.676	-0.671	504.140
S.D.	8.547	2.008	1.098	1.836	1.478	8.028	0.133	0.728
% R.S.D.	1.677	0.420	81.545	0.364	0.289	299.984	19.867	0.144

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	490.552	524.137	-9.500	-49.355	-95.087	464.939	-46.355	4.660
S.D.	4.280	2.330	16.523	28.451	23.246	3.649	36.012	5.594
% R.S.D.	0.872	0.445	173.925	57.644	24.447	0.785	77.687	120.033

	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	503.027	482.785	492.650	550.478	537.510	511.195	505.105	481.827
S.D.	3.520	7.977	5.569	8.765	16.069	3.469	15.385	3.031
% R.S.D.	0.700	1.652	1.130	1.592	2.989	0.679	3.046	0.629

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	531.016	460.133	4961.156	487.229	61.029	501.263	479.512	517.699
S.D.	7.567	7.410	17.505	3.609	108.386	1.593	3.610	64.464
% R.S.D.	1.425	1.610	0.353	0.741	177.599	0.318	0.753	12.452

Corrected Counts Statistics 3:58 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

Se	33	0.165	0.004
Ag	34	1.595	0.003
Pb	35	0.285	0.010
Ti	36	3.572	0.008
Ca	37	12.278	0.048
	38	2.535	0.019
K	39	1.130	0.013
Mn	40	5.162	0.013
Sb	42	0.064	0.017
V	43	0.861	0.002
Be	44	2.235	0.001
Tl	45	0.049	0.003

WHC-SD-WM-TI-540, REV. 1

Identity 1: CCV Identity 2: Quality Control 3:49 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-0.448	0.702	-145.155	-25.420	8.601	489.822	465.804	15.013
S.D.	1.295	0.115	16.004	5.854	4.323	7.556	3.766	8.281
% R.S.D.	288.788	16.366	11.025	23.030	50.259	1.543	0.809	55.163

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	516.915	484.989	-0.468	512.002	518.746	-2.676	-0.388	504.839
S.D.	2.685	1.254	0.731	0.644	6.215	0.000	0.053	4.847
% R.S.D.	0.519	0.259	156.131	0.126	1.198	0.000	13.635	0.960

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	495.420	526.732	-2.200	-13.825	-55.573	473.491	-29.708	-3.897
S.D.	1.418	3.338	5.338	22.419	7.258	1.287	15.257	5.077
% R.S.D.	0.286	0.634	242.639	162.157	13.060	0.272	51.355	130.300

	Mg (ppb)	As (ppb)	Na (ppb)	No (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	508.964	513.782	585.858	565.289	619.675	519.718	561.364	493.988
S.D.	1.344	10.527	2.441	0.932	12.876	0.967	18.376	1.038
% R.S.D.	0.264	2.049	0.417	0.165	2.078	0.186	3.273	0.210

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	529.830	471.227	5486.713	487.037	188.952	512.098	485.580	778.761
S.D.	2.057	3.559	58.546	1.258	79.837	1.043	0.250	21.336
% R.S.D.	0.388	0.755	1.067	0.258	42.252	0.204	0.052	2.740

Corrected Counts Statistics 3:52 PM July 15, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.007	0.001
Sr	2	-0.012	0.003
Bi	3	0.005	0.008
Ta	5	-0.009	0.006
Sn	7	-0.025	0.008
Si	8	0.083	0.004
Al	9	0.087	0.014
W	10	-0.004	0.013
Co	11	-0.005	0.005
Cu	12	0.037	0.002
Li	14	-0.032	0.012
Zn	15	0.055	0.006
Ni	16	-0.047	0.010
La	17	-0.003	0.001
Eu	18	-0.074	0.004
Fe	19	0.000	0.005
Ca	20	0.069	0.000
Cr	21	0.003	0.010
Nd	22	-0.063	0.072
Ce	24	-0.006	0.006
Sa	25	-0.044	0.006
Ra	26	-0.030	0.006
Pa	27	0.010	0.002
Th	28	0.003	0.002
Mo	29	0.001	0.002
Ag	30	-0.000	0.007
Na	31	0.163	0.009
Ho	32	0.006	0.002
Sp	33	-0.042	0.009
Ag	34	-0.134	0.002
Pb	35	0.002	0.009
Ti	36	-0.150	0.005
R	37	-0.144	0.031
Al	38	0.002	0.018
Si	39	0.072	0.005
W	40	0.002	0.004
Co	42	0.039	0.012
Cu	43	0.004	0.002
Li	44	-0.003	0.001
Zn	45	-0.071	0.005

WHC-SD-WM-TI-540, REV. 1

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Identity 1: CCB Identity 2: Quality Control 3:52 PM July 15, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-0.299	0.038	50.087	-20.241	-7.073	4.596	-10.675	11.106
S.D.	0.518	0.100	7.554	4.927	1.949	3.545	5.412	4.182
Z R.S.D.	173.307	264.585	15.081	24.344	27.555	77.134	50.694	37.656
	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)

Zr	1	0.039	0.004
Sr	2	5.595	0.054
Bi	3	-0.048	0.043
Ta	5	-0.017	0.014
	7	0.015	0.031
	8	1.042	0.008
Al	9	12.399	0.095
W	10	0.011	0.030
Co	11	0.066	0.009
Cu	12	1.429	0.017
Li	14	-0.032	0.002
Zn	15	6.284	0.038
Ni	16	6.954	0.089
La	17	-0.003	0.002
Eu	18	-0.060	0.005
Fe	19	2.692	0.032
Ca	20	2.135	0.019
Cr	21	3.669	0.018
Hd	22	0.001	0.057
Ce	24	0.013	0.001
Sm	25	-0.039	0.003
Ba	26	0.301	0.004
P	27	0.331	0.006
S	28	4.653	0.034
Hg	29	5.167	0.047
As	30	-0.001	0.007
Na	31	165.640	1.576
Hf	32	0.020	0.009
Se	33	0.135	0.007
Ag	34	-0.124	0.002
Pb	35	0.018	0.001
	36	-0.061	0.002
	37	0.220	0.017
B	38	0.083	0.018
Mn	39	407.513	3.632
Sb	40	0.538	0.011
	42	-0.012	0.013
	43	0.025	0.002
Be	44	-0.001	0.001
Ge	45	-0.042	0.005

WHC-SD-WM-TI-540, REV. 1

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Identity 1: r1713 sam dilution Identity 2: 2ml-10ml 3:44 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	14.055	210.998	-3.336	-26.646	2.411	784.753	4797.724	10.005
S.D.	1.698	2.031	43.624	11.405	7.394	6.523	37.155	9.736
Z R.S.D.	12.083	0.963	1307.522	42.800	306.649	0.831	0.774	97.314

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	21.928	289.976	-0.790	596.831	1698.285	-4.014	-0.053	944.316
S.D.	2.206	3.454	0.176	3.660	21.527	6.132	0.261	11.176

% R.S.D.	10.062	1.191	22.223	0.613	1.268	152.747	492.971	1.183
	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	307.559	1508.755	-22.302	10.848	-27.349	16.871	3186.401	6248.889
S.D.	2.887	7.180	18.380	2.961	6.088	0.240	57.665	45.093
% R.S.D.	0.939	0.476	82.415	27.294	22.261	1.425	1.810	0.722
	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1135.934	-5.482	87520.236	4.567	217.810	2.437	70.935	8.552
S.D.	10.342	9.627	832.857	3.500	26.281	0.459	1.835	0.267
% R.S.D.	0.910	175.626	0.952	76.633	12.066	18.855	2.586	3.125
	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	12.959	15.309	1884465.604	50.134	-165.177	9.030	0.939	179.204
S.D.	0.716	3.276	16792.434	1.018	61.081	1.253	0.250	30.656
% R.S.D.	5.525	21.396	0.891	2.030	36.979	13.878	26.647	17.107

WHC-SD-WM-TI-540, REV. 1

Corrected Counts Statistics 3:48 PM July 15, 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	0.006	0.003	
2	0.006	0.003	
3	-0.189	0.016	
4	-0.015	0.007	
5	0.040	0.018	
6	0.680	0.009	
7	1.307	0.010	
8	0.015	0.026	
9	2.060	0.011	
10	2.362	0.006	
11	-0.028	0.008	
12	5.407	0.007	
13	2.077	0.026	
14	-0.003	0.000	
15	-0.066	0.001	
16	1.434	0.014	
17	3.348	0.009	
18	1.273	0.008	
19	0.067	0.017	
20	0.005	0.008	
21	-0.051	0.003	
22	8.951	0.024	
23	0.009	0.002	
24	0.003	0.004	
25	2.316	0.006	
26	0.384	0.008	
27	1.174	0.005	
28	1.535	0.003	

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	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	2940.752	7070.316	1141.841	1326.438	955.659	2362.811	4111.948	5002.455
S.D.	8.652	8.086	12.602	25.527	7.258	6.359	45.038	21.609
% R.S.D.	0.294	0.114	1.104	1.924	0.759	0.269	1.095	0.432

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1289.634	1265.817	60685.064	2627.236	2169.215	1281.250	1441.934	1222.364
S.D.	3.385	17.195	242.897	9.193	54.901	3.254	15.275	3.074
% R.S.D.	0.262	1.358	0.400	0.350	2.531	0.254	1.059	0.252

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	2607.400	1191.983	1430298.022	1323.362	1215.457	2508.721	2410.779	1464.602
S.D.	5.444	2.898	2912.432	5.920	31.857	9.037	5.747	11.496
% R.S.D.	0.209	0.243	0.204	0.447	2.621	0.360	0.238	0.785

WHC-SD-WM-TI-540, REV. 1

Corrected Counts Statistics 3:35 PM July 15, 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	0.161	0.002
Sr	2	32.220	0.780
Rb	3	0.008	0.028
Ba	5	0.021	0.005
La	7	0.042	0.022
Si	8	3.940	0.095
Th	9	70.467	1.773
W	10	0.373	0.053
Co	11	0.239	0.009
Cu	12	8.075	0.183
Li	14	0.014	0.006
Fe	15	12.854	0.331
Ni	16	41.445	1.049
O	17	0.002	0.001
Eu	18	-0.027	0.008
Fe	19	15.368	0.339
Ca	20	9.975	0.226
Cr	21	20.925	0.489
Nd	22	0.136	0.036
Ce	24	0.046	0.003
Sm	25	-0.034	0.011
Ba	26	0.731	0.020
P	27	1.740	0.049
S	28	26.106	0.659
Hg	29	1.014	0.024
As	30	0.024	0.004
Na	31	918.651	21.555
Mo	32	0.150	0.012
Se	33	0.935	0.030
Ag	34	-0.041	0.005

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Pb	35	0.174	0.010
Ti	36	0.314	0.012
Cd	37	1.829	0.089
B	38	0.142	0.026
K	39	-29.421	0.000
Mn	40	3.085	0.064
Sb	42	0.030	0.025
V	43	0.056	0.003
Be	44	0.003	0.002
Tl	45	-0.040	0.006

WHC-SD-WM-TI-540, REV. 1

Identity 1: r1713 sample Identity 2: .5078g in 250ml 3:36 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	68.780	1212.688	53.319	4.504	9.083	3140.948	27476.681	97.670
S.D.	0.934	29.346	27.737	3.710	5.296	77.322	692.353	16.435
% R.S.D.	1.358	2.420	52.020	82.354	58.306	2.462	2.520	16.827

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	64.790	1679.035	3.249	1231.807	10039.623	18.733	1.659	5374.969
S.D.	2.252	38.347	0.527	32.027	253.771	4.635	0.401	118.388
% R.S.D.	3.477	2.284	16.216	2.600	2.528	24.744	24.166	2.203

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	1504.346	8580.436	12.798	109.542	-14.447	39.663	17262.707	35078.322
S.D.	34.572	200.403	11.263	7.451	26.939	1.034	486.956	885.401
% R.S.D.	2.298	2.336	88.006	6.802	186.476	2.608	2.821	2.524

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	222.745	24.968	485552.705	52.579	1086.872	27.504	357.732	58.708
S.D.	5.350	5.490	11393.865	4.505	53.664	1.378	18.099	1.633
% R.S.D.	2.402	21.987	2.347	8.567	4.937	5.012	5.059	2.782

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	81.928	26.403	-135772.536	290.019	31.388	27.692	1.806	188.053
S.D.	3.815	4.778	0.000	6.019	115.432	1.515	0.331	40.554
% R.S.D.	4.657	18.096	0.000	2.075	367.761	5.471	18.330	21.565

Corrected Counts Statistics 3:43 PM July 15, 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
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Cd	37	0.876	0.024
B	38	1.867	0.021
K	39	308.815	4.010
Mn	40	21.488	0.199
	42	0.017	0.005
	43	0.024	0.005
Be	44	0.000	0.001
Tl	45	-0.057	0.007

WHC-SD-WM-TI-540, REV. 1

Identity 1: r1712 dilution Identity 2: 2ml-10ml sample 3:19 PM July 15, 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	Sn	Si	Al	H
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	11.962	551.754	-121.720	-36.226	0.402	2961.766	25537.356	-11.373
S.D.	5.173	6.234	5.626	6.588	7.114	34.178	296.037	2.217
% R.S.D.	43.246	1.130	4.622	18.186	1770.086	1.154	1.158	19.496

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	268.511	491.678	0.234	89.275	14386.151	-44.156	0.565	54638.783
S.D.	3.943	5.542	0.853	0.588	153.656	2.318	0.322	656.130
% R.S.D.	1.469	1.127	364.190	0.659	1.068	5.249	57.029	1.201

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	596.466	16716.784	-18.037	-14.812	-101.538	22.700	1751.470	3793.848
S.D.	7.490	211.593	20.792	48.138	31.450	0.686	62.375	74.990
% R.S.D.	1.256	1.266	115.279	324.984	30.973	3.024	3.561	1.977

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	74.248	14.226	60042.829	32.338	1961.532	4.743	111.294	8.731
S.D.	0.772	18.497	863.199	0.932	10.499	1.056	30.311	0.772
% R.S.D.	1.040	130.016	1.438	2.882	0.535	22.272	27.235	8.837

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	41.078	347.083	1428117.191	2030.264	-29.454	8.428	1.300	75.221
S.D.	1.047	3.842	18540.684	18.840	23.086	2.715	0.250	48.923
% R.S.D.	2.550	1.107	1.298	0.928	78.382	32.209	19.245	65.039

Corrected Counts Statistics 3:28 PM July 15, 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	5.860	0.016
Sr	2	77.888	0.227

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Bi	3	0.817	0.019
Ta	5	3.285	0.013
Sn	7	5.142	0.067
Si	8	3.556	0.001
Al	9	67.882	0.168
W	10	8.449	0.053
Co	11	10.084	0.045
Cu	12	5.797	0.010
Li	14	24.373	0.092
Zn	15	26.378	0.017
Ni	16	10.251	0.070
La	17	0.312	0.003
Eu	18	22.445	0.075
Fe	19	9.728	0.031
Ca	20	19.301	0.056
Cr	21	17.240	0.020
Nd	22	3.657	0.039
Ce	24	0.457	0.009
Sm	25	0.367	0.003
Ba	26	44.605	0.119
P	27	0.423	0.005
S	28	3.743	0.016
Mg	29	5.866	0.015
As	30	0.970	0.013
Na	31	114.872	0.460
K	32	7.103	0.025
Se	33	1.105	0.015
Ag	34	4.127	0.011
Pb	35	0.765	0.008
Ti	36	9.022	0.023
Ca	37	60.747	0.127
Sc	38	6.411	0.016
Y	39	309.286	0.630
Mn	40	14.027	0.063
V	42	0.283	0.007
Br	43	4.178	0.015
Te	44	11.117	0.027
Bi	45	0.152	0.002

WHC-SD-WM-TI-540, REV. 1

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Identity 1: r1712 spike dilution Identity 2: 2ml-10ml spike

3:30 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	2625.437	2930.804	861.461	2668.564	1238.808	2828.668	26467.092	2696.948
S.D.	6.954	8.542	19.214	10.613	16.081	0.470	65.573	17.134
% R.S.D.	0.265	0.291	2.230	0.398	1.298	0.017	0.248	0.635

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	2508.781	1202.964	2142.038	2538.972	2495.716	1260.451	1191.526	3403.615
S.D.	11.090	1.994	8.061	1.630	16.919	12.264	3.953	10.747
% R.S.D.	0.442	0.166	0.376	0.064	0.678	0.973	0.332	0.316

Sn	7	0.094	0.010
Si	8	2.521	0.057
Al	9	448.376	8.636
H	10	0.584	0.052
	11	0.544	0.011
	12	0.512	0.005
Li	14	0.028	0.007
Zn	15	2.998	0.060
Ni	16	44.609	0.808
La	17	0.002	0.001
Eu	18	0.014	0.004
Fe	19	47.216	0.775
Ca	20	19.952	0.347
Cr	21	85.197	1.549
Nd	22	0.320	0.030
Ce	24	0.056	0.005
Sm	25	-0.093	0.009
Ba	26	1.679	0.031
P	27	0.688	0.016
S	28	15.119	0.295
Mg	29	1.452	0.025
As	30	0.077	0.008
Na	31	586.173	9.680
Mo	32	0.158	0.008
Ag	33	3.949	0.065
Pb	34	0.051	0.004
Bi	35	0.490	0.026
Tl	36	0.225	0.009
Cd	37	4.834	0.125
Co	38	0.087	0.005
K	39	1264.313	1118.652
	40	8.369	0.163
	42	0.024	0.005
	43	0.078	0.003
	44	0.016	0.001
Tl	45	-0.026	0.004

WHC-SD-WM-TI-540, REV. 1

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Identity 1: r1712 dup Identity 2: .5066g in 250ml 3:09 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	H (ppb)
Mean	107.057	3653.049	50.646	-16.978	21.461	1987.518	175071.309	59.918
S.D.	1.346	66.154	12.152	11.344	2.317	46.006	3372.817	14.173
% R.S.D.	1.257	1.811	23.994	66.817	10.797	2.315	1.927	23.654
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	140.503	98.377	4.449	279.230	10804.888	16.057	3.848	16506.828
S.D.	2.790	1.052	0.635	5.780	195.390	2.318	0.191	271.001
% R.S.D.	1.986	1.069	14.278	2.070	1.808	14.434	4.962	1.642
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)

Mean	3004.481	34919.101	61.336	137.176	-157.987	89.712	6752.088	20294.556
S.D.	52.516	634.938	9.640	13.675	20.858	1.654	154.890	396.637
Z R.S.D.	1.748	1.818	15.717	9.969	13.202	1.843	2.293	1.954
	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	319.055	85.088	309808.872	55.665	4455.997	55.178	937.441	46.726
S.D.	5.550	10.768	5116.522	2.993	54.786	1.085	46.783	1.137
Z R.S.D.	1.739	12.655	1.652	5.377	1.229	1.966	4.991	2.432
	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	210.720	16.053	5846023.562	788.445	1.747	40.534	4.768	283.186
S.D.	5.366	0.936	5172276.562	15.364	21.447	1.639	0.125	23.931
Z R.S.D.	2.547	5.830	88.475	1.949	1227.532	4.537	2.624	8.451

Corrected Counts Statistics 3:18 PM July 15, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540,REV. 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	ZR.S.D. Kpulses
Zr	1	0.034	0.012
Y	2	14.653	0.166
Bi	3	-0.166	0.006
Ta	5	-0.028	0.008
4	7	0.006	0.030
Si	8	3.719	0.042
3	9	65.553	0.758
10	10	0.135	0.006
11	11	1.059	0.016
12	12	2.394	0.027
14	14	-0.020	0.010
15	15	1.033	0.006
Ni	16	59.418	0.635
17	17	-0.013	0.001
Eu	18	-0.048	0.006
19	19	156.310	1.877
Ca	20	4.142	0.050
Cr	21	40.780	0.516
Nd	22	0.020	0.064
Ce	24	0.004	0.016
Sm	25	-0.070	0.013
Ba	26	0.416	0.013
P	27	0.187	0.006
S	28	2.829	0.056
Hg	29	0.339	0.004
As	30	0.018	0.014
Na	31	113.657	1.633
Mo	32	0.095	0.003
Se	33	1.821	0.015
Ag	34	-0.117	0.004
Pb	35	0.040	0.017
Ti	36	-0.060	0.006

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% R.S.D.	0.775	52.340	283.094	662.546	33.190	21.698	29.065	78.494
	Hg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1.832	-10.598	5250.470	15.922	-3.753	6.949	-12.842	0.312
%	0.127	7.791	178.054	1.614	10.685	0.695	13.015	0.540
% R.S.D.	6.928	73.516	3.391	10.137	284.673	9.997	101.351	173.205
	Cd	B	K	Mn	Sb	V	Fe	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-2.100	83.982	8723032.170	0.859	-221.338	1.405	1.373	53.097
S.D.	1.486	1.831	32911.304	0.434	143.896	0.348	0.125	36.555
% R.S.D.	70.761	2.181	0.377	50.514	65.012	24.746	9.116	68.845

Corrected Counts Statistics 3:01 PM July 15, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

[WHC-SD-WM-TI-540,REV. 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.181	0.005
2	87.735	1.474	
Bi	3	0.064	0.016
Ta	5	0.024	0.006
Sn	7	0.069	0.004
Si	8	2.143	0.031
4	9	385.200	6.780
	10	0.629	0.036
	11	0.507	0.009
	12	0.440	0.001
	14	-0.003	0.010
	15	2.159	0.031
	16	28.579	0.430
	17	0.004	0.001
Eu	18	0.023	0.007
	19	34.457	0.509
Ca	20	18.988	0.310
	21	80.314	1.015
Hd	22	0.205	0.050
Ce	24	0.047	0.011
Sn	25	-0.081	0.011
Ba	26	1.520	0.013
P	27	0.990	0.006
S	28	16.336	0.150
Hg	29	1.287	0.018
As	30	0.066	0.011
Na	31	654.382	6.886
Mo	32	0.174	0.007
Se	33	3.647	0.065
Ag	34	0.091	0.010
Pb	35	0.339	0.017
Ti	36	0.136	0.008
Cd	37	4.222	0.085
A	38	0.133	0.013

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K	39	1686.360	16.508
Mn	40	7.335	0.084
Sb	42	0.028	0.013
V	43	0.083	0.004
Be	44	0.014	0.001
Tl	45	-0.025	0.007

WHC-SD-WM-TI-540, REV. 1

Identity 1: r1712 Identity 2: .5013g in 250ml 3:03 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	78.050	3301.257	110.062	7.113	15.513	1679.847	150397.782	82.390
S.D.	2.023	55.465	16.603	5.067	0.965	25.210	2647.833	10.219
% R.S.D.	2.592	1.680	15.085	71.232	6.218	1.501	1.761	12.403

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	131.318	83.258	1.785	198.106	6928.177	26.761	4.342	12047.397
S.D.	2.140	0.209	0.835	2.949	103.992	4.635	0.390	177.752
% R.S.D.	1.630	0.251	46.742	1.489	1.501	17.321	8.989	1.475

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	2858.814	32918.173	25.393	112.503	-128.150	81.379	9771.769	21932.332
S.D.	47.142	415.766	16.523	32.748	27.477	0.707	62.375	201.840
% R.S.D.	1.649	1.263	65.069	29.109	21.441	0.869	0.638	0.920

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	282.847	69.930	345863.673	61.466	3930.089	67.310	659.205	34.833
S.D.	3.849	15.161	3639.742	2.670	118.021	3.087	30.274	1.113
% R.S.D.	1.361	21.680	1.052	4.344	3.003	4.587	4.593	3.194

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	184.502	24.606	7797429.144	690.837	22.028	43.745	4.190	287.611
S.D.	3.646	2.369	76328.493	7.947	60.901	2.171	0.250	46.618
% R.S.D.	1.976	9.628	0.979	1.150	276.477	4.962	5.973	16.209

Corrected Counts Statistics 3:08 PM July 15, 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	0.246	0.003
Sr	2	97.085	1.758
Bi	3	0.005	0.012
Ta	5	-0.005	0.014

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Sb	42	0.079	0.042
V	43	15.792	0.193
Be	44	42.889	0.553
Tl	45	0.750	0.008

Identity 1: ~~4787~~ Identity 2: 3b48aq direct 2:53 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	H (ppb)
Mean	10144.544	1.003	-1321.325	10026.451	31.669	9503.650	4673.788	9914.850
S.D.	124.817	0.078	3.083	146.682	8.563	121.578	62.433	102.968
% R.S.D.	1.230	7.806	0.233	1.463	27.038	1.279	1.336	1.039

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-10.923	3.413	-0.439	50.936	76.983	-0.000	-3.459	9.787
S.D.	1.003	0.362	0.232	0.822	4.671	2.318	0.318	0.350
% R.S.D.	9.185	10.607	52.917	1.614	6.067	1654298.371	9.184	3.571

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-8.172	15.299	-42.661	-0.995	-176.534	0.264	10124.675	4887.162
S.D.	1.022	2.504	22.824	5.922	15.108	0.490	370.272	87.445
% R.S.D.	12.504	16.367	53.502	594.973	8.558	185.777	3.657	1.789

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	6.010	4702.678	35.246	9939.213	4587.892	47.457	-91.726	4737.115
S.D.	1.270	45.491	4.106	118.573	111.980	1.484	11.936	58.817
% R.S.D.	21.123	0.967	11.649	1.193	2.441	3.127	13.013	1.242

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-15.560	8.987	-3.123	-0.120	260.714	9500.312	9297.120	5435.841
S.D.	1.106	0.387	12.233	0.333	196.026	116.044	119.952	49.816
% R.S.D.	7.106	4.307	391.726	276.519	75.188	1.221	1.290	0.916

Corrected Counts Statistics 2:57 PM July 15, 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	0.019	0.006
Sr	2	0.083	0.005
Bi	3	-0.036	0.006
Ta	5	0.025	0.006
Sn	7	-0.085	0.013
Si	8	1.336	0.006

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Al	9	0.409	0.015
H	10	0.227	0.036
Co	11	0.003	0.002
Cu	12	0.097	0.002
Li	14	-0.015	0.002
Zn	15	0.365	0.007
Ni	16	-0.040	0.011
La	17	-0.004	0.001
Eu	18	-0.069	0.003
Fe	19	-0.006	0.005
Ca	20	1.201	0.008
Cr	21	0.008	0.011
Nd	22	0.054	0.036
Ce	24	0.010	0.004
Sm	25	-0.036	0.003
Ba	26	-0.005	0.003
P	27	0.025	0.004
S	28	0.020	0.012
Mg	29	0.009	0.001
As	30	-0.005	0.006
Na	31	9.999	0.337
Mo	32	0.051	0.004
Se	33	-0.045	0.003
Ag	34	-0.109	0.002
B	35	-0.028	0.007
Ti	36	-0.123	0.004
Cd	37	-0.131	0.035
Hg	38	0.452	0.010
K	39	1886.548	7.118
Mn	40	0.016	0.005
Sb	42	-0.024	0.031
Pb	43	0.013	0.001
Bi	44	0.001	0.001
Pt	45	-0.061	0.006

WHC-SD-WM-TI-540, REV. 1

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Identity 1: r1711 Identity 2: blank 2:58 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	5.383	3.599	9.449	7.369	-21.622	1023.300	114.954	85.376
S.D.	2.628	0.170	6.504	4.914	3.079	4.479	5.914	11.658
% R.S.D.	48.827	4.714	68.829	66.689	14.238	0.438	5.145	13.656
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	6.371	11.495	0.732	24.711	6.849	-6.690	-0.530	1.398
S.D.	0.379	0.319	0.183	0.677	2.616	4.014	0.133	1.748
% R.S.D.	5.952	2.778	24.979	2.738	38.193	59.999	25.164	125.010
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	165.956	8.469	-4.121	1.966	-19.285	0.684	130.098	21.398
S.D.	1.287	4.433	11.666	11.843	6.401	0.148	37.814	16.796

Co	11	-0.004	0.005
Cu	12	0.200	0.006
Li	14	-0.023	0.007
Zn	15	1.575	0.023
Ni	16	-0.031	0.020
	17	1.240	0.009
	18	90.628	0.720
Fe	19	0.609	0.008
Ca	20	0.429	0.001
Cr	21	-0.013	0.007
Nd	22	15.357	0.214
Ce	24	1.664	0.008
Sm	25	2.031	0.015
Ba	26	-0.478	0.008
P	27	0.012	0.002
S	28	0.044	0.006
Mg	29	0.066	0.002
As	30	0.045	0.007
Na	31	0.117	0.005
Hb	32	0.016	0.002
Se	33	-0.034	0.005
Ag	34	16.744	0.119
Pb	35	2.760	0.001
Ti	36	-0.130	0.011
Cd	37	-0.032	0.042
Rb	38	-0.024	0.021
K	39	-0.064	0.006
Mn	40	0.016	0.005
Sb	42	0.018	0.030
Q	43	0.047	0.002
Be	44	-0.002	0.001
H	45	-0.052	0.003

WHC-SD-WM-TI-540, REV. 1

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0 *31710 SKM 7-15-92*
Identity 1: ~~11707~~ Identity 2: 2b48aq direct 2:47 PM July 15, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-78.199	0.978	4887.131	4.996	-16.799	-51.246	366.732	0.749
S.D.	0.777	0.301	69.864	5.629	2.963	2.047	4.008	4.828
Z R.S.D.	0.994	30.769	1.430	112.672	17.639	3.994	1.093	644.430

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	4.634	33.094	0.000	141.661	8.945	4986.942	4801.668	216.359
S.D.	1.274	1.164	0.576	2.189	4.716	34.764	38.145	2.796
Z R.S.D.	27.491	3.517	2996402.535	1.545	52.726	0.697	0.794	1.292

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	47.119	-0.000	4949.273	4900.147	4980.427	3.677	0.255	54.704
S.D.	0.175	2.729	69.399	22.998	36.636	0.228	20.792	8.395
Z R.S.D.	0.371	1406077.367	1.402	0.469	0.736	6.213	8144.073	15.346

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	14.219	-82.538	26.964	3.086	38.374	5076.481	5101.806	-0.624
S.D.	0.458	9.485	2.422	0.771	20.071	35.875	2.118	1.441
% R.S.D.	3.219	11.492	8.983	24.979	52.304	0.707	0.042	231.124

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	2.172	-4.524	-33.947	0.975	-27.894	22.073	0.722	112.832
S.D.	1.794	3.842	28.251	0.447	141.052	1.043	0.250	20.277
% R.S.D.	82.624	84.920	83.220	45.811	505.679	4.724	34.642	17.971

Corrected Counts Statistics 2:53 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
-----------------	--------------	--------------	-----------------

Zr	1	22.623	0.278
2	2	0.014	0.002
Bi	3	-1.356	0.003
5	5	12.315	0.180
Sn	7	0.136	0.036
8	8	11.764	0.150
9	9	12.081	0.160
10	10	30.840	0.321
11	11	-0.066	0.004
12	12	0.058	0.002
14	14	-0.028	0.003
15	15	0.636	0.009
16	16	0.250	0.019
17	17	-0.002	0.001
18	18	-0.124	0.006
19	19	0.018	0.001
20	20	0.069	0.007
21	21	0.025	0.006
22	22	-0.069	0.071
24	24	0.009	0.002
25	25	-0.101	0.006
26	26	-0.014	0.010
P	27	1.025	0.037
S	28	3.638	0.065
Mg	29	0.028	0.006
As	30	3.492	0.034
Na	31	0.133	0.008
Mo	32	26.851	0.320
Se	33	1.192	0.030
Ag	34	0.025	0.005
Pb	35	-0.071	0.007
Ti	36	35.324	0.440
Cd	37	-0.445	0.026
B	38	0.049	0.002
K	39	-0.057	0.003
Mn	40	0.004	0.004

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Mean	2.272	-24.182	-29.771	-4.320	-3.491	2.337	18.957	-2.272
S.D.	0.127	6.650	6.081	3.105	21.211	1.216	19.787	0.612
% R.S.D.	5.587	27.500	20.425	71.886	607.665	52.027	104.379	26.956

	Cd	B	K	Mn	Sb	V	Be	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-2.715	-0.620	-30.865	0.252	-266.580	2.007	0.506	86.283
S.D.	2.827	2.254	27.742	0.238	15.044	1.515	0.250	61.670
% R.S.D.	104.139	363.731	89.882	94.421	5.644	75.504	49.489	71.474

Corrected Counts Statistics 2:43 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540,REV. 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.037	0.002
Sr	2	258.408	0.069
Bi	3	-0.039	0.011
Ta	5	-0.040	0.012
Sn	7	20.103	0.147
Sb	8	0.100	0.002
Al	9	-0.229	0.001
#	10	0.484	0.048
Co	11	39.917	0.092
Cu	12	23.497	0.018
4	14	107.525	0.151
Zn	15	103.768	0.080
	16	20.565	0.028
La	17	-0.002	0.001
	18	-0.044	0.008
Fe	19	14.137	0.047
Cl	20	64.815	0.089
Fr	21	12.626	0.018
Mo	22	0.292	0.014
Ca	24	0.115	0.009
Sa	25	-0.376	0.009
	26	183.885	0.204
P	27	0.010	0.002
S	28	0.118	0.006
Mg	29	22.461	0.023
As	30	0.011	0.006
Na	31	18.062	0.020
Mo	32	-0.004	0.001
Se	33	0.600	0.009
Ag	34	-0.110	0.004
Pb	35	-0.020	0.006
Ti	36	-0.140	0.010
Cd	37	235.500	0.253
B	38	26.392	0.107
K	39	0.983	0.008
Mn	40	50.881	0.059
Sb	42	1.052	0.012
V	43	0.013	0.003

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Be	44	0.000	0.000
Tl	45	-0.070	0.003

500
R1710

Identity 1: ~~1787~~ Identity 2: 1b48ap direct 2:44 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540.REV.1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-19.737	9722.345	6.377	-45.103	4846.398	18.429	-134.221	147.055
S.D.	0.685	2.596	10.661	10.078	35.452	1.409	0.451	15.475
% R.S.D.	3.472	0.027	167.185	22.344	0.732	7.647	0.336	10.523

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	9914.563	4902.640	9443.050	10018.866	4989.983	1.338	0.759	4944.697
S.D.	22.822	3.682	13.227	7.772	6.784	4.014	0.441	16.448
% R.S.D.	0.230	0.075	0.140	0.078	0.136	300.031	58.096	0.333

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sr (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	9943.941	5179.489	1.954	313.838	-842.625	9708.567	-13.062	66.943
S.D.	13.689	7.173	4.564	25.181	22.478	10.780	15.257	8.099
% R.S.D.	0.138	0.138	233.623	8.024	2.668	0.111	116.804	12.098

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	4938.724	8.955	9512.473	-4.567	855.511	6.849	0.611	-1.960
S.D.	5.025	8.393	10.399	0.214	34.079	1.216	11.651	1.318
% R.S.D.	0.102	93.721	0.109	4.681	3.983	17.751	1905.508	67.267

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	10098.046	4907.199	4807.034	4802.148	4811.347	1.806	1.228	-6.637
S.D.	10.852	19.911	37.086	5.528	54.244	1.839	0.000	20.277
% R.S.D.	0.107	0.406	0.771	0.115	1.127	101.843	0.000	305.505

Corrected Counts Statistics 2:46 PM July 15, 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	-0.167	0.002
Sr	2	0.013	0.008
Bi	3	4.832	0.070
Ta	5	0.005	0.007
Sn	7	-0.065	0.012
Si	8	0.014	0.003
Al	9	1.053	0.010
W	10	-0.036	0.015

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Identity 1: CCV Identity 2: Quality Control 2:38 PM July 15, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540,REV.1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	1.495	0.915	-108.878	-24.501	17.201	484.129	482.988	27.201
S.D.	3.626	0.087	15.234	6.701	9.077	4.624	20.298	7.635
Z R.S.D.	242.459	9.491	13.991	27.348	52.771	0.955	4.203	28.069
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	492.836	486.173	1.112	499.662	493.191	-0.000	-0.282	490.159
S.D.	6.568	5.594	0.221	6.106	2.332	2.318	0.092	9.776
Z R.S.D.	1.333	1.151	19.868	1.222	0.473	1654291.212	32.472	1.995
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	538.724	503.237	-18.696	-4.943	-45.090	472.925	-33.038	28.884
S.D.	18.983	8.754	29.140	20.796	22.478	5.787	32.107	6.827
Z R.S.D.	3.524	1.740	155.864	420.715	49.852	1.224	97.182	23.637
	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	505.079	464.301	460.583	512.216	564.762	517.813	522.227	490.068
S.D.	16.845	12.535	4.273	8.124	27.433	6.216	36.553	5.798
Z R.S.D.	3.335	2.700	0.928	1.586	4.857	1.200	6.999	1.183
	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	498.625	456.476	4652.912	473.867	330.915	495.243	467.302	725.664
S.D.	9.348	7.264	24.466	5.577	105.207	3.662	6.625	23.309
Z R.S.D.	1.875	1.591	0.526	1.177	31.793	0.739	1.418	3.212

Corrected Counts Statistics 2:40 PM July 15, 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	ZR.S.D. Kpulses
Zr	1	0.003	0.004
Sr	2	-0.002	0.006
Bi	3	-0.041	0.023
Ta	5	-0.030	0.013
Sn	7	-0.065	0.040
Si	8	0.073	0.003
Al	9	0.123	0.024
W	10	-0.097	0.020
Co	11	0.249	0.457
Cu	12	0.040	0.004

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Li	14	-0.023	0.004
Zn	15	0.090	0.007
Ni	16	-0.058	0.013
La	17	-0.003	0.000
Eu	18	-0.067	0.004
Fe	19	0.008	0.008
Ca	20	0.122	0.001
Cr	21	-0.025	0.010
Nd	22	0.072	0.050
Ce	24	0.004	0.004
Sm	25	-0.040	0.005
Ba	26	-0.025	0.006
P	27	0.013	0.002
S	28	0.043	0.005
Mg	29	0.011	0.001
As	30	-0.015	0.005
Na	31	0.010	0.012
Mo	32	-0.004	0.008
Se	33	-0.046	0.006
Ag	34	-0.125	0.004
Pb	35	-0.010	0.011
Ti	36	-0.142	0.005
Cd	37	-0.146	0.066
B	38	-0.003	0.012
6	39	-0.063	0.006
7	40	0.008	0.003
8	42	-0.033	0.003
9	43	0.014	0.003
10	44	-0.003	0.001
11	45	-0.056	0.009

WHC-SD-WM-TI-540, REV. 1

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Identity 1: CCB Identity 2: Quality Control 2:40 PM July 15, 1992
 Task name : ALL_SIN
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-1.944	0.401	3.713	-36.955	-16.719	-3.266	3.385	-18.710
S.D.	1.955	0.230	23.542	10.605	9.754	2.614	9.543	6.556
% R.S.D.	100.599	57.282	634.133	28.696	58.344	80.051	281.926	35.038
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	67.355	-0.419	0.000	-1.901	2.415	-2.676	-0.459	6.291
S.D.	113.537	0.870	0.383	0.644	3.221	0.000	0.186	2.861
% R.S.D.	168.564	207.769	1991786.243	33.853	133.328	0.000	40.519	45.475
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	0.006	-4.918	3.126	-16.786	-29.768	-0.332	16.902	53.325
S.D.	0.176	4.265	16.148	11.966	12.414	0.339	20.792	6.630
% R.S.D.	2743.827	86.733	516.540	71.284	41.704	102.313	123.013	12.433
	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)

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0.021	0.273	0.021
0.001	-0.004	0.011
0.011	-0.067	0.026
0.026	0.053	0.043
0.043	0.246	0.006
0.006	0.045	0.017
0.041	0.107	0.041
0.008	0.005	0.008
0.012	-0.034	0.012
0.008	-0.023	0.008
0.003	0.015	0.003
0.007	0.005	0.007
0.030	0.082	0.030
0.017	0.014	0.017
0.014	0.034	0.014
0.008	0.009	0.008
0.005	-0.043	0.005
0.006	-0.040	0.006
0.009	-0.015	0.009
0.007	-0.138	0.007
0.029	0.123	0.029
0.014	0.000	0.014
0.007	-0.062	0.007
0.002	0.316	0.002
0.020	0.034	0.020
0.003	0.182	0.003
0.001	0.045	0.001
0.010	-0.061	0.010

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MHC-SD-WM-TI-540,REV.1

Identity 1: cri-1 Identity 2: direct
2:35 PM July 15, 1992
name: ALL_SIM
Sample Weight: 1.0000 Solution Volume: 1.00
Off-Peak Integrations: 3

Mean	5.D.	2 R.S.D.	Mean	5.D.	2 R.S.D.	Mean	5.D.	2 R.S.D.	Mean	5.D.	2 R.S.D.
16	0.021	0.021	17	-0.004	-0.011	18	-0.067	0.026	19	0.053	0.043
20	0.246	0.043	21	0.045	0.017	22	0.107	0.041	23	0.005	0.008
24	0.005	0.008	25	-0.034	0.012	26	-0.023	0.008	27	0.015	0.003
28	0.005	0.007	29	0.082	0.030	30	0.014	0.017	31	0.034	0.014
32	0.009	0.008	33	-0.043	0.005	34	-0.040	0.006	35	-0.015	0.009
36	-0.138	0.007	37	0.123	0.029	38	0.000	0.014	39	-0.062	0.007
40	0.316	0.002	41	0.034	0.020	42	0.034	0.020	43	0.182	0.003
44	0.045	0.001	45	-0.061	0.010						
Zr	3.738	72.329	Co	102.936	1.087	Fe	22.137	41.696	La	0.001	0.021
Sr	0.502	76.608	Cu	51.348	0.940	Eu	-0.459	127.611	Fe	0.003	0.007
Bi	36.677	42.040	Li	-0.293	334.537	Zn	41.045	1.246	Ce	0.003	0.007
Ta	-23.270	7.189	In	82.626	6.156	Sm	-13.640	205.565	Mo	0.247	2.876
Sn	0.402	810.186	Ni	82.626	5.086	Cd	-12.839	23.687	Ag	0.039	19.181
Sb	12.437	33.501	La	-8.028	28.867	Ba	-0.256	167.910	Se	-3.306	19.181
Al	18.096	86.340	Eu	0.586	127.611	P	30.219	25.136	As	27.704	1.637
H	21.739	6.013				S	2.074	8.999	Pb	11.007	17.046
							433.887		Ti	-1.782	0.869

Z R.S.D.	37.421	149.317	42.891	1164.663	580.193	5.980	154.861	48.798
	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	8.816	-0.062	-24.700	29.353	46.988	103.343	10.909	50.885
S.D.	1.244	2.583	30.786	0.146	91.512	1.593	0.250	67.360
Z R.S.D.	14.112	4167.732	124.639	0.497	194.755	1.541	2.294	132.377

Corrected Counts Statistics 2:38 PM July 15, 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	Z R.S.D. Kpulses
Ir	1	0.011	0.008
Sr	2	0.011	0.002
Bi	3	-0.153	0.015
Ta	5	-0.014	0.008
Sn	7	0.076	0.038
Si	8	0.673	0.006
Al	9	1.351	0.052
Fe	10	0.052	0.024
Co	11	1.963	0.026
Ni	12	2.368	0.027
Li	14	-0.010	0.003
Zn	15	5.279	0.063
Mn	16	1.971	0.010
La	17	-0.002	0.001
Pr	18	-0.064	0.002
Fe	19	1.392	0.028
Cr	20	3.629	0.123
Nb	21	1.215	0.021
Mo	22	0.017	0.090
Ce	24	0.008	0.007
Sa	25	-0.047	0.009
Eu	26	8.940	0.110
P	27	0.008	0.003
O	28	0.028	0.005
Mg	29	2.298	0.077
As	30	0.347	0.009
Na	31	0.937	0.008
Mo	32	1.391	0.022
Se	33	0.148	0.007
Ag	34	1.589	0.021
Pb	35	0.264	0.020
Ti	36	3.542	0.043
Cd	37	11.550	0.218
B	38	2.455	0.039
K	39	0.950	0.005
Mn	40	5.023	0.059
Sb	42	0.094	0.022
V	43	0.833	0.006
Be	44	2.150	0.031
Tl	45	0.041	0.004

WHC-SD-WM-TI-540,REV.1

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	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	939.754	-97.493	6.124	477.006	-158.937	481.196	461.305	103.982
S.D.	8.935	3.095	24.025	2.558	133.554	2.845	3.037	28.931
1 R.S.D.	0.951	3.174	392.283	0.536	84.030	0.591	0.658	27.823

Corrected Counts Statistics 2:32 PM July 15, 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	0.018	0.004
Sr	2	0.009	0.001
Bi	3	0.010	0.032
Ta	5	-0.009	0.002
Sn	7	0.020	0.054
Si	8	0.087	0.003
Al	9	0.196	0.032
W	10	-0.013	0.013
Co	11	-0.015	0.004
Cu	12	0.046	0.002
Li	14	-0.013	0.006
Zn	15	0.121	0.002
Mo	16	-0.029	0.005
La	17	-0.002	0.000
Eu	18	-0.053	0.004
	19	0.047	0.004
	20	0.360	0.028
Cr	21	-0.004	0.009
Nd	22	0.143	0.040
Ce	24	0.025	0.003
Sm	25	-0.018	0.006
Ba	26	-0.008	0.003
P	27	0.010	0.002
S	28	0.008	0.005
Mg	29	0.163	0.020
As	30	-0.005	0.007
Na	31	0.098	0.012
Mo	32	0.022	0.008
Se	33	-0.043	0.003
Ag	34	-0.105	0.006
Pb	35	-0.013	0.008
Ti	36	-0.131	0.003
Cd	37	-0.135	0.005
B	38	0.005	0.005
K	39	-0.056	0.004
Mn	40	0.002	0.006
Sb	42	-0.017	0.018
V	43	0.021	0.003
Be	44	0.002	0.002
Tl	45	-0.043	0.006

WHC-SD-WM-TI-540, REV. 1

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Identity 1: hno3 rinse Identity 2: direct 2:32 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	4.785	0.840	55.775	-20.225	3.617	7.849	32.026	8.334
S.D.	1.617	0.043	32.391	1.800	13.024	2.152	12.451	4.132
% R.S.D.	33.801	5.170	58.075	8.899	360.082	27.414	38.878	49.579

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	1.903	0.835	0.878	1.160	9.509	1.338	0.282	19.807
S.D.	1.003	0.435	0.489	0.148	1.209	0.000	0.200	1.413
% R.S.D.	52.718	52.092	55.676	12.731	12.716	0.000	70.995	7.132

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	36.603	3.688	25.622	47.365	25.067	0.553	-19.721	6.849
S.D.	4.244	3.485	12.851	9.518	14.175	0.161	15.257	6.890
% R.S.D.	11.594	94.504	50.155	20.094	56.549	29.165	77.365	100.608

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	35.695	-10.372	16.745	5.061	2.618	8.353	14.065	-0.846
S.D.	4.311	9.717	6.262	2.993	8.323	1.657	14.328	0.430
% R.S.D.	12.077	93.689	37.395	59.142	317.912	19.834	101.873	50.756

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-2.272	0.806	3.042	-0.404	-188.578	6.421	1.589	172.566
S.D.	0.220	0.936	18.686	0.576	83.239	1.593	0.331	40.554
% R.S.D.	9.682	116.151	614.272	142.516	44.141	24.804	20.830	23.500

Corrected Counts Statistics 2:35 PM July 15, 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	0.006
Sr	2	0.000	0.010
Bi	3	-0.009	0.015
Ta	5	-0.013	0.002
Sn	7	0.006	0.014
Si	8	0.093	0.005
Al	9	0.161	0.040
W	10	0.029	0.019
Co	11	0.392	0.005
Cu	12	0.287	0.002
Li	14	-0.026	0.011
Zn	15	0.534	0.005

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Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	10.467	2.558	-53.127	-49.622	1297.163	416.632	247105.392	3.232
S.D.	1.575	0.164	8.937	9.266	17.593	11.794	2570.142	8.524
% R.S.D.	15.051	6.410	16.823	18.674	1.356	2.831	1.040	263.742

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	0.331	6.618	0.820	9.311	9.590	-50.846	6.513	93822.126
S.D.	1.489	0.734	0.914	0.583	1.217	4.014	0.200	906.415
% R.S.D.	450.156	11.092	111.515	6.257	12.693	7.895	3.078	0.966

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sr (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	181541.873	21.446	-117.963	9.861	-21355.961	2.584	30.219	764.067
S.D.	1254.144	2.504	10.033	14.605	11.934	0.501	37.814	27.757
% R.S.D.	0.691	11.675	8.506	148.112	0.056	19.402	125.132	3.633

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	186009.250	415.617	23.969	-2.222	-47.219	85.860	-125.971	3.029
S.D.	1282.160	9.539	4.401	0.000	44.829	4.542	9.414	0.603
% R.S.D.	0.689	2.295	18.363	0.000	94.938	5.290	7.473	19.894

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	19.074	-94.456	-21.618	28.891	-162.057	1.003	2.312	-0.000
S.D.	0.285	2.057	25.743	1.114	56.743	2.085	0.217	67.794
% R.S.D.	1.496	2.177	119.086	3.855	35.014	207.875	9.375	824080451350.000

Corrected Counts Statistics

2:28 PM July 15, 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	0.043	0.003
Bi	3	-0.108	0.018
Ta	5	-0.063	0.026
Sn	7	5.412	0.016
Si	8	0.566	0.008
Al	9	630.778	3.402
W	10	0.034	0.008
Co	11	1.800	0.023
Cu	12	2.325	0.010
Li	14	-0.020	0.004
Zn	15	9.974	0.063
Ni	16	3.678	0.014
La	17	-0.017	0.001

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Eu	18	0.053	0.005
Fe	19	267.855	1.033
Ca	20	1175.280	4.129
Cr	21	1.208	0.024
Nd	22	3.679	0.060
Ce	24	-0.002	0.011
Sm	25	-8.865	0.006
Ba	26	8.876	0.031
P	27	0.018	0.004
S	28	1.756	0.011
Mg	29	843.455	3.172
As	30	0.302	0.004
Na	31	0.089	0.014
Mo	32	0.016	0.007
Se	33	0.013	0.003
Ag	34	3.272	0.008
Pb	35	0.413	0.004
Ti	36	-0.113	0.005
Cd	37	21.842	0.208
B	38	-0.524	0.017
K	39	-0.055	0.005
Mn	40	6.405	0.031
Sb	42	-0.010	0.029
V	43	0.810	0.005
Be	44	2.123	0.014
Zn	45	-0.053	0.004

WHC-SD-WM-TI-540:REV.1

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Identity 1: ICSAB Identity 2: Quality Control 2:29 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	3.589	2.119	-63.168	-64.058	1303.996	397.114	246309.568	21.220
S.D.	0.259	0.109	18.148	21.164	3.898	6.211	1328.582	2.722
% R.S.D.	7.217	5.124	28.729	33.039	0.299	1.564	0.539	12.826

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	452.373	477.186	0.263	953.415	906.095	-57.537	5.913	93627.204
S.D.	5.774	2.114	0.351	6.125	3.397	4.635	0.243	361.170
% R.S.D.	1.276	0.443	133.324	0.642	0.375	8.056	4.104	0.386

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	180757.146	500.095	-143.221	-32.577	-21377.734	469.225	66.841	770.949
S.D.	635.043	9.752	15.788	33.015	15.364	1.634	40.366	10.483
% R.S.D.	0.351	1.950	11.024	101.342	0.072	0.348	60.390	1.360

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	185464.151	404.815	11.988	3.086	65.602	1024.164	794.959	1.648
S.D.	697.400	5.505	7.177	2.520	11.537	2.431	6.945	0.617
% R.S.D.	0.376	1.360	59.866	81.680	17.587	0.237	0.874	37.450

Ca	20	0.087	0.000
Cr	21	0.646	0.004
Nd	22	0.062	0.046
Ce	24	-0.004	0.011
Sm	25	-0.039	0.010
	26	-0.027	0.011
	27	0.011	0.006
S	28	0.025	0.014
Mg	29	0.008	0.001
As	30	0.180	0.004
Na	31	0.979	0.016
Mo	32	0.006	0.002
Se	33	0.019	0.005
Ag	34	-0.148	0.012
Pb	35	0.230	0.011
Ti	36	-0.140	0.010
Cd	37	0.836	0.037
B	38	0.284	0.012
K	39	-0.049	0.012
Mn	40	3.585	0.019
Sb	42	0.007	0.007
V	43	1.448	0.006
Be	44	1.046	0.009
Tl	45	-0.050	0.008

WHC-SD-WM-TI-540, REV. 1

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Identity 1: WP284 Identity 2: Quality Control 2:23 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	1.794	0.163	8.745	-19.544	3.778	356.995	734.767	31.241
S.D.	3.426	0.287	2.917	12.449	3.238	6.820	5.317	2.430
% R.S.D.	190.922	176.254	33.358	63.697	85.716	1.910	0.724	7.778

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	257.175	340.488	-0.556	426.110	221.040	-1.338	-0.830	788.658
S.D.	3.735	0.603	0.947	1.758	1.375	2.318	0.425	4.228
% R.S.D.	1.452	0.177	170.308	0.413	0.622	173.187	51.195	0.536

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-5.787	269.923	-0.176	-38.499	-25.736	-0.447	-6.403	30.074
S.D.	0.002	1.478	14.862	32.748	24.232	0.581	55.610	19.028
% R.S.D.	0.033	0.547	8451.714	85.062	94.157	129.822	868.462	63.269

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1.466	238.918	482.431	-0.864	156.253	-4.582	460.465	-2.004
S.D.	0.127	5.913	8.229	0.566	16.839	3.614	19.616	1.316
% R.S.D.	8.660	2.475	1.706	65.473	10.777	78.873	4.260	65.659

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
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Mean	39.364	52.806	35.408	338.320	76.255	865.471	227.871	126.106
S.D.	1.598	2.218	55.932	1.809	33.857	3.662	1.848	49.816
Z R.S.D.	4.058	4.201	157.965	0.535	44.400	0.423	0.809	39.503

Corrected Counts Statistics 2:26 PM July 15, 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	ZR.S.D. Kpulses
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WHC-SD-WM-TI-540, REV. 1

Zr	1	0.031	0.004
Sr	2	0.055	0.004
Bi	3	-0.098	0.009
Ta	5	-0.045	0.011
Sn	7	5.384	0.073
Si	8	0.590	0.015
Al	9	632.815	6.581
W	10	-0.028	0.027
Co	11	-0.021	0.006
Fe	12	0.073	0.004
Cr	14	-0.014	0.010
Ni	15	0.206	0.006
Ca	16	-0.029	0.005
Sc	17	-0.015	0.001
Eu	18	0.064	0.004
Pb	19	268.413	2.593
As	20	1180.378	8.154
Br	21	0.040	0.006
K	22	3.775	0.059
Ce	24	0.013	0.005
Mo	25	-8.856	0.005
Ba	26	0.036	0.009
Pt	27	0.015	0.004
Hg	28	1.756	0.017
Ir	29	845.934	5.831
Ag	30	0.310	0.007
Na	31	0.111	0.008
O	32	0.002	0.000
Se	33	-0.055	0.012
Ag	34	0.153	0.015
Pb	35	-0.089	0.005
Ti	36	-0.102	0.005
Cd	37	0.363	0.007
B	38	-0.508	0.011
K	39	-0.061	0.006
Mn	40	1.670	0.003
Sb	42	-0.011	0.012
V	43	0.012	0.003
Be	44	0.005	0.001
Tl	45	-0.069	0.010

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Identity 1: icsa-i Identity 2: direct

2:26 PM July 15, 1992

Corrected Counts Statistics 2:21 PM July 15, 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	23.254	0.154
Sr	2	0.015	0.005
Bi	3	-1.382	0.010
Ta	5	12.179	0.032
Sn	7	0.084	0.005
Si	8	11.858	0.075
Al	9	12.191	0.049
W	10	31.760	0.144
Co	11	-0.075	0.006
Cu	12	0.061	0.001
Li	14	-0.021	0.006
U	15	0.482	0.002
Ni	16	0.273	0.020
Mn	17	-0.005	0.001
Eu	18	-0.113	0.002
Fe	19	0.031	0.009
Cr	20	0.054	0.001
Cr	21	0.042	0.006
4	22	-0.129	0.025
Ce	24	0.011	0.004
25	25	-0.092	0.005
26	26	-0.013	0.004
27	27	0.973	0.006
28	28	3.561	0.031
Hg	29	0.021	0.000
30	30	3.541	0.027
Na	31	0.134	0.004
40	32	26.948	0.101
Se	33	1.206	0.020
Hg	34	0.423	0.019
Pb	35	-0.099	0.007
Ti	36	35.800	0.171
Cd	37	-0.364	0.023
B	38	0.053	0.006
K	39	-0.058	0.006
Mn	40	-0.003	0.004
Sb	42	0.038	0.024
V	43	16.216	0.099
Be	44	44.118	0.236
Tl	45	0.764	0.007

WHC-SD-WM-TI-540, REV. 1

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Identity 1: SST3 Identity 2: Quality Control 2:21 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	10427.437	1.041	-1347.817	9914.925	19.211	9580.093	4716.489	10210.117
S.D.	69.059	0.178	9.933	26.307	1.114	61.124	19.282	46.081
% R.S.D.	0.662	17.081	0.737	0.265	5.798	0.638	0.409	0.451

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-13.157	4.110	0.205	36.019	82.626	-9.367	-2.859	14.214
S.D.	1.596	0.241	0.484	0.167	4.778	2.318	0.081	3.304
% R.S.D.	12.130	5.873	236.017	0.465	5.783	24.743	2.829	23.242

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-10.540	22.402	-62.061	4.926	-154.761	0.264	9598.645	4782.773
S.D.	0.154	2.493	8.137	10.675	12.571	0.197	55.009	42.026
% R.S.D.	1.457	11.127	13.111	216.699	8.123	74.605	0.573	0.879

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	4.398	4769.426	35.950	9975.129	4635.297	166.976	-144.316	4800.634
S.D.	0.000	36.132	2.114	37.327	73.958	5.781	12.487	22.876
% R.S.D.	0.000	0.758	5.881	0.374	1.596	3.462	8.653	0.477

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-12.088	9.793	-7.747	-0.812	68.829	9755.559	9563.572	5526.549
S.D.	0.983	1.161	28.125	0.341	113.132	59.370	51.234	46.460
% R.S.D.	8.135	11.858	363.062	41.994	164.368	0.609	0.536	0.841

Corrected Counts Statistics 2:23 PM July 15, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540,REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.011	0.008
Sr	2	-0.009	0.008
Bi	3	-0.036	0.003
Ta	5	-0.008	0.015
Sn	7	0.020	0.013
Si	8	0.516	0.008
Al	9	1.996	0.014
W	10	0.062	0.008
Co	11	1.014	0.015
Cu	12	1.671	0.003
Li	14	-0.029	0.011
Zn	15	4.518	0.018
Ni	16	0.846	0.006
La	17	-0.003	0.001
Eu	18	-0.074	0.008
Fe	19	2.246	0.012

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	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-24.372	9742.034	-60.488	-48.556	4884.900	7.035	-154.921	136.821
S.D.	0.897	62.694	18.884	6.821	42.551	5.693	4.914	5.266
Z R.S.D.	3.681	0.644	31.219	14.048	0.871	80.915	3.172	3.849

WHC-SD-WM-TI-540, REV. 1

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	9949.896	4902.082	9559.799	10054.757	4988.371	-0.000	-0.053	4928.618
S.D.	80.586	33.848	35.055	61.651	45.770	2.318	0.031	37.947
Z R.S.D.	0.810	0.690	0.367	0.613	0.918	1654291.212	57.698	0.770

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	9943.698	5169.244	-55.758	266.465	-879.719	9717.675	13.573	87.110
S.D.	72.344	34.120	32.261	16.307	21.818	71.071	26.426	9.808
Z R.S.D.	0.728	0.660	57.860	6.120	2.480	0.731	194.699	11.259

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	4960.786	0.012	9609.910	-5.060	848.652	3.740	7.950	-2.004
S.D.	35.243	6.855	30.071	3.360	64.013	0.301	26.224	0.354
Z R.S.D.	0.710	57713.098	0.313	66.395	7.543	8.042	329.877	17.638

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	10111.763	4928.954	4862.518	4801.959	4972.031	3.813	1.373	92.920
S.D.	69.043	36.511	67.375	36.387	191.656	2.279	0.331	33.406
Z R.S.D.	0.683	0.741	1.386	0.758	3.855	59.780	24.119	35.952

Corrected Counts Statistics 2:18 PM July 15, 1992
 Risk 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	ZR.S.D. Kpulses
Zr	1	-0.169	0.003
	2	0.041	0.008
Bi	3	4.952	0.063
Ta	5	0.007	0.028
Sn	7	-0.024	0.026
Si	8	0.024	0.002
Al	9	1.108	0.026
W	10	-0.078	0.028
Co	11	-0.007	0.012
Cu	12	0.209	0.004
Li	14	0.008	0.006
Zn	15	0.659	0.017
Ni	16	-0.026	0.010
La	17	1.268	0.001
Eu	18	93.231	0.062
Fe	19	0.651	0.019
Ca	20	0.319	0.003
Cr	21	-0.000	0.004

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Nd	22	15.970	0.090
Ce	24	1.688	0.009
Sm	25	2.089	0.001
Ba	26	-0.465	0.009
P	27	0.010	0.003
S	28	0.026	0.004
Mg	29	0.033	0.001
As	30	0.044	0.016
Na	31	0.080	0.006
Mo	32	0.017	0.006
Se	33	-0.029	0.002
Ag	34	16.583	0.051
Pb	35	2.819	0.011
Ti	36	-0.114	0.013
Cd	37	0.010	0.014
B	38	0.035	0.014
K	39	-0.061	0.007
Mn	40	0.017	0.008
Sb	42	0.024	0.051
V	43	0.045	0.003
Be	44	-0.005	0.001
Tl	45	-0.052	0.001

WHC-SD-WM-TI-540, REV. 1

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8 2648 AQ SKM 7-15-92

Identity 1: SST2 Identity 2: Quality Control 2:18 PM July 15, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-79.096	2.032	5006.754	6.969	-6.913	-43.385	387.953	-12.650
S.D.	1.187	0.294	63.447	23.251	6.157	1.409	10.217	8.872
% R.S.D.	1.500	14.463	1.267	333.640	89.073	3.247	2.634	70.137

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	3.889	34.905	2.722	53.159	10.235	5100.677	4939.491	231.040
S.D.	2.877	0.845	0.527	1.647	2.382	2.318	3.289	6.473
% R.S.D.	73.982	2.420	19.355	3.098	23.272	0.045	0.067	2.802

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	30.193	5.054	5147.670	4970.219	5122.355	4.999	-13.062	30.207
S.D.	0.385	1.439	29.119	25.812	1.397	0.460	25.136	5.090
% R.S.D.	1.276	28.476	0.566	0.519	0.027	9.206	192.435	16.849

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	7.036	-87.072	7.230	3.209	54.202	5027.951	5208.819	1.470
S.D.	0.220	21.683	2.911	2.170	5.858	15.357	20.620	1.768
% R.S.D.	3.125	24.903	40.263	67.607	10.808	0.305	0.396	120.261

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	3.972	6.446	-23.159	1.081	1.747	21.070	0.072	108.407
S.D.	0.585	2.682	30.786	0.787	239.510	1.738	0.250	7.664

Sm	25	-0.047	0.010
Ba	26	-0.028	0.010
P	27	0.008	0.003
S	28	0.038	0.007
Mn	29	0.007	0.001
	30	0.006	0.012
Na	31	-0.005	0.022
Mo	32	-0.010	0.002
Se	33	-0.046	0.006
Ag	34	-0.134	0.007
Pb	35	-0.029	0.017
Ti	36	-0.132	0.006
Cd	37	-0.079	0.040
B	38	0.000	0.004
K	39	-0.066	0.003
Mn	40	0.002	0.003
Sb	42	-0.041	0.015
V	43	0.014	0.003
Be	44	-0.002	0.001
Tl	45	-0.060	0.008

WHC-SD-WM-TI-540, REV. 1

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Identity 1: ICB Identity 2: Quality Control 2:13 PM July 15, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	M (ppb)
Mean	-0.897	0.226	22.163	-23.583	-3.697	-1.639	3.645	14.558
S.D.	3.367	0.328	27.156	12.929	7.195	6.317	7.034	4.368
% R.S.D.	375.351	145.298	122.531	54.822	194.599	385.363	192.956	30.007
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	1.903	0.417	-0.234	-1.933	4.431	2.676	-0.494	7.107
S.D.	1.003	0.845	1.029	1.099	2.725	6.132	0.433	5.486
% R.S.D.	52.718	202.460	439.496	56.857	61.510	229.141	87.694	77.190
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-0.768	-0.547	-39.910	-51.329	-45.090	-0.495	-33.038	46.610
S.D.	0.088	0.710	14.589	30.049	23.497	0.507	30.514	9.724
% R.S.D.	11.437	129.858	36.555	58.542	52.111	102.285	92.360	20.863
	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1.393	4.418	-37.699	-6.665	-4.789	-0.471	-15.899	-0.891
S.D.	0.127	15.732	11.390	0.741	20.465	2.106	30.496	0.736
% R.S.D.	9.116	356.117	30.213	11.111	427.325	447.205	191.806	82.614
	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	0.157	-0.000	-43.195	-0.378	-302.460	2.408	0.722	59.735
S.D.	1.734	0.653	13.347	0.238	70.823	1.515	0.125	54.057
% R.S.D.	1104.321	4662856122.800	30.901	63.021	23.416	62.919	17.321	90.495

Corrected Counts Statistics 2:16 PM July 15, 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	ZR.S.D. Kpulses
Zr	1	-0.047	0.002
Sr	2	258.931	1.666
Bi	3	-0.105	0.019
Ta	5	-0.044	0.008
Sn	7	20.262	0.176
Si	8	0.086	0.007
Al	9	-0.282	0.013
W	10	0.452	0.017
Co	11	40.060	0.325
Cu	12	23.495	0.162
Li	14	108.855	0.399
Zn	15	104.139	0.638
Ni	16	20.558	0.189
Fe	17	-0.002	0.001
Eu	18	-0.060	0.001
Hg	19	14.091	0.109
Ca	20	64.813	0.471
7	21	12.601	0.083
Nd	22	0.114	0.101
Ce	24	0.099	0.006
4	25	-0.392	0.009
Ba	26	184.057	1.346
9	27	0.013	0.003
S	28	0.133	0.008
0	29	22.562	0.160
Ag	30	0.004	0.005
Na	31	18.246	0.057
Mo	32	-0.006	0.009
Se	33	0.598	0.020
3	34	-0.120	0.001
Pb	35	-0.016	0.014
0	36	-0.140	0.003
Cd	37	235.820	1.611
B	38	26.509	0.196
K	39	0.995	0.015
Mn	40	50.879	0.385
Sb	42	1.086	0.041
V	43	0.017	0.004
Be	44	0.001	0.002
Tl	45	-0.055	0.005

WHC-SD-WM-TI-540, REV. 1

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1048AP 7-15-92
 SKM
 Identity 1: SST1 Identity 2: Quality Control 2:16 PM July 15, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

Corrected Counts Statistics 2:11 PM July 15, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.000	0.006
Sr	2	0.017	0.006
Bi	3	-0.279	0.014
Ta	5	-0.018	0.011
Sn	7	0.073	0.029
Si	8	-1.286	0.010
Al	9	2.577	0.015
W	10	0.062	0.013
Cd	11	4.028	0.033
Cu	12	4.806	0.010
Li	14	-0.022	0.005
Zn	15	10.588	0.048
Ni	16	4.071	0.017
La	17	-0.001	0.001
Eu	18	-0.060	0.008
Fe	19	2.760	0.018
Ca	20	6.762	0.014
U	21	2.487	0.012
Nd	22	0.019	0.029
Ce	24	0.013	0.004
Sp	25	-0.067	0.005
Ba	26	18.428	0.063
4	27	0.011	0.003
	28	0.022	0.008
	29	4.554	0.020
As	30	0.743	0.024
0	31	1.887	0.013
Mo	32	2.888	0.023
Se	33	0.341	0.005
7	34	3.358	0.010
Pb	35	0.533	0.012
0	36	7.336	0.042
Cd	37	23.732	0.063
0	38	5.104	0.019
K	39	2.007	0.021
Mn	40	10.226	0.030
Sb	42	0.234	0.018
V	43	1.681	0.008
Be	44	4.387	0.016
Tl	45	0.104	0.006

WHC-SD-WM-TI-540, REV. 1

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Identity 1: ICV Identity 2: Quality Control 2:11 PM July 15, 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	Sn	Si	Al	W
(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)

Mean	-3.140	1.12	23.00	28.3	16.06	981.181	961.870	28.108
S.D.	2.470	0.209	13.958	8.996	7.089	8.346	5.858	4.026
% R.S.D.	78.684	18.559	5.924	31.680	42.815	0.849	0.609	14.322
WHC-SD-WM-TI-540, REV. 1								
	Co	Cu	Li	Zn	Ni	La	Eu	Fe
Mean	(ppb) 1449	(ppb) 827	(ppb) 1088	(ppb) 772	(ppb) 1138	(ppb) 352	(ppb) 1053	(ppb) 200
S.D.	8.139	2.182	0.465	4.646	4.027	4.014	0.397	6.321
% R.S.D.	0.809	0.219	529.034	0.459	0.402	75.002	750.073	0.653
	Ca	Cr	Nd	Ce	Sm	Ba	P	S
Mean	(ppb) 1019.999	(ppb) 1024.505	(ppb) -21.438	(ppb) 11.835	(ppb) -94.281	(ppb) 973.860	(ppb) -6.403	(ppb) 16.597
S.D.	2.082	4.855	9.247	10.398	11.086	3.307	26.426	10.165
% R.S.D.	0.204	0.474	43.133	87.859	11.759	0.340	412.685	61.243
	Mg	As	Na	Mo	Se	Ag	Pb	Ti
Mean	(ppb) 1001.070	(ppb) 997.178	(ppb) 962.389	(ppb) 1066.397	(ppb) 1125.405	(ppb) 1049.933	(ppb) 1015.102	(ppb) 997.062
S.D.	4.300	31.785	7.039	8.628	17.834	2.869	21.263	5.597
% R.S.D.	0.429	3.188	0.731	0.809	1.585	0.273	2.095	0.561
	Cd	B	K	Mn	Sb	V	Be	Tl
Mean	(ppb) 1020.796	(ppb) 948.963	(ppb) 9540.130	(ppb) 965.356	(ppb) 983.012	(ppb) 1005.936	(ppb) 952.087	(ppb) 1143.805
S.D.	2.718	3.484	97.097	2.843	82.180	5.013	3.406	36.555
% R.S.D.	0.266	0.367	1.018	0.294	8.360	0.498	0.358	3.196

Corrected Counts Statistics 2:13 PM July 15, 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	0.005	0.008	
2	-0.007	0.009	
3	-0.023	0.027	
5	-0.013	0.016	
7	-0.011	0.030	
8	0.075	0.008	
9	0.124	0.018	
10	0.007	0.014	
11	-0.015	0.004	
12	0.044	0.004	
14	-0.026	0.012	
15	0.089	0.011	
16	-0.050	0.011	
17	-0.002	0.002	
18	-0.068	0.008	
19	0.010	0.016	
20	0.117	0.001	
21	-0.014	0.002	
22	-0.061	0.045	
24	-0.008	0.010	

BEST AVAILABLE COPY

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
Analytical Batch

WHC-SD-WM-TI-540, REV. 1

LAB SEGMENT SERIAL #:

^{R₉₋₁₅₋₉₂} 1712 ^{R₉₋₁₅₋₉₂} 1713

CUSTOMER ID:

B4-104

INSTRUMENT	WB88807
PROCEDURE/REV	LA-925-106-A-2 <i>pac</i>
TECHNOLOGIST	JJ Solbrack
DATE	07-14-92
TEMPERATURE	NA
STARTING TIME	1800
ENDING TIME	2000
CHEMIST	S. Catlow

ANALYSIS:

Uranium

SAMPLE PREP:

Fusion

	DESCRIPTION	LAB. ID.
1	LMCS Std	R-1710-6540
2	Reagent BIK	R-1711-6640
3	Sample	R-1712-6740
4	Sample Dup.	R-1712-6840
5	Sample <i>RCA # 418</i>	R-1713-6740
6	Sample Dup. <i>418</i>	R-1713-6840
7		
8		
9		
10		

	DESCRIPTION	LAB. ID.
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMCS STD	126B38-100m			7002 2H 8-15-92

WHC-SD-WM-TI-540;REV.1

DATE START:

July 14, 1992

DATE COMPLETE:

July 15, 1992

NARRATIVE: ☒ **NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH**
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

009740942154

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

Analytical Batch

WHC-SD-WM-TI-540, REV. 1

LAB SEGMENT SERIAL #: R1712, R1713

CUSTOMER ID: BY-104

INSTRUMENT	WB57265 WB57237 GEA #8-19-92
PROCEDURE/REV	LA-548-127
TECHNOLOGIST	Sui Li
DATE	7-31-92
TEMPERATURE	24
STARTING TIME	8:00
ENDING TIME	10:30
CHEMIST	A. K. Dasgupta

ANALYSIS: GEA

SAMPLE PREP: FUSION

BEST AVAILABLE COPY

This batch is good for: 08/04/92

	DESCRIPTION	LAB ID
1	STD	R1712-6530
2	BIK	R1711-6630
3	Sample	R1712-6730
4	Duplicate Sample	R1712-6830
5	Sample	R1713-6730
6	Duplicate Sample	R1713-6830
7		
8		
9		
10		

	DESCRIPTION	LAB ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
LMS	90B491.100 ^{ml} # 8.19.92			

0 0 7 4 0 7 4 2 1 8 3

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-548-121
 DATE START: 7/31/92
 PREPARED BY: A.K. DesGueh
 DATE COMPLETE: 8/4/92
 WMC-SD-WM-TI-540; REV. 1

SPL NAME	SPL ID	ANALYT	RESULT #1	RESULT #2	AVERAGE	RPD%	%REC	DET LIM	% CTR
Standard	R1710	CS-137	100.0 uCi/l				100%	1.1%	1.5%
		Co-60	82.7 u				100%		
Blank	R1711	Am-241	5.8 x 10 ⁻¹⁴						
		CS-137	1.44 x 10 ⁻¹⁴						
		Eu-155	2.57 x 10 ⁻¹⁴						
		Eu-154	2.19 x 10 ⁻¹⁴						
		Co-60	1.35 x 10 ⁻¹⁴						
By-104	R1712-6	Am-241	7.2 x 10 ⁻¹⁴	7.2 x 10 ⁻¹⁴	7.2 x 10 ⁻¹⁴	NA		NA	NA
		CS-137	116.2 u	115.0 u	115.6 u	1.1%		0.7%	NA
		Eu-155	3.1 x 10 ⁻¹⁴	3.1 x 10 ⁻¹⁴	3.1 x 10 ⁻¹⁴	NA		NA	NA
		Eu-154	1.9 x 10 ⁻¹⁴	2.1 x 10 ⁻¹⁴	2.0 x 10 ⁻¹⁴	NA		NA	NA
		Co-60	6.7 x 10 ⁻¹⁴	7.1 x 10 ⁻¹⁴	6.9 x 10 ⁻¹⁴	NA		NA	NA
By-104	R1713-6	Am-241	5.9 x 10 ⁻¹⁴	5.9 x 10 ⁻¹⁴	5.9 x 10 ⁻¹⁴	NA		NA	NA
		CS-137	74.6 uCi/g	74.6 uCi/g	74.6 uCi/g	5.3%		0.9%	NA
		Eu-155	2.4 x 10 ⁻¹⁴	2.4 x 10 ⁻¹⁴	2.4 x 10 ⁻¹⁴	NA		NA	NA
		Eu-154	1.7 x 10 ⁻¹⁴	1.7 x 10 ⁻¹⁴	1.7 x 10 ⁻¹⁴	NA		NA	NA
		Co-60	6.7 x 10 ⁻¹⁴	7.2 x 10 ⁻¹⁴	7.2 x 10 ⁻¹⁴	NA		NA	NA

MANIPULATIVE: ☒ NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
 LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

*
* GAMMA SPECTRUM ANALYSIS *
*

Handwritten signature
8-25-92

CANBERRA SPECTRAN-F V2.06 SOFTWARE

31-JUL-92 11:45:48

WHC-SD-WM-TI-540, REV. 1

ANALYSIS PARAMETERS

MCA UNIT NUMBER: 1 / ADC UNIT NUMBER: 1.0
DETECTOR NUMBER: 4 / GEOMETRY NUMBER: 41
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

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

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER AND:
ANALYZED BY:

SAMPLE DESCRIPTION: R1710-6530
METRY DESCRIPTION: 22 ML 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 31-JUL-92 AT 10:55:18

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3021. SECONDS
DEAD TIME: 0.70 %

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

ENERGY CALIBRATION PERFORMED 23-JUL-92
EFFICIENCY CALIBRATION PERFORMED 27-JUL-92

31-JUL-9211:45:48

SAMPLE: R1710-6530
DATA COLLECTED ON 31-JUL-92 AT 10:55:18
DECAYED TO 0. DAYS, 0.0000 HOURS BEFORE THE START OF COLLECT.

RADIONUCLIDE ANALYSIS REPORT WHC-SD-WM-TI-540,REV.1

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI				ENERGY COMPARISON	
	MEASURED	ERROR	DECAY CORRECTED	ERROR	(KEV) EXPECT	DIFF
AM-241	LLD<1.70E+00		LLD<1.70E+00		59.54	
AM-243	LLD<4.92E-01		LLD<4.92E-01		74.67	
BA-133	LLD<4.67E-01		LLD<4.67E-01		356.02	
BA-140	LLD<1.48E+00		LLD<1.48E+00		537.27	
CEPR144	LLD<2.75E+00		LLD<2.75E+00		133.51	
CO-60	8.27E+01	+/-1.36E+00	8.27E+01	+/-1.36E+00	1332.50	-0.12
					1173.24	-0.16
CR-51	LLD<2.55E+00		LLD<2.55E+00		320.09	
CS-134	8.36E+01	+/-1.34E+00	8.36E+01	+/-1.34E+00	795.84	-0.11
					604.70	-0.03
CS-137	1.00E+02	+/-1.30E+00	1.00E+02	+/-1.30E+00	661.65	-0.08
EU-152	LLD<7.08E-01		LLD<7.08E-01		1408.01	
EU-154	LLD<7.12E-01		LLD<7.12E-01		1274.45	
EU-155	LLD<7.10E-01		LLD<7.10E-01		105.31	
FE-59	LLD<9.09E-01		LLD<9.09E-01		1099.25	
I-131	LLD<3.61E-01		LLD<3.61E-01		364.48	
K-40	LLD<3.35E+00		LLD<3.35E+00		1460.75	
LA-140	LLD<1.53E-01		LLD<1.53E-01		1596.20	
MN-54	LLD<3.56E-01		LLD<3.56E-01		834.83	
NA-22	LLD<2.67E-01		LLD<2.67E-01		1274.55	
NB-95	LLD<3.44E-01		LLD<3.44E-01		765.78	
NP-237	LLD<1.65E+00		LLD<1.65E+00		86.50	
PU-239	LLD<2.18E+03		LLD<2.18E+03		129.30	
PU-241	LLD<8.33E+04		LLD<8.33E+04		148.57	
RA-224	LLD<5.77E+00		LLD<5.77E+00		240.99	
RA-226	LLD<5.57E+00		LLD<5.57E+00		186.10	
RU-103	LLD<3.62E-01		LLD<3.62E-01		497.08	
RU-103	LLD<3.81E-01		LLD<3.81E-01		497.08	
RURH106	LLD<6.78E+00		LLD<6.78E+00		621.80	
SB-125	LLD<2.38E+00		LLD<2.38E+00		176.33	
SE-75	LLD<4.05E-01		LLD<4.05E-01		264.66	
SN-113	LLD<5.40E-01		LLD<5.40E-01		391.67	
SR-85	LLD<3.60E-01		LLD<3.60E-01		513.99	
TH-228	LLD<1.77E+01		LLD<1.77E+01		84.37	
U-235	LLD<3.12E-01		LLD<3.12E-01		185.71	
Y-88	LLD<1.19E-01		LLD<1.19E-01		1836.06	
ZN-65	LLD<9.08E-01		LLD<9.08E-01		1115.55	
ZR-95	LLD<6.07E-01		LLD<6.07E-01		756.73	
TOTAL	2.67E+02	+/-2.31E+00	2.67E+02	+/-2.31E+00		

STANDARD DEVIATION = 0.05

EBAR = ***** MEV/DISINTEGRATION
MAXIMUM PERMISSABLE ACTIVITY = 1.27E-09 UC/LI
TOTAL MEASURED ACTIVITY = 2.67E+02 (+/-2.31E+00) UC/LI
% TECH. SPEC. = ***** (+/-*****)

ERROR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

WHC-SD-WM-TI-540, REV.1

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
56.74	28.77	1061.	13.1	6.77E+02
950.53	475.38	670.	26.3	4.85E+00
1126.21	563.18	2774.	6.0	2.33E+01
1138.44	569.30	4929.	4.9	4.18E+01
1603.56	801.82	2230.	4.0	2.58E+01
2076.51	1038.31	268.	39.6	3.92E+00
2335.53	1167.86	452.	9.1	7.35E+00
2729.55	1364.96	582.	9.5	1.08E+01
2800.48	1400.44	304.	13.4	5.75E+00

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.04	1460.76	719.	8.1	1.41E+01
3527.65	1764.32	68.	36.4	1.53E+00

PEAK ANALYSIS

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
							WHC-SD-WM-TI-540, REV.1
1	56.74	28.77	0.99	1924.	1168.	11.9	SB/TE-X
1B		27.89			107.	9.3	
2	950.53	475.38	1.43	3294.	670.	26.3	CS-134
3C	1126.21	563.18	1.43	2213.	2774.	6.0	CS-134, EU-152
4C	1138.44	569.30	1.43	2213.	4929.	4.9	CS-134, BI-207
5	1209.19	604.66	1.47	2153.	31996.	1.2	CS-134
6	1323.03	661.57	1.47	1338.	32649.	1.1	CS-137
6B		661.44			159.	5.8	
7C	1591.39	795.73	1.55	1130.	22981.	1.5	CS-134
8C	1603.56	801.82	1.55	1115.	2230.	4.0	CS-134
9	2076.51	1038.31	1.63	1064.	268.	39.6	CS-134
10C	2335.53	1167.86	1.82	557.	452.	9.1	CS-134
11C	2345.97	1173.08	1.82	518.	18643.	1.6	CO-60
12	2664.43	1332.38	2.01	177.	16854.	1.5	CO-60
13	2729.55	1364.96	1.89	81.	582.	9.5	CS-134
14	2800.48	1400.44	2.25	49.	304.	13.4	BI-214
15	2921.04	1460.76	1.80	63.	719.	8.1	K-40
15B		1460.67			769.	1.7	
16	3527.65	1764.32	1.71	32.	68.	36.4	BI-214C
16B		1764.58			64.	7.3	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

MULTIPEL ANALYSIS CONVERGED NORMALLY
ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0014
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 22-JUL-92 AT 14:00:00
BACKGROUND LIVE TIME: 60000. SECONDS

*
* GAMMA SPECTRUM ANALYSIS *
*

CANBERRA SPECTRAN-F V2.06 SOFTWARE

31-JUL-9213:06:13

WHC-SD-WM-TI-540,REV.1

ANALYSIS PARAMETERS

MCA UNIT NUMBER: 1 / ADC UNIT NUMBER: 1.0
DETECTOR NUMBER: 4 / GEOMETRY NUMBER: 41
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LID CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPELLET ANALYSIS PERFORMED

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER AND:
ANALYZED BY:

SAMPLE DESCRIPTION: R1711-6630
METRY DESCRIPTION: 22 ML 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 31-JUL-92 AT 12:16:00

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

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

ENERGY CALIBRATION PERFORMED 23-JUL-92
EFFICIENCY CALIBRATION PERFORMED 27-JUL-92

PEAK ANALYSIS

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
							WHC-SD-WM-TI-540,REV.1
1	57.05	28.93	0.99	178.	158.	28.1	
1B		27.89			107.	9.3	
2	703.47	351.90	1.17	259.	144.	35.8	PB-214A
2B		351.84			131.	8.8	
3	1020.93	510.56	2.42	231.	234.	23.0	RN-222,I-133,
3B		510.83			317.	3.8	TL-208,NA-22, ZN-65,RH-106
4	1218.19	609.16	1.41	134.	190.	22.8	BI-214A,
4B		609.18			177.	5.7	RU-103
5	1322.85	661.48	1.07	98.	191.	20.8	CS-137
5B		661.44			159.	5.8	
6	1822.02	911.05	1.50	120.	66.	56.8	AC-228A
6B		910.95			101.	7.7	
7	2920.60	1460.54	1.99	32.	772.	7.4	K-40
7B		1460.67			769.	1.7	
28	3527.70	1764.34	2.50	15.	67.	30.7	BI-214C
8B		1764.58			64.	7.3	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0014
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 22-JUL-92 AT 14:00:00
BACKGROUND LIVE TIME: 60000. SECONDS

31-JUL-9213:06:13

SAMPLE: R1711-6630

COLLECTED ON 31-JUL-92 AT 12:16:00

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

RADIONUCLIDE ANALYSIS REPORT

WHC-SD-WM-TI-540,REV.1

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI				ENERGY COMPARISON	
	MEASURED	ERROR	DECAY CORRECTED	ERROR	(KEV) EXPECT	DIFF
AM-241	LLD<5.82E-01		LLD<5.82E-01		59.54	
AM-243	LLD<1.82E-01		LLD<1.82E-01		74.67	
BA-133	LLD<1.53E-01		LLD<1.53E-01		356.02	
BA-140	LLD<4.20E-01		LLD<4.20E-01		537.27	
CEPR144	LLD<9.50E-01		LLD<9.50E-01		133.51	
CO-60	LLD<1.35E-01		LLD<1.35E-01		1332.50	
CR-51	LLD<7.23E-01		LLD<7.23E-01		320.09	
CS-134	LLD<1.22E-01		LLD<1.22E-01		795.84	
CS-137	LLD<1.44E-01		LLD<1.44E-01		661.65	
EU-152	LLD<6.88E-01		LLD<6.88E-01		1408.01	
EU-154	LLD<3.19E-01		LLD<3.19E-01		1274.45	
EU-155	LLD<2.57E-01		LLD<2.57E-01		105.31	
FE-59	LLD<2.30E-01		LLD<2.30E-01		1099.25	
L-131	LLD<1.01E-01		LLD<1.01E-01		364.48	
K-40	LLD<3.20E+00		LLD<3.20E+00		1460.75	
LA-140	LLD<9.82E-02		LLD<9.82E-02		1596.20	
MN-54	LLD<1.00E-01		LLD<1.00E-01		834.83	
NA-22	LLD<1.28E-01		LLD<1.28E-01		1274.55	
P-95	LLD<9.99E-02		LLD<9.99E-02		765.78	
N-237	LLD<6.05E-01		LLD<6.05E-01		86.50	
PU-239	LLD<7.46E+02		LLD<7.46E+02		129.30	
PU-241	LLD<2.91E+04		LLD<2.91E+04		148.57	
RA-224	LLD<1.95E+00		LLD<1.95E+00		240.99	
RA-226	LLD<1.92E+00		LLD<1.92E+00		186.10	
RU-103	LLD<1.05E-01		LLD<1.05E-01		497.08	
RU103	LLD<1.11E-01		LLD<1.11E-01		497.08	
RURH106	LLD<2.03E+00		LLD<2.03E+00		621.80	
SB-125	LLD<8.44E-01		LLD<8.44E-01		176.33	
SE-75	LLD<1.30E-01		LLD<1.30E-01		264.66	
SN-113	LLD<1.37E-01		LLD<1.37E-01		391.67	
SR-85	LLD<1.33E-01		LLD<1.33E-01		513.99	
TH-228	LLD<6.55E+00		LLD<6.55E+00		84.37	
U-235	LLD<1.05E-01		LLD<1.05E-01		185.71	
Y-88	LLD<9.98E-02		LLD<9.98E-02		1836.06	
ZN-65	LLD<3.17E-01		LLD<3.17E-01		1115.55	
ZR-95	LLD<1.86E-01		LLD<1.86E-01		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%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
57.05	28.93	51.	90.1	3.11E+01

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
703.47	351.90	144.	35.8	8.11E-01
1020.93	510.56	234.	23.0	1.80E+00
1218.19	609.16	190.	22.8	1.71E+00
1322.85	661.48	191.	20.8	1.85E+00
1822.02	911.05	66.	56.8	8.59E-01
2920.60	1460.54	772.	7.4	1.51E+01
3527.70	1764.34	67.	30.7	1.50E+00

WHC-SD-WM-TI-540,REV.1

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*
* GAMMA SPECTRUM ANALYSIS *
*

CANBERRA SPECTRAN-F V2.06 SOFTWARE

03-AUG-9216:34:47

WHC-SD-WM-TI-540,REV.1

ANALYSIS PARAMETERS

MCA UNIT NUMBER: 1 / ADC UNIT NUMBER: 1.0
DETECTOR NUMBER: 4 / GEOMETRY NUMBER: 41
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

ENVIRONMENTAL BACKGROUND SUBTRACTED
LID CALCULATION PERFORMED
MEASURED ENERGY DIFFERENCES LISTED
MULTIPLY ANALYSIS PERFORMED

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER AND:
ANALYZED BY:

SAMPLE DESCRIPTION: R-1712-6730
GEOMETRY DESCRIPTION: 22 ML 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 3-AUG-92 AT 15:44:23

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3012. SECONDS
DEAD TIME: 0.40 %

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

ENERGY CALIBRATION PERFORMED 23-JUL-92
EFFICIENCY CALIBRATION PERFORMED 27-JUL-92

PEAK ANALYSIS

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	56.76	28.79	0.99	1416.	940.	12.8	SB/TE-X
1B		27.89			107.	9.3	
2	1323.64	661.88	1.54	501.	75629.	0.7	CS-137
2B		661.44			159.	5.8	
3	1822.51	911.29	1.69	85.	109.	31.8	AC-228A
3B		910.95			101.	7.7	
4	2921.27	1460.87	2.11	29.	796.	7.3	K-40
4B		1460.67			769.	1.7	

WHC-SD-WM-TI-540,REV.1

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0014
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 22-JUL-92 AT 14:00:00
BACKGROUND LIVE TIME: 60000. SECONDS

00740940

03-AUG-9216:34:47

SAMPLE: R-1712-6730

DATA COLLECTED ON 3-AUG-92 AT 15:44:23

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

RADIONUCLIDE ANALYSIS REPORT

WHC-SD-WM-TI-540,REV.1

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI				ENERGY COMPARISON	
	MEASURED	ERROR	DECAY CORRECTED	ERROR	(KEV) EXPECT	DIFF
AM-241	LLD<1.45E+00		LLD<1.45E+00		59.54	
AM-243	LLD<4.34E-01		LLD<4.34E-01		74.67	
BA-133	LLD<3.79E-01		LLD<3.79E-01		356.02	
BA-140	LLD<9.90E-01		LLD<9.90E-01		537.27	
CEPR144	LLD<2.36E+00		LLD<2.36E+00		133.51	
CO-60	LLD<1.35E-01		LLD<1.35E-01		1332.50	
CR-51	LLD<2.12E+00		LLD<2.12E+00		320.09	
CS-134	LLD<1.27E-01		LLD<1.27E-01		795.84	
CS-137	2.33E+02	+/-2.20E+00	2.33E+02	+/-2.20E+00	661.65	0.23
EU-152	LLD<6.57E-01		LLD<6.57E-01		1408.01	
EU-154	LLD<3.98E-01		LLD<3.98E-01		1274.45	
EU-155	LLD<6.17E-01		LLD<6.17E-01		105.31	
FE-59	LLD<2.46E-01		LLD<2.46E-01		1099.25	
I-131	LLD<2.92E-01		LLD<2.92E-01		364.48	
K-40	LLD<3.18E+00		LLD<3.18E+00		1460.75	
LA-140	LLD<1.17E-01		LLD<1.17E-01		1596.20	
MN-54	LLD<1.17E-01		LLD<1.17E-01		834.83	
NA-22	LLD<1.50E-01		LLD<1.50E-01		1274.55	
N-95	LLD<1.11E-01		LLD<1.11E-01		765.78	
N-237	LLD<1.48E+00		LLD<1.48E+00		86.50	
PU-239	LLD<1.89E+03		LLD<1.89E+03		129.30	
PU-241	LLD<7.16E+04		LLD<7.16E+04		148.57	
RA-224	LLD<4.68E+00		LLD<4.68E+00		240.99	
RA-226	LLD<4.79E+00		LLD<4.79E+00		186.10	
RU-103	LLD<3.09E-01		LLD<3.09E-01		497.08	
RU103	LLD<3.25E-01		LLD<3.25E-01		497.08	
RURH106	LLD<4.32E+00		LLD<4.32E+00		621.80	
SB-125	LLD<2.02E+00		LLD<2.02E+00		176.33	
SE-75	LLD<3.31E-01		LLD<3.31E-01		264.66	
SN-113	LLD<4.36E-01		LLD<4.36E-01		391.67	
SR-85	LLD<2.83E-01		LLD<2.83E-01		513.99	
TH-228	LLD<1.59E+01		LLD<1.59E+01		84.37	
U-235	LLD<2.65E-01		LLD<2.65E-01		185.71	
Y-88	LLD<1.05E-01		LLD<1.05E-01		1836.06	
ZN-65	LLD<3.15E-01		LLD<3.15E-01		1115.55	
ZR-95	LLD<2.10E-01		LLD<2.10E-01		756.73	
TOTAL	2.33E+02	+/-2.20E+00	2.33E+02	+/-2.20E+00		

EBAR = ***** MEV/DISINTEGRATION

MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI

TOTAL MEASURED ACTIVITY = 2.33E+02 (+/-2.20E+00) UC/LI

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

OR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
56.76	28.79	833.	14.5	5.30E+02

WHC-SD-WM-TI-540,REV.1

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1822.51	911.29	109.	31.8	1.42E+00
2921.27	1460.87	796.	7.3	1.56E+01

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*
* GAMMA SPECTRUM ANALYSIS *
*

CANBERRA SPECTRAN-F V2.06 SOFTWARE

31-JUL-9215:46:47

WHC-SD-WM-TI-540,REV.1

ANALYSIS PARAMETERS

MCA UNIT NUMBER: 1 / ADC UNIT NUMBER: 1.0
DETECTOR NUMBER: 4 / GEOMETRY NUMBER: 41
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

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

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER AND:
ANALYZED BY:

SAMPLE DESCRIPTION: R1712-6830
GEOMETRY DESCRIPTION: 22 ML 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 31-JUL-92 AT 14:56:23

COLLECT LIVE TIME: 3000. SECONDS
REAL TIME: 3011. SECONDS
DEAD TIME: 0.37 %

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

ENERGY CALIBRATION PERFORMED 23-JUL-92
EFFICIENCY CALIBRATION PERFORMED 27-JUL-92

31-JUL-9215:46:47

PEAK ANALYSIS

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	56.53	28.67	0.99	1529.	831.	15.1	SB/TE-X
1B		27.89			107.	9.3	
2	1323.60	661.85	1.78	484.	75779.	0.7	CS-137
2B		661.44			159.	5.8	
3	2921.24	1460.86	2.21	37.	720.	7.8	K-40
3B		1460.67			769.	1.7	
4	3527.92	1764.45	2.59	11.	81.	25.8	BI-214C
4B		1764.58			64.	7.3	

WHC-SD-WM-TI-540, REV.1

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

2
BACKGROUND SUBTRACTION PERFORMED USING FILE BK0014
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 22-JUL-92 AT 14:00:00
BACKGROUND LIVE TIME: 60000. SECONDS

0 3 7 4 0 9 4 2

31-JUL-9215:46:47

SAMPLE: R1712-6830

DATA COLLECTED ON 31-JUL-92 AT 14:56:23

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

RADIONUCLIDE ANALYSIS REPORT

WHC-SD-WM-TI-540,REV.1

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI				ENERGY COMPARISON	
	MEASURED	ERROR	DECAY CORRECTED	ERROR	(KEV) EXPECT	DIFF
AM-241	LLD<1.46E+00		LLD<1.46E+00		59.54	
AM-243	LLD<4.49E-01		LLD<4.49E-01		74.67	
BA-133	LLD<3.81E-01		LLD<3.81E-01		356.02	
BA-140	LLD<1.01E+00		LLD<1.01E+00		537.27	
CEPR144	LLD<2.34E+00		LLD<2.34E+00		133.51	
CO-60	LLD<1.43E-01		LLD<1.43E-01		1332.50	
CR-51	LLD<2.10E+00		LLD<2.10E+00		320.09	
CS-134	LLD<1.31E-01		LLD<1.31E-01		795.84	
CS-137	2.33E+02 +-2.20E+00		2.33E+02 +-2.20E+00		661.65	0.20
EU-152	LLD<7.17E-01		LLD<7.17E-01		1408.01	
EU-154	LLD<4.16E-01		LLD<4.16E-01		1274.45	
EU-155	LLD<6.34E-01		LLD<6.34E-01		105.31	
FE-59	LLD<2.18E-01		LLD<2.18E-01		1099.25	
I-131	LLD<2.91E-01		LLD<2.91E-01		364.48	
K-40	LLD<3.25E+00		LLD<3.25E+00		1460.75	
LA-140	LLD<1.39E-01		LLD<1.39E-01		1596.20	
MN-54	LLD<1.16E-01		LLD<1.16E-01		834.83	
NA-22	LLD<1.52E-01		LLD<1.52E-01		1274.55	
95	LLD<1.22E-01		LLD<1.22E-01		765.78	
N-237	LLD<1.49E+00		LLD<1.49E+00		86.50	
PU-239	LLD<1.90E+03		LLD<1.90E+03		129.30	
PU-241	LLD<7.10E+04		LLD<7.10E+04		148.57	
RA-224	LLD<4.67E+00		LLD<4.67E+00		240.99	
RA-226	LLD<4.71E+00		LLD<4.71E+00		186.10	
RU-103	LLD<3.05E-01		LLD<3.05E-01		497.08	
RU103	LLD<3.21E-01		LLD<3.21E-01		497.08	
RURH106	LLD<4.35E+00		LLD<4.35E+00		621.80	
SB-125	LLD<2.02E+00		LLD<2.02E+00		176.33	
SE-75	LLD<3.29E-01		LLD<3.29E-01		264.66	
SN-113	LLD<4.33E-01		LLD<4.33E-01		391.67	
SR-85	LLD<2.78E-01		LLD<2.78E-01		513.99	
TH-228	LLD<1.60E+01		LLD<1.60E+01		84.37	
U-235	LLD<2.61E-01		LLD<2.61E-01		185.71	
Y-88	LLD<1.05E-01		LLD<1.05E-01		1836.06	
ZN-65	LLD<3.27E-01		LLD<3.27E-01		1115.55	
ZR-95	LLD<2.10E-01		LLD<2.10E-01		756.73	

TOTAL 2.33E+02 +-2.20E+00 2.33E+02 +-2.20E+00

EBAR = ***** MEV/DISINTEGRATION

MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI

TOTAL MEASURED ACTIVITY = 2.33E+02 (+-2.20E+00) UC/LI

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

OR QUOTATION AT 1.96 SIGMA
LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
56.53	28.67	724.	17.4	4.74E+02

WHC-SD-WM-TI-540, REV. 1

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.24	1460.86	720.	7.8	1.41E+01
3527.92	1764.45	81.	25.8	1.81E+00

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

CANBERRA SPECTRAN-F V2.06 SOFTWARE

31-JUL-9216:51:24

WHC-SD-WM-TI-540,REV.1

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

MCA UNIT NUMBER: 1 / ADC UNIT NUMBER: 1.0
DETECTOR NUMBER: 4 / GEOMETRY NUMBER: 41
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

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

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER AND:
ANALYZED BY:

SAMPLE DESCRIPTION: R-1713-6730
GEOMETRY DESCRIPTION: 22 ML 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 31-JUL-92 AT 16:01:03

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

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

ENERGY CALIBRATION PERFORMED 23-JUL-92
EFFICIENCY CALIBRATION PERFORMED 27-JUL-92

BEST AVAILABLE COPY

31-JUL-9216:51:24

PEAK ANALYSIS

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
							WHC-SD-WM-TI-540,REV.1
1	56.99	28.90	0.99	863.	713.	13.6	SB/TE-X
1B		27.89			107.	9.3	
2	704.80	352.57	1.29	1704.	260.	48.2	PB-214A
2B		351.84			131.	8.8	
3	1218.78	609.46	1.20	437.	216.	31.5	BI-214A,
3B		609.18			177.	5.7	RU-103
4	1323.52	661.82	1.56	381.	48741.	0.9	CS-137
4B		661.44			159.	5.8	
5	1822.62	911.35	1.43	93.	114.	32.0	AC-228A
5B		910.95			101.	7.7	
6	2921.32	1460.90	2.27	39.	730.	7.7	K-40
6B		1460.67			769.	1.7	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0014
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 22-JUL-92 AT 14:00:00
BACKGROUND LIVE TIME: 60000. SECONDS

00740

31-JUL-9216:51:24

SAMPLE: R-1713-6730

COLLECTED ON 31-JUL-92 AT 16:01:03

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

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

WHC-SD-WM-TI-540,REV.1

NUCLIDE	ACTIVITY CONCENTRATION IN $\mu\text{Ci/LI}$				ENERGY COMPARISON	
	MEASURED	ERROR	DECAY CORRECTED	ERROR	(KEV) EXPECT	DIFF
AM-241	LLD<1.21E+00		LLD<1.21E+00		59.54	
AM-243	LLD<3.66E-01		LLD<3.66E-01		74.67	
BA-133	LLD<3.28E-01		LLD<3.28E-01		356.02	
BA-140	LLD<8.25E-01		LLD<8.25E-01		537.27	
CEPR144	LLD<1.93E+00		LLD<1.93E+00		133.51	
CO-60	LLD<1.37E-01		LLD<1.37E-01		1332.50	
CR-51	LLD<1.77E+00		LLD<1.77E+00		320.09	
CS-134	LLD<1.27E-01		LLD<1.27E-01		795.84	
CS-137	1.50E+02	+/-1.63E+00	1.50E+02	+/-1.63E+00	661.65	0.17
EU-152	LLD<7.17E-01		LLD<7.17E-01		1408.01	
EU-154	LLD<3.51E-01		LLD<3.51E-01		1274.45	
EU-155	LLD<4.95E-01		LLD<4.95E-01		105.31	
FE-59	LLD<2.63E-01		LLD<2.63E-01		1099.25	
I-131	LLD<2.41E-01		LLD<2.41E-01		364.48	
K-40	LLD<3.22E+00		LLD<3.22E+00		1460.75	
LA-140	LLD<1.50E-01		LLD<1.50E-01		1596.20	
MN-54	LLD<1.06E-01		LLD<1.06E-01		834.83	
NA-22	LLD<1.28E-01		LLD<1.28E-01		1274.55	
95	LLD<1.07E-01		LLD<1.07E-01		765.78	
Nr-237	LLD<1.21E+00		LLD<1.21E+00		86.50	
PU-239	LLD<1.57E+03		LLD<1.57E+03		129.30	
PU-241	LLD<5.85E+04		LLD<5.85E+04		148.57	
RA-224	LLD<3.98E+00		LLD<3.98E+00		240.99	
RA-226	LLD<3.96E+00		LLD<3.96E+00		186.10	
RU-103	LLD<2.51E-01		LLD<2.51E-01		497.08	
RU103	LLD<2.65E-01		LLD<2.65E-01		497.08	
RORH106	LLD<3.73E+00		LLD<3.73E+00		621.80	
SB-125	LLD<1.69E+00		LLD<1.69E+00		176.33	
SE-75	LLD<2.68E-01		LLD<2.68E-01		264.66	
SN-113	LLD<3.56E-01		LLD<3.56E-01		391.67	
SR-85	LLD<2.35E-01		LLD<2.35E-01		513.99	
TH-228	LLD<1.31E+01		LLD<1.31E+01		84.37	
U-235	LLD<2.19E-01		LLD<2.19E-01		185.71	
Y-88	LLD<9.45E-02		LLD<9.45E-02		1836.06	
ZN-65	LLD<2.89E-01		LLD<2.89E-01		1115.55	
ZR-95	LLD<1.85E-01		LLD<1.85E-01		756.73	

TOTAL 1.50E+02 +/-1.63E+00 1.50E+02 +/-1.63E+00

EBAR = ***** MEV/DISINTEGRATION

MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI

TOTAL MEASURED ACTIVITY = 1.50E+02 (+/-1.63E+00) UC/LI

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

OR QUOTATION AT 1.96 SIGMA

LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
56.99	28.90	606.	16.1	3.75E+02
704.80	352.57	129.	97.6	7.27E-01

WHC-SD-WM-TI-540,REV.1

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
1218.78	609.46	216.	31.5	1.94E+00
1822.62	911.35	114.	32.0	1.48E+00
2921.32	1460.90	730.	7.7	1.43E+01

00740942211

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
R1710-6581
File ID: SD2023.SPC

002790

WHC-SD-WM-TI-540, REV.1

Counted on: 7/21/92 @22: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	2804.1	2849.0	363.166	363.166	24.000	16.218	12.000	8.059
2	150.6	154.7	305.343	305.343	24.000	17.318	12.000	4.923
3	1927.0	1921.7	231.765	231.765	24.000	15.257	12.000	8.348

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid			FWHM	Count Rate c/m	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Pu236	0.5841	5.756	5.774	-0.018	0.08	58.80	306.77	0.138E-03
	Cm243		5.786	5.774	0.012				0.186E-03
2	Pu238	0.0386	5.499	5.502	-0.003	0.08	3.89	27.59	0.124E-04
	Am241		5.480	5.502	-0.022				0.952E-05
3	Pu239	0.3773	5.143	5.156	-0.013	0.07	37.99	194.21	0.875E-04
	Pu240		5.144	5.156	-0.012				0.875E-04

DETECTOR CALIBRATION

Energy(MEV) = 4.067 + (0.0047)*Channel
Energy range (MeV): 4.067 TO 6.473
Efficiency = 0.1956 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	50452.0	100.000
Smoothed	50451.3	99.999
Composite fit	50339.0	99.776
Residuals	112.3	0.223

Analyzed by: _____

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

WHC-SD-WM-TI-540, REV. 1

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6
4
4
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4.....3..
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0.2
2.2
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Raw Data Dump for AEA Spectrum: SP:SD2023.SPC

1	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
11	1.	3.	0.	0.	1.	1.	2.	0.	0.	0.
21	1.	1.	0.	0.	0.	1.	2.	1.	1.	1.
31	3.	0.	1.	0.	1.	1.	1.	1.	1.	1.
41	1.	2.	2.	0.	0.	1.	1.	0.	3.	1.
51	4.	1.	1.	0.	0.	1.	0.	0.	2.	0.
61	1.	0.	3.	2.	1.	1.	0.	1.	0.	2.
71	0.	0.	5.	0.	2.	1.	0.	2.	0.	1.
81	1.	1.	0.	0.	2.	2.	2.	1.	2.	1.
91	1.	0.	1.	0.	1.	2.	1.	0.	1.	1.
101	2.	1.	3.	1.	2.	3.	1.	0.	0.	0.
111	0.	1.	0.	2.	1.	2.	1.	2.	0.	2.
121	0.	0.	1.	1.	0.	2.	4.	2.	2.	1.
131	0.	0.	1.	0.	1.	2.	2.	1.	1.	1.
141	1.	3.	0.	0.	1.	3.	1.	2.	2.	3.
151	0.	2.	5.	4.	1.	2.	0.	3.	3.	2.
161	4.	3.	4.	4.	5.	2.	4.	9.	5.	5.
171	4.	1.	7.	4.	10.	11.	5.	11.	8.	9.
181	3.	7.	5.	11.	4.	9.	5.	10.	11.	11.
191	9.	3.	10.	9.	16.	5.	16.	11.	11.	13.
201	19.	12.	24.	23.	25.	35.	41.	47.	61.	78.
211	88.	100.	128.	140.	178.	240.	248.	319.	391.	447.
221	538.	564.	629.	729.	824.	912.	981.	1042.	1096.	1031.
231	1093.	1043.	989.	896.	811.	661.	551.	487.	366.	270.
241	221.	132.	113.	86.	42.	31.	9.	19.	10.	4.
251	8.	6.	5.	8.	10.	13.	7.	11.	14.	14.
261	9.	10.	6.	5.	12.	10.	13.	11.	9.	11.
271	16.	4.	9.	7.	7.	11.	7.	10.	7.	7.
281	18.	13.	17.	25.	18.	13.	32.	24.	32.	31.
291	46.	34.	32.	53.	59.	52.	71.	67.	73.	78.
301	79.	83.	71.	87.	79.	81.	80.	67.	74.	53.
311	46.	47.	43.	36.	19.	12.	25.	21.	6.	11.
321	6.	11.	11.	15.	21.	10.	16.	13.	19.	24.
331	27.	29.	31.	33.	34.	48.	49.	47.	64.	103.
341	95.	153.	169.	177.	252.	315.	373.	460.	514.	593.
351	694.	785.	909.	1005.	1115.	1202.	1327.	1390.	1480.	1538.
361	1511.	1551.	1515.	1483.	1388.	1228.	1186.	919.	839.	634.
371	506.	376.	260.	174.	122.	61.	50.	40.	18.	5.
381	5.	3.	0.	3.	0.	1.	0.	0.	1.	1.
391	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
401	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.
431	0.	1.	0.	1.	0.	0.	2.	0.	0.	0.
441	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	1.	0.	1.	0.	0.	1.
461	0.	0.	1.	4.	1.	2.	1.	0.	0.	1.
471	0.	0.	2.	1.	0.	2.	1.	0.	1.	1.
481	2.	0.	1.	0.	1.	1.	1.	0.	2.	0.
491	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
501	0.	0.								

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

WHC-SD-WM-TI-540, REV. 1

SAMPLE
R1711-6681
File ID: SD3660.SPC

Counted on: 7/21/92 @22: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	4.5	3.9	478.959	478.959	20.000	12.131	10.000	9.514
2	2259.6	2278.4	364.454	364.454	24.000	15.972	12.000	8.916
3	101.6	101.9	305.776	305.776	24.000	15.108	12.000	4.235
4	11.0	7.7	229.994	229.994	28.000	104.460	14.000	24.689

PEAK RESULTS

Peak ID	Isotope	AEA		Peak Centroid			Count		Activity	
		Fract.	Exp.	Obs.	Diff.	FWHM	Rate c/m	d/m	uCi/ea	
1		0.0014		6.319		0.06	0.07	0.33	0.148E-06	
2	Pu236	0.9397	5.756	5.769	-0.013	0.08	45.75	231.78	0.104E-03	
	Cm243		5.786	5.769	0.017				0.140E-03	
3	Pu238	0.0509	5.499	5.488	0.011	0.07	2.48	17.10	0.770E-05	
	Am241		5.480	5.488	-0.008				0.590E-05	
4	Pu239	0.0080	5.143	5.124	0.019	0.50	0.39	1.94	0.873E-06	
	Pu240		5.144	5.124	0.020				0.873E-06	

DETECTOR CALIBRATION

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

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	24234.0	100.000
Smoothed	24233.7	99.999
Composite fit	24340.8	100.441
Residuals	-107.1	-0.442

Analyzed by: _____

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

8669.1

WHC-SD-WM-TI-540,REV.1

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1

WHC-SD-WM-TI-540,REV.1

Raw Data Dump for AEA Spectrum: SP:SD3660.SPC

1	0.	0.	0.	0.	0.	0.	1.	0.	2.	0.
11	2.	0.	0.	0.	2.	0.	1.	0.	0.	0.
21	1.	1.	1.	0.	1.	0.	1.	0.	0.	1.
31	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
41	0.	2.	0.	0.	0.	1.	1.	2.	0.	1.
51	0.	1.	0.	1.	1.	1.	0.	1.	0.	0.
61	1.	1.	1.	0.	0.	0.	1.	0.	0.	1.
71	0.	1.	0.	1.	0.	1.	1.	0.	0.	3.
81	1.	1.	0.	1.	0.	0.	1.	0.	0.	0.
91	0.	0.	2.	0.	1.	2.	0.	0.	0.	0.
101	0.	0.	1.	0.	0.	0.	1.	0.	1.	0.
111	0.	0.	0.	0.	1.	1.	0.	0.	0.	2.
121	0.	0.	0.	1.	0.	1.	0.	0.	0.	2.
131	1.	0.	0.	0.	0.	0.	0.	2.	1.	0.
141	1.	1.	0.	1.	0.	0.	0.	4.	0.	0.
151	0.	0.	3.	0.	0.	3.	0.	1.	1.	0.
161	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
171	1.	0.	1.	0.	1.	1.	0.	1.	0.	0.
181	1.	0.	2.	1.	0.	1.	0.	0.	1.	0.
191	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.
201	2.	0.	0.	0.	0.	0.	0.	2.	0.	0.
211	3.	1.	0.	2.	2.	5.	2.	4.	1.	3.
221	1.	7.	7.	7.	2.	5.	4.	5.	9.	7.
231	8.	2.	4.	3.	2.	5.	3.	6.	0.	4.
241	3.	3.	3.	2.	0.	3.	1.	4.	4.	5.
251	7.	2.	10.	2.	5.	7.	6.	12.	7.	1.
261	5.	5.	7.	7.	4.	12.	3.	6.	6.	7.
271	6.	4.	9.	8.	4.	4.	4.	7.	7.	7.
281	9.	7.	10.	18.	15.	13.	5.	16.	19.	20.
291	20.	28.	33.	29.	31.	40.	40.	47.	39.	37.
301	53.	49.	58.	59.	53.	58.	56.	45.	35.	45.
311	28.	29.	23.	13.	6.	19.	4.	8.	8.	5.
321	6.	4.	6.	6.	6.	1.	5.	6.	6.	6.
331	9.	7.	12.	14.	6.	15.	27.	22.	36.	47.
341	50.	51.	90.	92.	129.	149.	230.	237.	291.	364.
351	412.	540.	582.	693.	781.	819.	935.	1011.	1072.	1173.
361	1321.	1175.	1267.	1225.	1227.	1124.	1032.	912.	801.	658.
371	572.	428.	294.	209.	165.	88.	85.	47.	23.	22.
381	6.	3.	3.	3.	1.	0.	0.	1.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
431	0.	2.	0.	0.	0.	0.	0.	1.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	1.	0.	0.	1.	0.	0.	2.	1.
471	0.	1.	1.	1.	1.	5.	2.	5.	2.	2.
481	0.	2.	1.	1.	0.	1.	0.	1.	1.	0.
491	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

WHC-SD-WM-TI-540.REV.1

SAMPLE
R1712-6781
File ID: SD4737.SPC

Counted on: 7/21/92 @22: 0
Detector/Geometry number: 4/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1930.3	1865.8	359.636	359.636	16.000	6.040	8.000	3.497
2	201.2	196.4	303.199	303.199	16.000	6.071	8.000	3.032
3	55.1	14.4	269.266	269.266	12.000	0.994	6.000	3.264
4	2719.0	2653.7	231.461	231.461	16.000	6.236	8.000	5.301
5	21.2	21.5	159.543	159.543	20.000	9.504	10.000	3.788

PEAK RESULTS

Peak ID	Isotope	AEA		Peak Centroid			Count		Activity uCi/ea
		Fract.	Exp.	Obs.	Diff.	FWHM	Rate c/m	d/m	
1	Cm244	0.4113	5.796	5.786	0.010	0.03	25.79	196.61	0.886E-04
	Cm243			5.786	5.786	0.000			0.121E-03
2	Pu238	0.0458	5.499	5.515	-0.016	0.03	2.87	30.42	0.137E-04
	Am241			5.480	5.515	-0.035			0.105E-04
3		0.0011		5.352		0.00	0.07	0.53	0.238E-06
4	Pu239	0.5354	5.143	5.171	-0.028	0.03	33.58	255.92	0.115E-03
	Pu240			5.144	5.171	-0.027			0.115E-03
5		0.0063		4.825		0.05	0.39	3.01	0.135E-05

DETECTOR CALIBRATION

Energy(MEV) = 4.060 + (0.0048)*Channel
Energy range (MeV): 4.060 TO 6.517
Efficiency = 0.1312 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	31798.0	100.000
Smoothed	31797.5	99.999
Composite fit	31354.1	98.604
Residuals	443.4	1.394

Analyzed by: _____

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

WHC-SD-WM-TI-540, REV. 1

517

Raw Data Dump for AEA Spectrum: SP:SD4737.SPC

1	0.	0.	0.	0.	0.	0.	1.	2.	0.	0.
11	0.	1.	0.	0.	0.	0.	1.	0.	1.	0.
21	0.	0.	0.	0.	2.	1.	3.	3.	3.	0.
31	0.	2.	1.	0.	0.	0.	0.	0.	1.	1.
41	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
51	2.	0.	0.	0.	0.	0.	0.	0.	2.	1.
61	0.	1.	0.	1.	0.	0.	0.	0.	1.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	1.	0.	0.	0.	0.	0.	2.	0.	0.
91	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
101	0.	0.	0.	1.	1.	0.	1.	0.	0.	1.
111	0.	0.	0.	0.	0.	0.	0.	0.	2.	1.
121	0.	0.	0.	0.	1.	0.	2.	3.	2.	0.
131	0.	1.	0.	3.	1.	1.	1.	0.	3.	1.
141	1.	2.	2.	2.	3.	2.	5.	5.	4.	4.
151	10.	10.	7.	13.	8.	7.	17.	13.	7.	10.
161	16.	12.	7.	6.	1.	1.	0.	1.	1.	0.
171	0.	0.	1.	1.	1.	1.	0.	1.	1.	0.
181	1.	2.	2.	1.	0.	2.	1.	4.	0.	3.
191	2.	1.	3.	3.	0.	0.	0.	0.	1.	0.
201	1.	2.	2.	5.	7.	5.	6.	4.	8.	17.
211	15.	24.	29.	38.	67.	91.	131.	182.	223.	298.
221	302.	370.	415.	488.	664.	887.	1143.	1402.	1749.	1926.
231	1937.	1651.	1323.	811.	469.	234.	110.	55.	16.	4.
241	0.	1.	1.	1.	0.	1.	1.	1.	0.	1.
251	3.	4.	2.	5.	4.	5.	0.	3.	2.	3.
261	4.	3.	2.	5.	2.	6.	6.	7.	5.	9.
271	2.	3.	4.	3.	1.	0.	2.	1.	5.	3.
281	5.	11.	10.	10.	15.	19.	21.	21.	17.	26.
291	24.	36.	47.	39.	57.	59.	57.	53.	82.	92.
301	123.	150.	124.	142.	96.	53.	27.	7.	1.	1.
311	0.	1.	0.	1.	0.	1.	1.	1.	0.	0.
321	1.	1.	0.	3.	0.	4.	5.	3.	3.	8.
331	6.	1.	5.	5.	7.	7.	2.	14.	9.	12.
341	21.	39.	54.	88.	145.	212.	329.	401.	438.	494.
351	471.	428.	435.	455.	616.	839.	1090.	1315.	1446.	1281.
361	1025.	651.	304.	121.	47.	9.	3.	2.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
421	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
431	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
461	0.	1.	1.	0.	0.	1.	0.	1.	1.	2.
471	0.	1.	2.	1.	0.	2.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.								

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

WHC-SD-WM-TI-540 REV.1

SAMPLE
R1712-6881
File ID: SD5681.SPC

Counted on: 7/21/92 @22: 0
Detector/Geometry number: 5/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	5.6	5.2	477.426	477.426	16.000	6.598	8.000	4.677
2	2833.3	2867.4	363.151	363.151	20.000	10.490	10.000	5.062
3	237.1	241.5	305.241	305.241	20.000	10.599	10.000	3.444
4	73.6	23.9	270.271	270.271	12.000	0.640	6.000	4.394
5	2691.4	2687.8	231.962	231.962	20.000	10.411	10.000	6.189
6	95.6	92.5	159.499	159.499	20.000	14.414	10.000	5.815
7	5.0	3.7	22.733	22.733	28.000	33.191	14.000	13.529

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid		FWHM	Count		Activity uCi/ea
		Exp.	Obs.	Diff.		Rate c/m	d/m	
1		0.0007	6.309		0.03	0.07	0.30	0.135E-06
2	Pu236	0.4934	5.756	5.772	-0.016	0.05	50.68	0.995E-04
	Cm243		5.786	5.772	0.014			0.134E-03
3	Pu238	0.0486	5.499	5.500	-0.001	0.05	4.99	0.133E-04
	Am241		5.480	5.500	-0.020			0.102E-04
4		0.0009	5.336		0.00	0.09	0.39	0.176E-06
5	Pu239	0.4367	5.143	5.156	-0.013	0.05	44.85	0.863E-04
	Pu240		5.144	5.156	-0.012			0.863E-04
6	Np237	0.0188	4.781	4.815	-0.034	0.07	1.93	0.427E-05
7	U 238	0.0009	4.200	4.172	0.028	0.16	0.10	0.242E-06

DETECTOR CALIBRATION

Energy(MEV) = 4.065 + (0.0047)*Channel
Energy range (MeV): 4.065 TO 6.472
Efficiency = 0.2340 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	51328.0	100.000
Smoothed	51328.0	100.000
Composite fit	51351.6	100.046
Residuals	-23.6	-0.046

Analyzed by: _____

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

10252.0

WHC-SD-WM-TI-540, REV. 1

WMC-SD-WM-TI-540, REV. 1

[illegible]

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

WHC-SD-WM-TI-540, REV. 1

SAMPLE

R1713-6781

File ID: SD6656.SPC

Counted on: 7/21/92 @22: 0
 Detector/Geometry number: 6/ 1
 Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	2741.2	2808.6	364.703	364.703	24.000	12.060	12.000	5.384
2	172.0	178.1	307.014	307.014	20.000	11.424	10.000	3.153
3	1043.3	1058.2	232.631	232.631	24.000	11.754	12.000	5.775
4	21.1	21.2	161.464	161.464	24.000	19.358	12.000	4.721

PEAK RESULTS

Peak ID	Isotope	AEA		Peak Centroid			Count		Activity
		Fract.	Exp.	Obs.	Diff.	FWHM	Rate c/m	d/m	
1	Pu236	0.6896	5.756	5.748	0.008	0.06	53.36	281.10	0.127E-03
2	Pu238	0.0525	5.499	5.483	0.016	0.05	4.06	29.12	0.131E-04
3	Am241		5.480	5.483	-0.003				0.100E-04
3	Pu239	0.2504	5.143	5.140	0.003	0.05	19.37	100.01	0.451E-04
3	Pu240		5.144	5.140	0.004				0.451E-04
4	Np237	0.0076	4.781	4.813	-0.032	0.09	0.59	3.48	0.157E-05

DETECTOR CALIBRATION

Energy(MEV) = 4.070 + (0.0046)*Channel
 Energy range (MeV): 4.070 TO 6.426
 Efficiency = 0.1937 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	38485.0	100.000
Smoothed	38485.0	100.000
Composite fit	38689.9	100.532
Residuals	-204.9	-0.532

Analyzed by: _____

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

10465.7

WHC-SD-WM-TI-540,REV.1

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Raw Data Dump for AEA Spectrum: SP:SD6656.SPC

WHC-SD-WM-TI-540, REV.1

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	1.	1.	0.	2.	1.
21	1.	1.	0.	1.	0.	1.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
41	1.	0.	1.	1.	0.	0.	0.	1.	0.	0.
51	0.	0.	0.	1.	0.	0.	0.	1.	0.	2.
61	0.	1.	0.	0.	0.	0.	1.	0.	0.	1.
71	1.	0.	0.	1.	0.	0.	0.	1.	1.	0.
81	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
91	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
101	1.	1.	1.	0.	0.	0.	1.	1.	0.	1.
111	1.	1.	1.	2.	1.	2.	1.	2.	0.	0.
121	0.	1.	0.	1.	1.	1.	1.	1.	1.	2.
131	0.	0.	3.	1.	3.	4.	0.	1.	2.	5.
141	1.	4.	3.	5.	7.	7.	6.	9.	5.	5.
151	11.	14.	11.	8.	5.	8.	11.	10.	12.	18.
161	9.	4.	15.	11.	11.	9.	3.	4.	1.	2.
171	2.	4.	2.	2.	3.	2.	3.	4.	1.	4.
181	3.	1.	2.	5.	1.	1.	3.	3.	4.	4.
191	6.	4.	2.	9.	14.	6.	12.	12.	3.	10.
201	9.	15.	11.	14.	18.	16.	24.	27.	24.	38.
211	44.	44.	63.	62.	78.	81.	117.	154.	174.	196.
221	235.	256.	321.	337.	365.	413.	483.	563.	540.	577.
231	621.	567.	600.	556.	491.	376.	337.	233.	194.	111.
241	79.	29.	28.	13.	17.	14.	8.	3.	6.	3.
251	1.	7.	6.	12.	7.	2.	7.	7.	11.	15.
261	7.	11.	10.	16.	11.	6.	8.	9.	13.	12.
271	11.	8.	6.	14.	7.	8.	9.	6.	4.	14.
281	5.	6.	13.	17.	20.	21.	26.	21.	37.	34.
291	44.	34.	41.	60.	45.	63.	54.	74.	58.	80.
301	100.	78.	79.	81.	94.	98.	102.	90.	101.	70.
311	66.	43.	47.	32.	21.	16.	14.	8.	11.	9.
321	11.	7.	11.	14.	11.	8.	11.	17.	15.	14.
331	21.	22.	24.	31.	27.	39.	48.	40.	58.	51.
341	80.	97.	100.	148.	173.	179.	239.	310.	351.	437.
351	495.	610.	734.	820.	820.	990.	1126.	1180.	1203.	1319.
361	1405.	1465.	1561.	1631.	1526.	1425.	1331.	1067.	901.	691.
371	504.	318.	214.	111.	86.	38.	21.	17.	7.	4.
381	5.	4.	1.	1.	2.	1.	0.	0.	1.	3.
391	1.	1.	1.	3.	0.	2.	1.	0.	1.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	3.	0.	1.	0.	2.
431	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	1.	1.	0.	0.	0.	0.	1.	0.	0.	1.
461	0.	0.	1.	1.	0.	1.	0.	0.	3.	1.
471	2.	0.	1.	3.	0.	2.	2.	4.	1.	0.
481	2.	2.	0.	2.	0.	0.	0.	1.	0.	0.
491	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.
	0.	0.								

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

WHC-SD-WM-TI-540, REV. 1

DATA REDUCTION REPORT

SAMPLE
R1713-6881
File ID: SD7290.SPC

Counted on: 7/21/92 @22: 0
Detector/Geometry number: 7/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1258.9	1259.8	362.718	362.718	28.000	24.107	14.000	12.591
2	85.4	85.9	303.048	303.048	32.000	23.648	16.000	7.026
3	564.4	563.7	230.885	230.885	28.000	23.012	14.000	15.047
4	10.4	9.4	158.594	158.594	36.000	41.587	18.000	11.393

PEAK RESULTS

Peak ID	Isotope	AEA		Peak Centroid			Count Rate c/m	d/m	Activity uCi/ea
		Fract.	Exp.	Obs.	Diff.	FWHM			
1	Cm244	0.6593	5.796	5.781	0.015	0.11	30.47	191.55	0.863E-04
	Cm243		5.786	5.781	0.005				0.118E-03
2	Pu238	0.0506	5.499	5.500	-0.001	0.11	2.34	20.41	0.919E-05
	Am241		5.480	5.500	-0.020				0.704E-05
3	Pu239	0.2832	5.143	5.161	-0.018	0.11	13.09	82.27	0.371E-04
	Pu240		5.144	5.161	-0.017				0.371E-04
4	Np237	0.0069	4.781	4.821	-0.040	0.20	0.32	2.32	0.104E-05

DETECTOR CALIBRATION

Energy(MEV) = 4.076 + (0.0047)*Channel
Energy range (MeV): 4.076 TO 6.482
Efficiency = 0.1591 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23083.0	100.000
Smoothed	23083.0	100.000
Composite fit	23111.3	100.122
Residuals	-28.3	-0.123

Analyzed by: _____

1"LEGEND: SPECTRUM SD7290.SPC
RAW = MODELED PEAKS = 1,2,..., ETC

WHC-SD-WM-TI-540, REV. 1

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Raw Data Dump for AEA Spectrum: SP:SD7290.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
21	1.	1.	3.	0.	0.	0.	1.	2.	0.	0.
31	0.	0.	1.	1.	2.	1.	0.	1.	0.	0.
41	2.	0.	0.	1.	0.	1.	0.	0.	0.	0.
51	1.	0.	0.	1.	0.	0.	0.	1.	2.	1.
61	0.	0.	0.	2.	0.	1.	0.	0.	0.	0.
71	0.	0.	0.	0.	2.	1.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
91	0.	1.	0.	0.	1.	0.	0.	1.	0.	0.
101	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
111	0.	0.	0.	0.	0.	1.	2.	1.	1.	0.
121	1.	2.	1.	0.	0.	1.	0.	3.	0.	0.
131	1.	0.	0.	2.	2.	1.	2.	3.	2.	0.
141	1.	2.	3.	2.	2.	5.	0.	0.	5.	8.
151	4.	3.	5.	6.	4.	5.	8.	7.	4.	3.
161	4.	7.	3.	5.	1.	5.	4.	2.	2.	4.
171	3.	2.	3.	1.	1.	3.	0.	1.	0.	2.
181	1.	1.	0.	1.	1.	2.	2.	1.	2.	0.
191	0.	1.	2.	1.	2.	4.	2.	6.	3.	6.
201	12.	6.	10.	4.	14.	14.	14.	20.	32.	31.
211	37.	55.	66.	78.	93.	106.	118.	138.	166.	172.
221	192.	228.	233.	278.	267.	308.	278.	294.	350.	290.
231	305.	262.	282.	245.	225.	214.	212.	170.	125.	124.
241	100.	70.	72.	44.	52.	40.	21.	16.	10.	11.
251	8.	8.	4.	8.	1.	3.	7.	2.	5.	1.
261	5.	8.	4.	3.	3.	7.	7.	3.	1.	3.
271	5.	8.	7.	7.	5.	7.	4.	8.	8.	12.
281	6.	12.	13.	11.	10.	26.	19.	21.	16.	22.
291	34.	26.	40.	29.	42.	28.	36.	39.	50.	50.
301	45.	49.	47.	44.	38.	34.	36.	38.	27.	30.
311	25.	27.	30.	13.	17.	8.	10.	8.	4.	6.
321	8.	1.	3.	5.	6.	4.	7.	10.	9.	6.
331	6.	9.	16.	21.	31.	21.	39.	48.	64.	78.
341	71.	113.	142.	148.	176.	193.	228.	287.	345.	365.
351	401.	445.	541.	526.	563.	567.	599.	652.	641.	643.
361	700.	664.	708.	645.	584.	567.	479.	458.	399.	324.
371	311.	238.	223.	178.	143.	109.	79.	74.	41.	39.
381	35.	16.	13.	12.	7.	2.	2.	1.	0.	1.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
411	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
421	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
431	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	1.	0.	0.	0.	1.	1.	1.	0.
471	1.	0.	0.	0.	3.	0.	1.	0.	1.	3.
481	2.	0.	0.	2.	0.	1.	1.	0.	1.	1.
491	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
511	0.	0.								

Mark A. Hoffstedt
8-25-92

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

WHC-SD-WM-TI-540, REV. 1

SAMPLE
R1710-6582
File ID: SD4739.SPC

Counted on: 7/23/92 @14: 0
Detector/Geometry number: 4/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	2280.7	2167.3	300.633	300.633	20.000	9.164	10.000	3.686
2	2094.3	1980.4	256.218	256.218	16.000	7.803	8.000	3.199

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Pu238	0.5361	5.499	5.502	-0.003	0.04	39.14	364.58	0.164E-03
	Am241		5.480	5.502	-0.022				0.126E-03
		0.4639		5.288		0.04	33.86	227.12	0.102E-03

DETECTOR CALIBRATION

Energy(MEV) = 4.058 + (0.0048)*Channel
Energy range (MeV): 4.058 TO 6.516
Efficiency = 0.1491 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	37610.0	100.000
Smoothed	37610.0	100.000
Composite fit	36500.8	97.051
Residuals	1109.2	2.949

Analyzed by: _____

SPECTRUM SD4739.SPC
1 LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

WHC-SD-WM-TI-540, REV. 1

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:2:.....2.
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:0:.....2.
:0:.....2
:2:.....
:3:.....1..
:0:.....1
:0:.....1
:0:.....1
:1:.....

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Raw Data Dump for AEA Spectrum: SP:SD4739.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
21	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
41	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
51	0.	0.	0.	1.	0.	0.	1.	0.	1.	0.
61	0.	1.	1.	3.	0.	0.	0.	0.	1.	0.
71	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
81	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
101	0.	0.	0.	0.	3.	0.	0.	0.	0.	0.
111	0.	0.	0.	2.	0.	0.	0.	1.	0.	0.
121	0.	0.	0.	0.	0.	1.	1.	0.	0.	1.
131	1.	0.	0.	0.	1.	0.	1.	1.	1.	3.
141	0.	1.	1.	1.	1.	1.	0.	1.	0.	1.
151	1.	1.	2.	0.	3.	1.	2.	0.	1.	1.
161	1.	0.	1.	1.	2.	0.	0.	1.	0.	1.
171	2.	2.	3.	0.	1.	0.	3.	3.	1.	0.
181	2.	3.	0.	4.	1.	0.	2.	1.	1.	1.
191	2.	4.	2.	3.	2.	5.	3.	5.	1.	5.
201	2.	3.	3.	4.	8.	6.	9.	4.	11.	9.
211	11.	8.	11.	17.	17.	22.	19.	26.	19.	23.
221	26.	30.	37.	50.	63.	60.	65.	80.	78.	99.
231	96.	109.	143.	133.	150.	159.	209.	204.	244.	223.
241	239.	262.	313.	391.	413.	455.	504.	564.	563.	626.
251	699.	836.	1054.	1348.	1396.	1447.	1262.	952.	619.	383.
261	211.	138.	98.	86.	97.	108.	107.	95.	106.	110.
271	105.	91.	92.	86.	100.	118.	132.	154.	177.	197.
281	190.	230.	248.	244.	272.	313.	346.	368.	462.	506.
291	584.	593.	611.	702.	712.	888.	1103.	1315.	1444.	1627.
301	1414.	1208.	774.	537.	403.	266.	202.	163.	156.	113.
311	82.	57.	38.	25.	13.	7.	2.	2.	0.	0.
321	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.
341	1.	2.	2.	2.	0.	2.	0.	0.	1.	1.
351	0.	0.	1.	2.	1.	3.	2.	1.	3.	1.
361	2.	0.	1.	0.	0.	1.	1.	0.	1.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	0.	1.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.								

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

WHC-SD-WM-TI-540, REV. 1

DATA REDUCTION REPORT

SAMPLE

R1711-6682

File ID: SD6658.SPC

Counted on: 7/23/92 @14: 0
 Detector/Geometry number: 6/ 1
 Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	6.1	5.5	352.568	352.568	40.000	36.254	20.000	17.791
2	68.9	28.6	298.637	298.637	12.000	0.242	6.000	17.791
3	2018.5	2030.1	255.953	255.953	24.000	15.674	12.000	3.384
4	5.1	3.7	75.029	75.029	248.000	2.000	124.000	0.200

PEAK RESULTS

Peak ID	Isotope	AEA		Peak Centroid			Count		Activity	
		Fract.	Exp.	Obs.	Diff.	FWHM	Rate c/m	d/m	uCi/ea	
1	Ra224	0.0028	5.680	5.698	-0.018	0.17	0.16	0.89	0.399E-06	
2	Th228	0.0012	5.430	5.450	-0.020	0.00	0.07	0.48	0.218E-06	
3	Am243	0.9938	5.234	5.254	-0.020	0.07	56.78	2663.48	0.120E-02	
4	U 235	0.0023	4.396	4.421	-0.025	0.01	0.13	1.17	0.526E-06	

DETECTOR CALIBRATION

Energy(MEV) = 4.076 + (0.0046)*Channel
 Energy range (MeV): 4.076 TO 6.432
 Efficiency = 0.1938 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29659.0	100.000
Smoothed	29659.0	100.000
Composite fit	28568.3	96.323
Residuals	1090.6	3.677

Analyzed by: _____

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

WHC-SD-WM-TI-540, REV. 1

The diagram shows a horizontal line with several points marked by dots. Above the line, there are several '3's and '0's. Below the line, there are several '3's and '0's. The diagram illustrates a sequence of points and their corresponding values.

111

.532

SP:SD6658.SPC

AEA Spectrum:

Raw Data Dump for

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5.	0.
0.	1.
1.	1.
1.	1.
3.	3.
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2.	2.
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5.	5.
6.	6.
0.	0.
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9.	9.
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1.	1.
5.	5.
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2.	1.
1.	0.
3.	1.
4.	3.
5.	4.
1.	5.
1.	1.
2.	2.
7.	3.
3.	6.
9.	3.
1.	1.
9.	1.
1.	9.
3.	1.
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6.	0.
4.	6.
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GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

WHC-SQ-WM-TI-540,REV.1

SAMPLE

R1712-6782

File ID: SD5683.SPC

Counted on: 7/23/92 @14: 0
Detector/Geometry number: 5/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	6.9	6.0	369.449	369.449	28.000	21.907	14.000	2.903
2	572.1	566.7	302.622	302.622	24.000	15.832	12.000	5.580
3	678.5	680.8	257.131	257.131	20.000	13.637	10.000	4.759

PEAK RESULTS

Peak ID	Isotope	AEA		Peak Centroid		Count		d/m	Activity uCi/ea
		Fract.	Exp.	Obs.	Diff.	FWHM	Rate c/m		
1	Cm243	0.0087	5.786	5.808	-0.022	0.10	0.24	1.43	0.646E-06
	Cm244		5.796	5.808	-0.012				0.472E-06
	Pu238	0.4610	5.499	5.494	0.005	0.07	12.75	76.72	0.346E-04
	Am241		5.480	5.494	-0.014				0.265E-04
		0.5302		5.280		0.06	14.66	63.53	0.286E-04

DETECTOR CALIBRATION

Energy(MEV) = 4.071 + (0.0047)*Channel

Energy range (MeV): 4.071 TO 6.478

Efficiency = 0.2308 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	14087.0	100.000
Smoothed	14087.0	100.000
Composite fit	13827.1	98.155
Residuals	259.9	1.845

Analyzed by: _____

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

WHC-SD-WM-TI-540, REV. 1

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Raw Data Dump for AEA Spectrum: SP:SD5683.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	1.	0.	1.
21	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	1.	0.	1.	0.	1.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	1.	1.	0.	0.	1.	1.	1.	0.	0.
61	0.	0.	2.	0.	1.	1.	1.	0.	0.	0.
71	0.	0.	0.	1.	0.	1.	1.	1.	1.	1.
81	1.	2.	3.	0.	1.	1.	1.	1.	0.	1.
91	0.	1.	1.	0.	0.	0.	1.	0.	3.	0.
101	0.	0.	0.	0.	1.	0.	2.	0.	0.	0.
111	1.	0.	1.	0.	0.	1.	1.	0.	1.	1.
121	1.	0.	1.	1.	0.	0.	2.	1.	0.	1.
131	1.	2.	1.	0.	0.	2.	2.	0.	1.	4.
141	1.	0.	0.	0.	1.	1.	1.	1.	3.	1.
151	0.	0.	1.	0.	0.	0.	2.	0.	1.	0.
161	4.	0.	2.	1.	0.	1.	2.	2.	2.	1.
171	3.	2.	0.	2.	3.	5.	3.	2.	2.	2.
181	4.	4.	1.	0.	0.	4.	6.	3.	3.	6.
191	0.	1.	7.	1.	3.	5.	4.	5.	5.	7.
201	3.	6.	7.	7.	7.	5.	9.	10.	9.	5.
211	4.	8.	11.	18.	6.	2.	12.	12.	11.	14.
221	25.	12.	19.	27.	29.	38.	26.	27.	31.	30.
231	47.	41.	55.	47.	43.	49.	77.	76.	85.	96.
241	96.	112.	119.	189.	169.	184.	227.	242.	252.	284.
251	314.	325.	375.	312.	392.	375.	397.	358.	374.	300.
261	235.	203.	150.	116.	86.	88.	65.	60.	49.	42.
271	40.	35.	26.	28.	35.	37.	32.	51.	39.	44.
281	36.	55.	60.	73.	84.	79.	92.	96.	123.	144.
291	143.	184.	175.	209.	239.	204.	269.	286.	297.	307.
301	350.	325.	307.	282.	280.	229.	164.	167.	134.	103.
311	95.	57.	59.	44.	37.	21.	16.	13.	8.	3.
321	4.	6.	0.	0.	1.	1.	0.	0.	0.	0.
331	1.	1.	2.	2.	2.	3.	1.	0.	2.	0.
341	0.	2.	0.	2.	0.	4.	3.	1.	0.	1.
351	2.	2.	1.	2.	1.	2.	2.	1.	1.	2.
361	2.	3.	1.	2.	3.	5.	7.	5.	2.	2.
371	1.	2.	4.	6.	2.	2.	3.	0.	1.	0.
381	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
391	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
421	0.	0.	0.	0.	2.	0.	0.	2.	1.	1.
431	0.	1.	4.	1.	0.	2.	2.	2.	0.	1.
441	2.	1.	0.	0.	1.	1.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
461	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	1.	0.	1.	0.	0.	0.	0.	1.	0.
481	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
501	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

WHC-SD-WM-TI-540,REV.1

SAMPLE
R-1712-6882
File ID: SD5685.SPC

Counted on: 7/24/92 @ 1: 0
Detector/Geometry number: 5/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	6.3	6.6	436.985	436.985	20.000	13.733	10.000	3.068
2	24.9	24.9	369.423	369.423	24.000	14.473	12.000	3.146
3	1919.0	1910.1	303.148	303.148	20.000	15.404	10.000	4.479
4	2014.2	2012.7	257.663	257.663	20.000	12.604	10.000	3.598
5	5.2	3.7	92.288	92.288	28.000	480.236	14.000	50.354

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid				Count Rate	c/m	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.	FWHM				
1	Cm242	0.0019	6.115	6.122	-0.007	0.06	0.18	0.00	0.156E-10	
2	Cm243	0.0073	5.786	5.804	-0.018	0.07	0.68	0.00	0.610E-10	
	Cm244		5.796	5.804	-0.008				0.445E-10	
3	Pu238	0.4918	5.499	5.493	0.006	0.07	45.96	0.01	0.417E-08	
	Am241		5.480	5.493	-0.013				0.320E-08	
4		0.4949		5.279		0.06	46.25	0.01	0.302E-08	
5	U 235	0.0041	4.396	4.502	-0.106	2.26	0.38	0.00	0.438E-10	

DETECTOR CALIBRATION

Energy(MEV) = 4.068 + (0.0047)*Channel
Energy range (MeV): 4.068 TO 6.475
Efficiency = ***** CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	47629.0	100.000
Smoothed	47628.8	100.000
Composite fit	46726.4	98.105
Residuals	902.4	1.895

Analyzed by: _____

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

WHC-SD-WM-TI-540.RFV.1

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WMC-SD-WM-TI-540, REV. 1

Raw Data Dump for AEA Spectrum: SP:SD5685.SPC

[illegible]

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GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

WHC-SD-WM-TI-540, REV.1

SAMPLE
R1713-6782
File ID: SD2025.SPC

Counted on: 7/23/92 @14: 0
Detector/Geometry number: 2/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	72.2	71.0	303.646	303.646	24.000	17.182	12.000	5.812
2	187.5	184.9	258.366	258.366	24.000	16.263	12.000	7.170

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid			FWHM	Count Rate c/m	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.				
1	Pu238	0.2978	5.499	5.495	0.004	0.08	1.66	11.76	0.530E-05
	Am241	0.7022	5.480	5.495	-0.015	0.08	3.93	19.97	0.406E-05

DETECTOR CALIBRATION

Energy(MEV) = 4.068 + (0.0047)*Channel
Energy range (MeV): 4.068 TO 6.475
Efficiency = 0.1966 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	2959.0	100.000
Smoothed	2959.0	100.000
Composite fit	2794.9	94.455
Residuals	164.1	5.544

Analyzed by: _____

SPECTRUM SD2025.SPC
1 LEGEND: RAW = MODELED PEAKS = 1,2,..., ETC

WHC-SD-WM-TI-540, REV. 1

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Raw Data Dump for AEA Spectrum: SP:SD2025.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.
51	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
91	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
101	1.	0.	0.	2.	0.	0.	2.	0.	0.	0.
111	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	1.	0.	1.	1.	0.	2.
131	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
141	1.	0.	0.	1.	1.	0.	0.	0.	0.	0.
151	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
161	0.	0.	1.	2.	1.	2.	1.	1.	1.	1.
171	0.	1.	0.	0.	1.	2.	0.	0.	2.	1.
181	1.	1.	1.	2.	0.	1.	0.	0.	1.	0.
191	1.	0.	1.	1.	0.	0.	1.	1.	1.	2.
201	0.	2.	1.	1.	2.	4.	2.	3.	1.	4.
211	1.	0.	2.	3.	1.	1.	1.	3.	2.	5.
221	2.	5.	2.	4.	3.	6.	5.	5.	2.	6.
231	7.	10.	6.	7.	7.	13.	17.	19.	15.	20.
241	22.	24.	25.	39.	35.	32.	42.	57.	38.	52.
251	83.	87.	92.	103.	98.	125.	92.	113.	92.	95.
261	85.	69.	64.	55.	42.	46.	35.	26.	15.	11.
271	12.	15.	9.	5.	6.	6.	9.	2.	5.	6.
281	9.	8.	9.	5.	6.	10.	11.	18.	18.	11.
291	16.	10.	18.	28.	19.	25.	27.	34.	32.	50.
301	49.	35.	37.	41.	30.	39.	32.	17.	34.	13.
311	17.	15.	8.	4.	5.	6.	5.	2.	3.	1.
321	3.	1.	1.	1.	1.	1.	0.	0.	0.	0.
331	0.	0.	0.	1.	1.	0.	0.	0.	0.	2.
341	1.	0.	0.	0.	1.	2.	1.	3.	1.	1.
351	2.	2.	0.	2.	0.	0.	2.	0.	0.	2.
361	0.	2.	1.	3.	0.	0.	0.	0.	0.	1.
371	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
381	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
411	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
421	1.	1.	0.	0.	1.	1.	0.	0.	0.	1.
431	0.	1.	0.	0.	0.	0.	1.	1.	0.	0.
441	0.	0.	0.	0.	2.	1.	0.	0.	0.	0.
451	0.	0.	1.	0.	0.	0.	2.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	2.	0.	1.
471	0.	0.	1.	1.	0.	2.	2.	1.	0.	0.
481	1.	0.	0.	1.	0.	0.	0.	1.	0.	1.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
501	0.	0.								

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
R1713-6882
File ID: SD3662.SPC

WHC-SD-WM-TI-540.REV.1

Counted on: 7/23/92 @14: 0
Detector/Geometry number: 3/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	4.7	5.0	374.191	374.191	20.000	11.965	10.000	2.113
2	180.7	180.5	308.606	308.606	28.000	22.711	14.000	6.273
3	480.1	487.5	262.775	262.775	28.000	19.159	14.000	6.815

PEAK RESULTS

Peak ID	Isotope	AEA		Peak Centroid			FWHM	Count Rate c/m	d/m	Activity uCi/ea
		Fract.	Exp.	Obs.	Diff.					
1	Cm243	0.0089	5.786	5.816	-0.030	0.06	0.15	1.01	0.457E-06	
	Cm244		5.796	5.816	-0.020				0.334E-06	
2	Pu238	0.2965	5.499	5.501	-0.002	0.11	4.98	34.32	0.155E-04	
	Am241		5.480	5.501	-0.021				0.118E-04	
3		0.6946		5.281		0.09	11.66	57.88	0.261E-04	

DETECTOR CALIBRATION

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

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	8385.0	100.000
Smoothed	8384.7	99.996
Composite fit	8392.1	100.085
Residuals	-7.4	-0.089

Analyzed by: _____

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

WHC-SD-WM-TI-540, REV. 1

```

0
0
0
3
0
0
3:4
3
... 3
.....3
.....3.....
.....3.....3.....
.....3.....3.....
.....3.....
2:3
3..2..
.....2
.....2.
.....2
.....2
....2
.
1
1
1
1
1
1

```

.544

Raw Data Dump for AEA Spectrum: SP:SD3662.SPC

1	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	2.	1.
21	0.	0.	2.	0.	1.	0.	1.	1.	0.	0.
31	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
41	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	1.	0.	1.	1.	0.	1.	0.	3.	1.
81	0.	1.	0.	0.	0.	1.	0.	0.	1.	1.
91	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
111	0.	1.	0.	0.	0.	0.	2.	0.	0.	0.
121	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
131	0.	2.	0.	0.	1.	0.	1.	0.	0.	1.
141	1.	0.	0.	0.	2.	0.	1.	0.	0.	1.
151	0.	1.	0.	0.	1.	0.	0.	0.	0.	1.
161	0.	2.	1.	0.	1.	1.	1.	1.	0.	2.
171	3.	0.	1.	1.	1.	1.	1.	1.	1.	0.
181	0.	0.	0.	2.	0.	2.	0.	1.	1.	0.
191	0.	0.	3.	1.	2.	0.	1.	0.	1.	2.
201	2.	2.	0.	4.	0.	3.	1.	1.	2.	2.
211	1.	1.	3.	2.	5.	3.	3.	4.	3.	2.
221	3.	8.	2.	4.	7.	10.	9.	13.	12.	14.
231	14.	17.	13.	29.	20.	21.	21.	29.	37.	35.
241	42.	52.	60.	61.	70.	90.	112.	114.	122.	121.
251	157.	177.	190.	186.	211.	227.	223.	242.	263.	233.
261	272.	260.	295.	241.	219.	209.	194.	151.	177.	116.
271	111.	79.	73.	52.	38.	40.	29.	42.	29.	21.
281	22.	15.	19.	12.	18.	18.	20.	22.	23.	31.
291	27.	42.	32.	46.	39.	64.	51.	61.	74.	75.
301	78.	86.	103.	73.	102.	86.	107.	88.	107.	94.
311	79.	76.	72.	70.	55.	30.	49.	45.	34.	27.
321	18.	12.	12.	6.	10.	8.	9.	2.	4.	0.
331	1.	1.	0.	1.	0.	0.	0.	0.	0.	0.
341	0.	2.	2.	0.	0.	0.	0.	1.	0.	0.
351	0.	2.	1.	1.	4.	1.	1.	3.	1.	0.
361	1.	1.	4.	1.	1.	2.	3.	4.	3.	1.
371	2.	0.	5.	4.	0.	2.	3.	3.	1.	2.
381	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
431	0.	1.	0.	1.	0.	0.	0.	2.	2.	0.
441	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
451	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	1.	2.	0.
481	1.	1.	2.	0.	0.	2.	1.	0.	0.	1.
491	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
511	0.	0.								

*
* GAMMA SPECTRUM ANALYSIS *
*

CANBERRA SPECTRAN-F V2.06 SOFTWARE

31-JUL-9217:50:35

WHC-SD-WM-TI-540,REV.1

ANALYSIS PARAMETERS

MCA UNIT NUMBER: 1 / ADC UNIT NUMBER: 1.0
DETECTOR NUMBER: 4 / GEOMETRY NUMBER: 41
SPECTRUM SIZE: 4096 CHANNELS
ORDER OF SMOOTHING FUNCTION: 5
NUMBER OF BACKGROUND CHANNELS: 4 ON EACH SIDE OF PEAK
PEAK CONFIDENCE FACTOR: 85.0%
IDENTIFICATION ENERGY WINDOW: +- 1.50 KEV
ERROR QUOTATION: 1.96 SIGMA UNCERTAINTY

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

SPECTRAL DATA READ DIRECTLY FROM MULTICHANNEL ANALYZER AND:
ANALYZED BY:

A
SAMPLE DESCRIPTION: R-1713-6830
GEOMETRY DESCRIPTION: 22 ML 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 31-JUL-92 AT 17:00:18

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

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

ENERGY CALIBRATION PERFORMED 23-JUL-92
EFFICIENCY CALIBRATION PERFORMED 27-JUL-92

31-JUL-9217:50:35

PEAK ANALYSIS

WHC-SD-WM-TI-540.REV.1

PK	CENTROID CHANNEL	ENERGY KEV	FWHM KEV	BACKGND COUNTS	NET AREA COUNTS	ERROR %	NUCLIDES
1	56.56	28.68	0.99	1160.	460.	23.0	SB/TE-X
1B		27.89			107.	9.3	
2	1324.39	662.25	1.54	375.	50330.	0.9	CS-137
2B		661.44			159.	5.8	
3	2921.97	1461.22	1.79	30.	767.	7.4	K-40
3B		1460.67			769.	1.7	

ERROR QUOTATION AT 1.96 SIGMA
PEAK CONFIDENCE LEVEL AT 85.0%

B - ENVIRONMENTAL BACKGROUND PEAK

BACKGROUND SUBTRACTION PERFORMED USING FILE BK0014
BACKGROUND DESCRIPTION: BKG
BACKGROUND COLLECT STARTED ON 22-JUL-92 AT 14:00:00
BACKGROUND LIVE TIME: 60000. SECONDS

007409421

31-JUL-92 17:50:35

SAMPLE: R-1713-6830

COLLECTED ON 31-JUL-92 AT 17:00:18

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

RADIONUCLIDE ANALYSIS REPORT

WHC-SD-WM-TI-540, REV.1

NUCLIDE	ACTIVITY CONCENTRATION IN uCi/LI				ENERGY COMPARISON	
	MEASURED	ERROR	DECAY CORRECTED	ERROR	(KEV) EXPECT	DIFF
AM-241	LLD<1.19E+00		LLD<1.19E+00		59.54	
AM-243	LLD<3.72E-01		LLD<3.72E-01		74.67	
BA-133	LLD<3.18E-01		LLD<3.18E-01		356.02	
BA-140	LLD<8.64E-01		LLD<8.64E-01		537.27	
CEPR144	LLD<1.93E+00		LLD<1.93E+00		133.51	
CO-60	LLD<1.52E-01		LLD<1.52E-01		1332.50	
CR-51	LLD<1.78E+00		LLD<1.78E+00		320.09	
CS-134	LLD<1.15E-01		LLD<1.15E-01		795.84	
CS-137	1.55E+02	+ -1.67E+00	1.55E+02	+ -1.67E+00	661.65	0.60
EU-152	LLD<5.79E-01		LLD<5.79E-01		1408.01	
EU-154	LLD<3.24E-01		LLD<3.24E-01		1274.45	
EU-155	LLD<5.15E-01		LLD<5.15E-01		105.31	
FE-59	LLD<2.37E-01		LLD<2.37E-01		1099.25	
I-131	LLD<2.42E-01		LLD<2.42E-01		364.48	
K-40	LLD<3.23E+00		LLD<3.23E+00		1460.75	
LA-140	LLD<1.14E-01		LLD<1.14E-01		1596.20	
MN-54	LLD<1.02E-01		LLD<1.02E-01		834.83	
NA-22	LLD<1.34E-01		LLD<1.34E-01		1274.55	
P-95	LLD<1.21E-01		LLD<1.21E-01		765.78	
Pa-237	LLD<1.24E+00		LLD<1.24E+00		86.50	
PU-239	LLD<1.56E+03		LLD<1.56E+03		129.30	
PU-241	LLD<5.99E+04		LLD<5.99E+04		148.57	
RA-224	LLD<4.06E+00		LLD<4.06E+00		240.99	
RA-226	LLD<4.05E+00		LLD<4.05E+00		186.10	
RU-103	LLD<2.52E-01		LLD<2.52E-01		497.08	
RU103	LLD<2.65E-01		LLD<2.65E-01		497.08	
RURH106	LLD<3.81E+00		LLD<3.81E+00		621.80	
SB-125	LLD<1.74E+00		LLD<1.74E+00		176.33	
SE-75	LLD<2.72E-01		LLD<2.72E-01		264.66	
SN-113	LLD<3.60E-01		LLD<3.60E-01		391.67	
SR-85	LLD<2.43E-01		LLD<2.43E-01		513.99	
TH-228	LLD<1.33E+01		LLD<1.33E+01		84.37	
U-235	LLD<2.25E-01		LLD<2.25E-01		185.71	
Y-88	LLD<1.10E-01		LLD<1.10E-01		1836.06	
ZN-65	LLD<2.87E-01		LLD<2.87E-01		1115.55	
ZR-95	LLD<1.80E-01		LLD<1.80E-01		756.73	

TOTAL 1.55E+02 + -1.67E+00 1.55E+02 + -1.67E+00

EBAR = ***** MEV/DISINTEGRATION

MAXIMUM PERMISSABLE ACTIVITY = 1.16E-08 UC/LI

TOTAL MEASURED ACTIVITY = 1.55E+02 (+ -1.67E+00) UC/LI

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

1 OR QUOTATION AT 1.96 SIGMA

LLD CONFIDENCE LEVEL AT 85.0%

PEAKS NOT USED IN ANALYSIS

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
56.56	28.68	353.	30.2	2.30E+02

WHC-SD-WM-TI-540, REV. 1

PEAKS ELIMINATED BY BACKGROUND SUBTRACTION

CENTROID CHANNEL	ENERGY KEV	NET AREA COUNTS	ERROR %	GAMMAS/SEC
2921.97	1461.22	767.	7.4	1.50E+01

00740942181

WHC-SD-WM-TI-540, REV. 1

WATER DIGESTED SAMPLE ANALYSES

.550

WHC-SD-WM-TI-540, REV. 1

R- 1754

BY-104

TIC

Water dig.

Redigest

WB39927

LA-622-102-B-

4.1. Solbrack Jeff Solbrack

10-02-92

1850

NA

2245

Jim Lachet

$$\begin{array}{r} 440 \\ 4720 \\ \hline \end{array}$$

0.37

551

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT;
TICTOC REV 2.0

WHC-SD-WM-TI-540,REV.1

Sample: 69C11-N STD

Date: 10/02/92

Time: 19:29:35

Sample Size = 50 uL

Analyst : JI SOLBRACK

Dil Factor = 1

Min Readings = 14

Blank ID # = BLK

Max Readings = 14

Blank Value = .4854434 ug/minute C

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.50	0.00
2	1.01	30.90	98.38
3	1.51	70.60	56.23
4	2.01	100.20	29.54
5	2.51	113.00	11.33
6	3.01	119.70	5.60
7	3.51	123.60	3.16
8	4.00	124.70	0.88
9	4.50	126.00	1.03
10	5.00	126.10	0.08
11	5.50	126.60	0.39
12	6.00	126.80	0.16
13	6.50	127.20	0.31
14	7.00	127.40	0.16

BEST AVAILABLE COPY

BLANK VALUE = 3.4 micrograms carbon

BLANK FACTOR = 3.4 / 7.003906 =

+4.9E-01 ug/min Carbon

SAMPLE RESULTS:

(127.4 - 3.400059) (1) / (50) =

+2.480E+00 g/L Carbon

(127.4 - 3.400059) (1) / (50) (12) =

+2.067E-01 Molar Carbon

Sample Run By:

Jeff Solbrack 10-2-92
JI SOLBRACK

0074034222

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
 TICTOC REV 2.0 WHC-SD-WM-TI-540.REV.1
 <<< BLANK ANALYSIS >>>

Sample: BLK

Date: 10/02/92

Time: 19:11:08

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

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

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.40	50.00
3	1.51	0.80	50.00
4	2.01	1.00	20.00
5	2.51	1.50	33.33
6	3.01	1.60	6.25
7	3.51	2.00	20.00
8	4.01	2.30	13.04
9	4.50	2.30	0.00
10	5.00	2.50	8.00
11	5.50	2.90	13.79
12	6.00	3.00	3.33
13	6.50	3.30	9.09
14	7.00	3.40	2.94

BEST AVAILABLE COPY

BLANK VALUE = 3.4 micrograms carbon
 BLANK FACTOR = 3.4 / 7.003906 =

+4.9E-01 ug/min Carbon

Sample Run By:

Jeff Solbrack 10-2-92
 JI SOLBRACK

00740 42223

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540. REV.1

Sample: R1754REDIGEST

Date: 10/02/92

Time: 22:29:03

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .4854434 ug/minute C

Analyst : JI SOLBRACK

Min Readings = 14

Max Readings = 14

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.60	0.00
2	1.01	24.70	97.57
3	1.51	53.50	53.83
4	2.01	73.60	27.31
5	2.51	84.90	13.31
6	3.01	90.10	5.77
7	3.51	93.20	3.33
8	4.01	94.00	0.85
9	4.50	95.00	1.05
10	5.00	95.10	0.11
11	5.50	95.50	0.42
12	6.00	95.90	0.42
13	6.50	95.90	0.00
14	7.00	96.20	0.31

BEST AVAILABLE COPY

BLANK VALUE = 3.4 micrograms carbon

BLANK FACTOR = 3.4 / 7.003906 =

+4.9E-01 ug/min Carbon

SAMPLE RESULTS: *JL 10/5/92*

(96.2 - 2.400059) (1) / (200) =

(96.2 - 2.400059) (1) / (200) (12) =

JL 10/5/92

+4.84E-01 g/L Carbon

+3.87E-02 Molar Carbon

JL 10/5/92

Sample Run By:

Jeff Solbrack
JI SOLBRACK

10-02-92

22:29:03

.554

00740942225

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

ReDigest

WHC-SD-WM-TI-540,REV.1

Sample: R1752BLK

Date: 10/02/92

Time: 22:19:30

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .4854434 ug/minute C

Analyst : JI SOLBRACK

Min Readings = 14

Max Readings = 14

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.00	0.00
4	2.00	0.10	100.00
5	2.50	0.30	66.67
6	3.00	0.40	25.00
7	3.51	0.40	0.00
8	4.01	0.60	33.33
9	4.50	0.70	14.29
10	5.00	0.90	22.22
11	5.50	0.90	0.00
12	6.00	1.10	18.18
13	6.50	1.40	21.43
14	7.00	1.40	0.00

BEST AVAILABLE COPY

BLANK VALUE = 3.4 micrograms carbon

BLANK FACTOR = 3.4 / 7.003906 =

+4.9E-01 ug/min Carbon

SAMPLE RESULTS: 92 10/6/92

(1.4 - 3.399585) (1) / (200) =

< 5.00 E-3 g/L Carbon

(1.4 - 3.399585) (1) / (200) (12) =

< 4.17 E-4 Molar Carbon

Sample Run By:

Jeff Solbrack 10-2-92
JI SOLBRACK

22:19:30

.555

007404226

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT;
TICTOC REV 2.0

Redigest

WHC-SD-WM-TI-540,REV.1

Sample: 1754DUP.

Date: 10/02/92

Time: 22:38:20

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .4854434 ug/minute C

Analyst : JI SOLBRACK

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.70	0.00
2	1.01	22.00	96.82
3	1.51	51.70	57.45
4	2.01	73.50	29.66
5	2.51	85.30	13.83
6	3.01	92.30	7.58
7	3.51	95.70	3.55
8	4.01	97.40	1.75
9	4.50	98.60	1.22
10	5.00	99.10	0.50
11	5.50	99.10	0.00
12	6.00	99.50	0.40
13	6.50	99.60	0.10
14	7.00	99.80	0.20

BEST AVAILABLE COPY

BLANK VALUE = 3.4 micrograms carbon

BLANK FACTOR = 3.4 / 7.003906 =

+4.9E-01 ug/min Carbon

SAMPLE RESULTS: *JS 10/5/92*

(99.8 - ~~2.399585~~) (1) / (200) =

(99.8 - ~~2.399585~~) (1) / (200) (12) =

JS 10/5/92

+4.82E-01 g/L Carbon

+4.82E-02 Molar Carbon

JS 10/5/92

Sample Run By:

Jeff Solbrack
JI SOLBRACK

10-92

22:38:20

00740942228

WHC-SD-WM-TI-540, REV. 1

Customer ID: 10-6-72

~~25A #429~~ BY-104

Sample Prep:

Direct Water Digestion

JK 10-1-92

Procedure/Rev:

LA-622-102/B-2

Date:

9-20-92

Temperature:

23.3°C

Chemist:

LACHUT

[illegible]

557

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540.REV.1

Sample: STD

Date: ~~8/17/92~~

Time: 15:43:08

T.L. 9-20-92

9/20/92

Sample Size = 50 uL

Dil Factor = 1

Blank ID # =

Blank Value = .7002991 ug/minute C

Analyst : TB LEE

Min Readings = 14

Max Readings = 14

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	6.90	95.65
3	1.51	28.00	75.36
4	2.01	48.90	42.74
5	2.51	66.50	26.47
6	3.01	79.90	16.77
7	3.51	90.30	11.52
8	4.00	98.60	8.42
9	4.50	104.90	6.01
10	5.00	109.60	4.29
11	5.50	113.30	3.27
12	6.00	116.50	2.75
13	6.50	118.60	1.77
14	7.00	120.50	1.58

BEST AVAILABLE COPY

USER INPUT BLANK VALUE

BLANK VALUE = 4.904188 micrograms carbon

BLANK FACTOR = 4.904188 / 7.002991 = +7.0E-01 ug/min Carbon

SAMPLE RESULTS: JL 9/21/92

(120.5 - 4.904188) (1) / (50) =

(120.5 - 4.904188) (1) / (50) (12) =

JL 9/21/92 2.326

JL 9/21/92 1.938

g/L Carbon

Molar Carbon

Sample Run By:

TB LEE

9-20-92

558.

00740942230

Sample: BLK

Date: 9-20-92
7.2. 9-20-92

Time: 15:21:38

Sample Size = 50 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	0.40	0.00
2	1.01	0.60	33.33
3	1.51	1.00	40.00
4	2.00	1.40	28.57
5	2.50	1.70	17.65
6	3.00	2.10	19.05
7	3.50	2.40	12.50
8	4.00	2.50	4.00
9	4.50	2.90	13.79
10	5.00	3.40	14.71
11	5.50	3.40	0.00
12	6.00	3.70	8.11
13	6.50	4.00	7.50
14	7.00	4.20	4.76

BEST AVAILABLE COPY

BLANK VALUE = 4.2 micrograms carbon
 BLANK FACTOR = 4.2 / 7.002991 =

+6.0E-01 ug/min Carbon

Sample Run By:

Jamia Lee 9-20-92
 TB LEE

0 3 7 4 0 4 2 2 3 1

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540,REV.1

Sample: R1753

Date: ~~8/1/92~~ ^{7.6.9-20-92}
⁹⁻²⁰⁻⁹²

Time: 17:56:20

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = .7002991 ug/minute C

Analyst : TB LEE

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	6.30	92.06
3	1.50	14.40	56.25
4	2.00	22.20	35.14
5	2.50	28.50	22.11
6	3.00	33.40	14.67
7	3.50	37.10	9.97
8	4.00	39.90	7.02
9	4.50	42.00	5.00
10	5.00	43.70	3.89
11	5.50	44.80	2.46
12	6.00	45.50	1.54
13	6.50	46.50	2.15
14	7.00	46.90	0.85

BEST AVAILABLE COPY

USER INPUT BLANK VALUE

BLANK VALUE = 4.904188 micrograms carbon

BLANK FACTOR = 4.904188 / 7.002991 =

+7.0E-01 ug/min Carbon

SAMPLE RESULTS: ~~4.2~~ ^{4.2} ~~9/21/92~~ ^{9/21/92}

(46.9 - ~~4.904188~~) (1) / (200) =

(46.9 - ~~4.904188~~) (1) / (200) (12) =

^{4.2} ~~4.2~~ ^{9/21/92} ~~9/21/92~~

^{2.14} ~~2.14~~ ^{9/21/92} ~~9/21/92~~ +2.1E-01 g/L Carbon

^{1.78} ~~1.78~~ ^{9/21/92} ~~9/21/92~~ +1.7E-02 Molar Carbon

Sample Run By:

Tania Lee ⁹⁻²⁰⁻⁹²
TB LEE

0 0 7 4 0 9 4 2 3 2

WHC-SD-WM-TI-540,REV.1

Sample: R 1753

Date: ~~09/01/92~~

Time: 18:17:41

T.L. 9-20-92

9-20-92

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = .7002991 ug/minute C

Analyst : TB LEE

Min Readings = 14

Max Readings = 14

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	2.60	92.31
3	1.51	9.10	71.43
4	2.00	16.80	45.83
5	2.50	23.80	29.41
6	3.00	29.10	18.21
7	3.50	34.10	14.66
8	4.00	37.30	8.58
9	4.50	40.20	7.21
10	5.00	42.40	5.19
11	5.50	44.00	3.64
12	6.00	45.20	2.65
13	6.50	46.50	2.80
14	7.00	47.60	2.31

BEST AVAILABLE COPY

USER INPUT BLANK VALUE

BLANK VALUE = 4.904188 micrograms carbon

BLANK FACTOR = 4.904188 / 7.002991 =

+7.0E-01 ug/min Carbon

SAMPLE RESULTS: *JL 9/21/92*

(47.6 - ~~4.904188~~) (1) / (200) =

(47.6 - ~~4.904188~~) (1) / (200) (12) =

4.2

JL 9/21/92

9/21/92 2.17

JL +2.13E-01 g/L Carbon
+1.78E-02 Molar Carbon
JL 9/21/92 1.81

Sample Run By:

TB LEE

0074042233

T.L. 9-20-92

Sample: R 1753 DUF

Date: ~~07/01/92~~

Time: 18:07:43

9-20-92

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = .7002991 ug/minute C

Analyst : TB LEE

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.30	0.00
2	1.01	2.40	87.50
3	1.50	8.70	72.41
4	2.00	15.80	44.94
5	2.50	22.20	28.83
6	3.00	27.20	18.38
7	3.50	31.00	12.26
8	4.00	34.10	9.09
9	4.50	36.90	7.59
10	5.00	38.40	3.91
11	5.50	39.90	3.76
12	6.00	41.20	3.16
13	6.50	42.30	2.60
14	7.00	43.00	1.63

BEST AVAILABLE COPY

USER INPUT BLANK VALUE

BLANK VALUE = 4.904188 micrograms carbon

BLANK FACTOR = 4.904188 / 7.002991 = +7.0E-01 ug/min Carbon

SAMPLE RESULTS: JX 9/21/92

(43 - 4.703461) (1) / (200) =

(43 - 4.703461) (1) / (200) (12) =

4.2

JX 9/21/92

1.94

JX 9/21/92 +1.94E-01 g/L Carbon

JX 9/21/92 +1.59E-02 Molar Carbon

1.62

Sample Run By:

Tania Lee

9-20-92

TB LEE

0 0 7 4 0 9 4 2 2 3 4

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0.

WHC-SD-WM-TI-540,REV.1

Sample: R 1753 DUP

T.L. 9-20-92
Date: ~~07/01/92~~
9-20-92

Time: 18:26:10

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = .7002991 ug/minute C

Analyst : TB LEE

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.30	0.00
2	1.01	2.80	89.29
3	1.50	8.70	67.82
4	2.00	15.00	42.00
5	2.50	20.80	27.88
6	3.01	25.90	19.69
7	3.51	29.90	13.38
8	4.01	32.90	9.12
9	4.50	35.40	7.06
10	5.00	37.40	5.35
11	5.50	39.00	4.10
12	6.00	40.30	3.23
13	6.50	41.80	3.59
14	7.00	42.60	1.88

BEST AVAILABLE COPY

USER INPUT BLANK VALUE

BLANK VALUE = 4.904188 micrograms carbon

BLANK FACTOR = 4.904188 / 7.002991 =

+7.0E-01 ug/min Carbon

SAMPLE RESULTS: *JL 9/21/92*

(42.6 - ~~4.904188~~) (1) / (200) =

(42.6 - ~~4.904188~~) (1) / (200) (12) =

4.2

JL 9/21/92

JL 9/21/92 ^{1.92} +1.88E-01 g/L Carbon
JL 9/21/92 ^{1.60} +1.57E-02 Molar Carbon

Sample Run By:

Tania Lee 9-20-92
TB LEE

T.L. 9-20-92

Sample: R 1753 SPIKE

Date: ~~8/31/92~~

Time: 18:36:09

9-20-92

WHC-SD-WM-TI-540, REV. 1

Sample Size = 200 uL

Dil Factor = 2

Blank ID # =

Blank Value = .7002991 ug/minute C

Analyst: TB LEE

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.30	0.00
2	1.01	12.60	97.62
3	1.51	48.40	73.97
4	2.01	90.10	46.28
5	2.51	127.50	29.33
6	3.01	158.10	19.35
7	3.51	183.60	13.89
8	4.01	203.70	9.87
9	4.51	219.10	7.03
10	5.01	231.80	5.48
11	5.51	241.60	4.06
12	6.01	249.50	3.17
13	6.50	256.00	2.54
14	7.00	260.80	1.84

BEST AVAILABLE COPY

USER INPUT BLANK VALUE

BLANK VALUE = 4.904188 micrograms carbon

BLANK FACTOR = 4.904188 / 7.002991 = +7.0E-01 ug/min Carbon

SAMPLE RESULTS: *9/21/92*(260.8 - ~~4.905427~~) (2) / (200) =

+2.559E+00 g/L Carbon

(260.8 - ~~4.905427~~) (2) / (200) (12) =

+2.132E-01 Molar Carbon

4.2 9/21/92

Sample Run By:

TB LEE

Janice Lee 9-20-92

WHC-SD-WM-TI-540, REV. 1

R 1753, R 1754
PV - 121 212

CUSTOMER ID:

BY-104

ANALYSIS:

TOTAL TOC ORGANO Carbon

SAMPLE PREP:

Water Digestion

	DESCRIPTION	LAB ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
5356 LMS 603 TOL JH 8-19-92	20 C11-M: 100m			
		565		

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540,REV.1

Sample: R1751 STD

Date: 07/26/92

Time: 03:39:39

Sample Size = 200 uL

Dil Factor = 11

Blank ID # = BLK

Blank Value = .4568939 ug/minute C

Analyst : T DIAZ

Min Readings = 14

Max Readings = 14

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.00	21.20	98.58
3	1.50	43.60	51.38
4	2.00	51.10	14.68
5	2.50	53.70	4.84
6	3.00	54.50	1.47
7	3.50	54.90	0.73
8	4.00	55.20	0.54
9	4.50	55.40	0.36
10	5.00	55.70	0.54
11	5.50	55.80	0.18
12	6.00	56.00	0.36
13	6.50	56.00	0.00
14	7.00	56.30	0.53

BEST AVAILABLE COPY

BLANK VALUE = 3.2 micrograms carbon

BLANK FACTOR = 3.2 / 7.003815 =

+4.6E-01 ug/min Carbon

SAMPLE RESULTS:

(56.3 - 3.2)(11)/(200) =

+2.92E+00 g/L Carbon

(56.3 - 3.2)(11)/(200)(12) =

+2.43E-01 Molar Carbon

Sample Run By:

T. Diaz
T DIAZ

7-26-92

00740342244

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

WHC-SD-WM-TI-540,REV.1

Sample: BLK

Date: 07/26/92

Time: 03:23:21

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = N/A

Analyst : T DIAZ

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.20	0.00
2	1.01	0.70	71.43
3	1.51	1.30	46.15
4	2.01	1.70	23.53
5	2.51	1.70	0.00
6	3.01	1.90	10.53
7	3.51	2.20	13.64
8	4.00	2.40	8.33
9	4.50	2.50	4.00
10	5.00	2.70	7.41
11	5.50	2.80	3.57
12	6.00	2.90	3.45
13	6.50	3.00	3.33
14	7.00	3.20	6.25

BEST AVAILABLE COPY

BLANK VALUE = 3.2 micrograms carbon

BLANK FACTOR = 3.2 / 7.003815 =

+4.6E-01 ug/min Carbon

Sample Run By:

T DIAZ

7-26-92

.567

0 0 7 4 0 4 2 2 4 5

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540,REV.1

Sample: R1752 BLK

Date: 07/26/92

Time: 03:50:35

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .4568939 ug/minute C

Analyst : T DIAZ

Min Readings = 14

Max Readings = 14

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	0.80	62.50
3	1.51	1.20	33.33
4	2.01	1.30	7.69
5	2.51	1.70	23.53
6	3.01	1.70	0.00
7	3.51	1.90	10.53
8	4.01	2.10	9.52
9	4.51	2.20	4.55
10	5.01	2.40	8.33
11	5.51	2.50	4.00
12	6.01	2.70	7.41
13	6.50	2.90	6.90
14	7.00	3.10	6.45

BEST AVAILABLE COPY

BLANK VALUE = 3.2 micrograms carbon

BLANK FACTOR = 3.2 / 7.003815 =

+4.6E-01 ug/min Carbon

SAMPLE RESULTS:

(3.1 - 3.200467)(1)/(200) =

< 5.00 E-3 g/L Carbon

(3.1 - 3.200467)(1)/(200)(12) =

< 4.17 E-4 Molar Carbon

Sample Run By:

T DIAZ

[Signature] 7-26-92

00740342247

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV. 2.0

WHC-SD-WM-TI-540,REV.1

Sample: R1753-7726

Date: 07/26/92

Time: 06:08:42

Sample Size = 200 uL

Dil Factor = 1.1

Blank ID # =

Blank Value = .4428571 ug/minute C

Analyst : T DIAZ

Min Readings = 14

Max Readings = 14

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	6.60	95.45
3	1.50	13.80	52.17
4	2.00	16.40	15.85
5	2.50	17.50	6.29
6	3.00	18.10	3.31
7	3.50	18.30	1.09
8	4.00	18.60	1.61
9	4.50	18.90	1.59
10	5.00	19.20	1.56
11	5.50	19.40	1.03
12	6.00	19.70	1.52
13	6.50	20.00	1.50
14	7.00	20.00	0.00

BEST AVAILABLE COPY

USER INPUT BLANK VALUE

BLANK VALUE = 3.101689 micrograms carbon

BLANK FACTOR = 3.101689 / 7.003815 = +4.4E-01 ug/min Carbon

SAMPLE RESULTS: 7/27/92

(20 - 3.101324)(1.1)/(200) =

(20 - 3.101324)(1.1)/(200)(12) =

9.24

+7.29E-02 g/L Carbon

+7.75E-03 Molar Carbon

Sample Run By:

T DIAZ

7-26-92

00740042249

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540,REV.1

Sample: R1753-7826DUP Date: 07/26/92 Time: 06:17:49

Sample Size = 200 uL Analyst : T DIAZ
Dil Factor = 1.1 Min Readings = 14
Blank ID # = Max Readings = 14
Blank Value = .4428571 ug/minute C % Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	6.60	0.00
2	1.01	12.90	48.84
3	1.51	18.90	31.75
4	2.01	20.90	9.57
5	2.51	22.40	6.70
6	3.01	23.10	3.03
7	3.51	23.70	2.53
8	4.01	24.10	1.66
9	4.50	24.50	1.63
10	5.01	24.90	1.61
11	5.51	25.20	1.19
12	6.01	25.60	1.56
13	6.51	25.90	1.16
14	7.01	26.20	1.15

BEST AVAILABLE COPY

USER INPUT BLANK VALUE

BLANK VALUE = 3.101689 micrograms carbon

BLANK FACTOR = 3.101689 / 7.003815 = +4.4E-01 ug/min Carbon

SAMPLE RESULTS: ~~2.2~~ 7/27/92

(26.2 - ~~2.102581~~) (1.1) / (200) =

(26.2 - 3.102581) (1.1) / (200) (12) =

1.27 ~~1.27~~ 7/27/92
+1.27E-01 g/L Carbon
+1.06E-02 Molar Carbon

Sample Run By:

T DIAZ

0074034251

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: R1754-7726

Date: 07/26/92

Time: 06:35:43

-- Sample Size = 200 uL

Analyst : T DIAZ

Dil Factor = 1.1

Min Readings = 14

Blank ID # =

Max Readings = 14

Blank Value = .4428571 ug/minute C

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	1.80	0.00
2	1.01	10.90	83.49
3	1.51	23.70	54.01
4	2.01	27.90	15.05
5	2.51	30.20	7.62
6	3.01	31.40	3.82
7	3.51	32.40	3.09
8	4.00	33.20	2.41
9	4.50	33.70	1.48
10	5.00	34.20	1.46
11	5.50	34.80	1.72
12	6.00	35.20	1.14
13	6.50	35.50	0.85
14	7.00	36.20	1.93

BEST AVAILABLE COPY

USER INPUT BLANK VALUE

BLANK VALUE = 3.101689 micrograms carbon

BLANK FACTOR = 3.101689 / 7.003815 = +4.4E-01 ug/min Carbon

SAMPLE RESULTS: *3.2 7/27/92*

(36.2 - ~~3.10177~~) (1.1) / (200) =

+1.82E-01 g/L Carbon

(36.2 - 3.10177) (1.1) / (200) (12) =

+1.52E-02 Molar Carbon

.571

Sample Run By:

T. Diaz 7-26-92
T DIAZ

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540.REV.1

Sample: R1754-7826DUP Date: 07/26/92 Time: 06:45:34

Sample Size = 200 uL Analyst : T DIAZ
Dil Factor = 1.1 Min Readings = 14
Blank ID # = Max Readings = 14
Blank Value = .4428571 ug/minute C % Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.40	0.00
2	1.01	18.10	97.79
3	1.51	30.20	40.07
4	2.01	36.10	16.34
5	2.51	39.20	7.91
6	3.01	41.80	6.22
7	3.51	43.00	2.79
8	4.01	44.50	3.37
9	4.51	45.20	1.55
10	5.01	46.10	1.95
11	5.51	46.70	1.28
12	6.01	47.30	1.27
13	6.51	47.90	1.25
14	7.00	48.60	1.44

BEST AVAILABLE COPY

USER INPUT BLANK VALUE

BLANK VALUE = 3.101689 micrograms carbon

BLANK FACTOR = 3.101689 / 7.003815 = +4.4E-01 ug/min Carbon

SAMPLE RESULTS: *22 7/27/92*

(48.6 - ~~3.102149~~) (1.1) / (200) = +2.50E-01 g/L Carbon
(48.6 - 3.102149) (1.1) / (200) (12) = +2.09E-02 Molar Carbon

Sample Run By:

T DIAZ

7-26-92

.572

00740942255

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY
Analytical Batch

WHC-SD-WM-TI-540, REV. 1

LAB SEGMENT SERIAL #: 8 R1753 R1754

CUSTOMER ID: 84-104

ANALYSIS: TOC

INSTRUMENT	WC-16130 model SD11
PROCEDURE/REV	LA-344-105 B-2
TECHNOLOGIST	<u>ELC</u>
DATE	7-31-92
TEMPERATURE	25°C
STARTING TIME	0800
ENDING TIME	1400
CHEMIST	J. LACHUT

LAB ID	DESCRIPTION
1	STANDARD R-1751-7526
2	BLANK R-1752-7626
3	SAMPLE R-1753-7726
4	SAMPLE DUB R-1753-7826
5	SAMPLET SP R-1753-7926
6	SAMPLE R-1754-7726
7	SAMPLE DUB R-1754-7826
8	
9	
10	

LAB ID	DESCRIPTION
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

STANDARD TYPE	PRIMARY BOOK #	SECOND BOOK #	THIRD BOOK #	FINAL VOL. OF STD.
#4C	70C11-M 200ml = 2ml x 172			
LMCS	70C11-M 200ml			
Spike	80C11-M 200ml			

ANALYTICAL BATCH SUMMARY SHEET

WHC-SD-WM-TI-540, REV. 1

METHOD: LA 344-105		DATE START: 7/31/92							
PREPARED BY: J. S. LACHUT		DATE COMPLETE: 8/3/92							
UNITS:		TOC							
SPL NAME	SPL ID	ANALYT	RESULT #1	RESULT #2	AVERAGE	RPD%	%REC	DET LIM	% CT ER
		$\mu\text{g/g}$						$5 \times 10^{-2} \mu\text{g/g}$	8/18/92
STANDARD	R-1751						97.3	$500 \mu\text{g/g}$	
BLANK	R-1752		5.3 $\mu\text{g/g}$						
SAMPLE # RSA 429 BY-104	R-1753		5987 $\mu\text{g/g}$						
SAMPLE # RSA 429 BY-104	R-1753			6150 $\mu\text{g/g}$	6069 $\mu\text{g/g}$	2.69			
SAMPLE # RSA 429 BY-104	R-1753						97.2		
SAMPLE # RSA 429 BY-104	R-1754		10,740 $\mu\text{g/g}$						
SAMPLE # RSA 429 BY-104	R-1754	✓		10,760 $\mu\text{g/g}$	10,750 $\mu\text{g/g}$	0.19			

NARRATIVE: 982 NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

All samples were water digested.

574

00740942257

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540,REV.1

Sample: R-1751 STD

Date: 07/31/92

Time: 10:07:31

Sample Size = 200 uL

Dil Factor = 11

Blank ID # = R-1752 BLANK

Blank Value = .7568195 ug/minute C

Analyst : EH COLVIN

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.40	0.00
2	1.01	25.20	98.41
3	1.51	44.60	43.50
4	2.01	48.00	7.08
5	2.51	50.60	5.14
6	3.01	52.30	3.25
7	3.51	54.00	3.15
8	4.01	54.90	1.64
9	4.50	55.70	1.44
10	5.00	56.30	1.07
11	5.51	56.80	0.88
12	6.01	57.60	1.39
13	6.51	58.00	0.69
14	7.00	58.40	0.68

BEST AVAILABLE COPY

BLANK VALUE = 5.3 micrograms carbon

BLANK FACTOR = 5.3 / 7.002991 =

+7.6E-01 ug/min Carbon

SAMPLE RESULTS:

(58.4 - 5.301386) (11) / (200) =

+2.92E+00 g/L Carbon

(58.4 - 5.301386) (11) / (200) (12) =

+2.43E-01 Molar Carbon

Sample Run By:

Ed Colvin
EH COLVIN

7-31-92

0 0 7 4 0 7 4 2 2 6 1

WMC-SD-WM-TI-540,REV.1

TOC - TOTAL ORGANIC CARBON ANALYSIS REPORT

<<< BLANK ANALYSIS >>>

Sample: R-1752 BLANK Date: 07/31/92 Time: 09:47:26

Analyst: EH COLVIN

Sample Size = 200 uL

Blank ID # = R-1752 BLANK

Min Readings = 14
Max Readings = 14
% Difference = 10

Blank Value = N/A

== Reading === Analysis Time === Coulometer === % Difference ==

1	0.51	0.20	0.00
2	1.01	0.80	75.00
3	1.51	1.20	33.33
4	2.01	1.60	25.00
5	2.51	2.20	27.27
6	3.01	2.60	15.38
7	3.51	2.70	3.70
8	4.01	3.10	12.90
9	4.50	3.50	11.43
10	5.00	3.80	7.89
11	5.50	4.30	11.63
12	6.00	4.60	6.52
13	6.50	5.00	8.00
14	7.00	5.30	5.66

BEST AVAILABLE COPY

BLANK VALUE = 5.3 micrograms carbon
BLANK FACTOR = 5.3 / 7.002991 =

+7.6E-01 ug/min Carbon

Sample Run By:

EH COLVIN

576

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540,REV.1

Sample: R-1753

Date: 07/31/92

Time: 10:15:46

Sample Size = 200 uL

Analyst : EH COLVIN

Dil Factor = 1.1

Min Readings = 14

Blank ID # = R-1752 BLANK

Max Readings = 14

Blank Value = .7568195 ug/minute C

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	8.10	95.06
3	1.51	9.80	17.35
4	2.01	11.10	11.71
5	2.51	11.90	6.72
6	3.01	12.50	4.80
7	3.51	12.80	2.34
8	4.01	13.30	3.76
9	4.51	13.90	4.32
10	5.01	14.40	3.47
11	5.51	14.70	2.04
12	6.01	15.30	3.92
13	6.51	15.70	2.55
14	7.00	16.20	3.09

BEST AVAILABLE COPY

BLANK VALUE = 5.3 micrograms carbon

BLANK FACTOR = 5.3 / 7.002991 =

+7.6E-01 ug/min Carbon

SAMPLE RESULTS:

(16.2 - 5.301386)(1.1)/(200) =

+5.99E-02 g/L Carbon

(16.2 - 5.301386)(1.1)/(200)(12) =

+5.00E-03 Molar Carbon

Sample Run By:

EH COLVIN

.577

007404263

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540,REV.1

Sample: R-1753 DUP

Date: 07/31/92

Time: 10:24:20

Sample Size = 200 uL

Dil Factor = 1.1

Blank ID # = R-1752 BLANK

Blank Value = .7568195 ug/minute C

Analyst : EH COLVIN

Min Readings = 14

Max Readings = 14

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.50	0.00
2	1.01	7.40	93.24
3	1.51	10.30	28.16
4	2.01	11.50	10.43
5	2.51	12.70	9.45
6	3.01	13.40	5.22
7	3.51	13.40	0.00
8	4.01	14.00	4.29
9	4.51	14.40	2.78
10	5.01	15.00	4.00
11	5.51	15.40	2.60
12	6.01	16.00	3.75
13	6.51	16.50	3.03
14	7.01	16.50	0.00

BEST AVAILABLE COPY

BLANK VALUE = 5.3 micrograms carbon
BLANK FACTOR = 5.3 / 7.002991 =

+7.6E-01 ug/min Carbon

SAMPLE RESULTS:

(16.5 - 5.301987) (1.1) / (200) =
(16.5 - 5.301987) (1.1) / (200) (12) =

+6.16E-02 g/L Carbon
+5.13E-03 Molar Carbon

Sample Run By: EH COLVIN

.578

00740942265

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

WHC-SD-WM-TI-540, REV.1

SpK Std
80c11m

Sample: R-1753 + SP

Date: 07/31/92

Time: 10:33:13

Sample Size = 200 uL

Dil Factor = 2.5

Blank ID # = R-1752 BLANK

Blank Value = .7568195 ug/minute C

Analyst : EH COLVIN

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==	Analysis Time ==	Coulometer ==	% Difference ==
1	0.51	0.80	0.00
2	1.01	34.30	97.67
3	1.50	54.40	36.95
4	2.00	57.70	5.72
5	2.50	60.50	4.63
6	3.00	62.20	2.73
7	3.50	64.10	2.96
8	4.00	64.80	1.08
9	4.50	65.60	1.22
10	5.00	66.20	0.91
11	5.50	66.70	0.75
12	6.00	67.20	0.74
13	6.50	67.80	0.88
14	7.00	68.40	0.88

$$\left(\frac{0.789 \text{ g/L}}{2.5} - \frac{0.0599 \text{ g/L}}{2.5} \right) 2.5 = 0.729 \text{ g/L}$$

$$\frac{0.729 \text{ g/L}}{0.750 \text{ g/L}} \times 100 = 97.2\% \text{ recovery}$$

BEST AVAILABLE COPY

BLANK VALUE = 5.3 micrograms carbon

BLANK FACTOR = 5.3 / 7.002991 =

+7.6E-01 ug/min Carbon

SAMPLE RESULTS:

(68.4 - 5.299354) (2.5) / (200) =

(68.4 - 5.299354) (2.5) / (200) (12) =

+7.89E-01 g/L Carbon

+6.57E-02 Molar Carbon

Sample Run By:

EH COLVIN

.579

007404267

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540, REV.1

Sample: R-1754

Date: 07/31/92

Time: 10:42:00

Sample Size = 200 uL

Dil Factor = 1.1

Blank ID # = R-1752 BLANK

Blank Value = .7568195 ug/minute C

Analyst : EH COLVIN

Min Readings = 14

Max Readings = 14

% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.80	0.00
2	1.01	9.70	91.75
3	1.51	17.60	44.89
4	2.00	19.10	7.85
5	2.50	19.80	3.54
6	3.00	21.10	6.16
7	3.50	21.50	1.86
8	4.00	22.00	2.27
9	4.50	22.70	3.08
10	5.00	23.20	2.16
11	5.50	23.80	2.52
12	6.00	24.10	1.24
13	6.50	25.00	3.60
14	7.00	25.00	0.00

BEST AVAILABLE COPY

BLANK VALUE = 5.3 micrograms carbon

BLANK FACTOR = 5.3 / 7.002991 =

+7.6E-01 ug/min Carbon

SAMPLE RESULTS:

(25 - 5.300786)(1.1)/(200) =

+1.08E-01 g/L Carbon

(25 - 5.300786)(1.1)/(200)(12) =

+9.03E-03 Molar Carbon

Sample Run By:

EH COLVIN

.580

00740942269

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-TI-540, REV.1

Sample: R-1754 DUP

Date: 07/31/92

Time: 10:50:50

Sample Size = 200 uL

Dil Factor = 1.1

Blank ID # = R-1752 BLANK

Blank Value = .7568195 ug/minute C

Analyst : EH COLVIN

Min Readings = 14

Max Readings = 14

% Difference = 10

== Reading ==== Analysis Time ==== Coulometer ==== % Difference ==

1	0.51	0.50	0.00
2	1.01	9.30	94.62
3	1.51	15.00	38.00
4	2.01	16.70	10.18
5	2.50	17.50	4.57
6	3.01	18.00	2.78
7	3.51	18.80	4.26
8	4.01	19.70	4.57
9	4.51	20.40	3.43
10	5.01	21.00	2.86
11	5.51	22.00	4.55
12	6.01	22.90	3.93
13	6.51	24.00	4.58
14	7.00	24.90	3.61

BLANK VALUE = 5.3 micrograms carbon

BLANK FACTOR = 5.3 / 7.002991 =

+7.6E-01 ug/min Carbon

SAMPLE RESULTS:

(24.9 - 5.301386)(1.1)/(200) =

+1.08E-01 g/L Carbon

(24.9 - 5.301386)(1.1)/(200)(12) =

+8.98E-03 Molar Carbon

Sample Run By:

EH COLVIN

.581

0 0 7 4 0 4 2 2 1

WHC-SD-WM-TI-540,REV.1

WHC-SD-WM-TI-540, REV. 1

ANALYTICAL BATCH

Lab Segment Serial No.: B4-104	Customer ID: ¹⁰⁰²⁻¹² # 429
Analysis: 1430 17.65 EST	Sample Prep: DIRECT

Instrument: METTLER FO4495	Procedure/Rev: LA-504-101 / B-0
Technologist: [Signature]	Date: 9-15-92
Starting Time: 0900	Temperature: 25°
Ending Time: 1530	Chemist: K. FULLER

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	NA	11		
2	REAGENT BLANK	R-1752-7600	12		
3	SAMPLE DUP	R1753-7800	13		
4	SAMPLE	R1753-7700	14		
5			15		
6			16		
7			17		
8			18		
9			19		
10			20		

[illegible]

A-600D-881 #03/92

Figure 1

13

BLANK
SAMPLE
DUPLICATE

429

07800947167

BY 104

WESTINGHOUSE HANFORD COMPANY
222 S LABORATORY
Analytical Batch

WHC-SD-WM-TT-540-REV.1

LAB SEGMENT SERIAL #: R1753, R1754

CUSTOMER ID: BY-104 ⁸⁻¹⁹⁻⁹²
R1752, R1753, R1754

INSTRUMENT	Mettler Balance
PROCEDURE/REV	LA 504 101 (A-3)
TECHNOLOGIST	MARY FRANZ
DATE	7-1-92
TEMPERATURE	25°C
STARTING TIME	0740 6-29-92
ENDING TIME	1100 7-1-92
CHEMIST	KIETH FULLER

ANALYSIS: H₂O DIGEST

SAMPLE PREP: SOLIDS

*Hand Digest
Residue for PCL RSA#428*

	DESCRIPTION	LAB ID
1	Bulk	R1752-7600
2	Sample	R1753-7700
3	Dup	R1753-7800
4	Sample	R1754-7700
5	Dup	R1754-7700
6		
7		
8		
9		
10		

	DESCRIPTION	LAB ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

STANDARD TYPE	PRIMARY BOOK # & ALIQUOT VOL.	SECOND BOOK # & ALIQUOT VOL.	THIRD BOOK # & ALIQUOT VOL.	FINAL VOL. OF STD.
NA				

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY
ANALYTICAL BATCH

WHC-SD-WM-TI-540; REV. 1

Lab Segment Serial No.

R1751 - R1754

Customer ID:

BY-104

Analysis:

I C P

Sample Prep:

H₂O Digest

Instrument: WB39939

Procedure/ Rev: LA-505-151/C-0

Technologist: T. A. FRAZIER

Date:

8/17/92

Starting Time:

12:45 pm

Temperature N/A

Ending Time:

3:30 pm

Chemist:

B. R. WELS

Comments:

	Description	Lab ID
1	LMCS Undigested Stds	R1751-7550
2	Digested Reagent Blank	R1752-7650
3	BY-104 Sample	R1753-7750
4	BY-104 Dup	R1753-7850
5	By-104 Sample	R1754-7750
6	By-104 Dup	R1754-7850
7	ECV, CCB	—
8		
9		
10		

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

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
ICP-SST-1	1B48A2 DIRECT			DIRECT
ICP-SST-2	2B48A5 DIRECT			DIRECT
ICP-SST-3	3B48A5 DIRECT			DIRECT
SAMPLE SPIKE				
SAMPLE SPIKE				
SAMPLE SPIKE				

Teresa R. Thayer
721751-54
8/17/92

Corrected Counts Statistics 12:51 PM August 17, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.029	0.006
Sr	2	0.034	0.006
Bi	3	-0.169	0.038
Ta	5	-0.009	0.006
Sn	7	0.029	0.009
Si	8	0.950	0.008
Al	9	1.813	0.017
W	10	0.069	0.007
Co	11	2.771	0.025
Cu	12	3.672	0.011
Zn	14	0.006	0.007
Fe	15	7.772	0.021
Ni	16	2.914	0.004
La	17	-0.001	0.000
Eu	18	-0.034	0.007
Pr	19	2.087	0.024
Ce	20	5.015	0.017
Y	21	1.796	0.008
Nd	22	0.067	0.054
Sm	24	0.043	0.007
U	25	-0.029	0.009
Pa	26	13.663	0.043
Th	27	0.009	0.003
Ac	28	0.009	0.006
Fr	29	3.206	0.012
As	30	0.516	0.005
Br	31	1.381	0.017
Mo	32	1.895	0.009
Se	33	0.217	0.011
Ag	34	4.779	0.013
Pb	35	0.421	0.011
Ti	36	5.145	0.023
Cd	37	16.752	0.105
B	38	3.945	0.034
K	39	1.476	0.005
Mn	40	7.506	0.016
Sb	42	0.163	0.023
V	43	1.242	0.005
Be	44	3.125	0.015
Tl	45	0.056	0.008

BEST AVAILABLE COPY

Identity 1: ICV Identity 2: Quality Control 12:51 PM August 17, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

588

WHC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	6.236	1.855	-215.639	-7.022	23.611	946.974	956.242	43.090
S.D.	3.362	0.281	53.398	6.729	3.105	8.213	9.187	2.951
% R.S.D.	53.913	15.158	24.763	95.924	13.150	0.867	0.961	6.848
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	937.187	1004.729	4.275	965.148	941.953	3.554	2.173	954.468
S.D.	8.574	3.148	0.880	2.647	1.209	0.090	0.448	10.845
% R.S.D.	0.915	0.313	20.589	0.274	0.128	0.000	20.594	1.136
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sr (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	959.700	986.015	9.649	156.824	22.732	970.926	10.411	25.940
S.D.	3.342	4.379	21.918	29.905	27.956	3.052	40.116	12.967
% R.S.D.	0.348	0.444	227.141	19.069	122.980	0.314	385.331	49.988
	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	934.589	994.332	1020.705	982.035	1250.681	1847.696	1035.313	972.332
S.D.	3.503	8.509	13.153	4.451	68.758	4.882	25.256	4.270
% R.S.D.	0.375	0.856	1.289	0.453	5.498	0.254	2.439	0.439
	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	942.896	925.825	9993.538	920.334	965.208	962.823	903.243	1003.107
S.D.	5.894	8.038	32.611	1.725	137.752	3.580	4.255	73.916
% R.S.D.	0.625	0.868	0.326	0.209	14.272	0.372	0.471	7.369

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WHC-SD-WM-TI-540,REV.1

Corrected Counts Statistics 1:23 PM August 17, 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	XR.S.D. Kpulses
Zr	1	0.031	0.006
Sr	2	0.008	0.005
Bi	3	-0.001	0.030
Ta	5	0.016	0.015
Sn	7	0.030	0.044
Si	8	0.418	0.010
Al	9	1.473	0.033
H	10	0.009	0.026
Co	11	0.766	0.025
Cu	12	1.322	0.011
Li	14	-0.017	0.007
Ca	15	3.426	0.041
Ni	16	0.611	0.013
Fe	17	-0.001	0.001
Eu	18	-0.047	0.002
Fe	19	1.740	0.034
Cr	20	0.057	0.001
Cr	21	0.487	0.005
Ca	22	0.065	0.083
Ce	24	0.028	0.005
Ca	25	-0.014	0.008
Ca	26	0.000	0.009
Ca	27	0.011	0.001
Ca	28	0.010	0.005
Mg	29	0.005	0.001
Ca	30	0.127	0.006
Na	31	0.705	0.019
Ca	32	0.008	0.006
Se	33	0.004	0.005
Ag	34	-0.155	0.002
Pb	35	0.170	0.021
Ti	36	-0.137	0.005
Cd	37	0.600	0.068
B	38	0.225	0.004
K	39	-0.047	0.003
Mn	40	2.733	0.012
Sb	42	-0.013	0.003
V	43	1.112	0.009
Fe	44	0.752	0.004
Tl	45	-0.068	0.004

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Identity 1: WP294 Identity 2: Quality Control

1:23 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

590

Zr

Sr

Bi

Ta

Sn

Si

Al

H

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	7.520	0.527	23.159	21.544	23.834	369.533	772.015	21.620
S.D.	3.064	0.257	42.189	17.313	14.714	10.683	18.074	10.782
% R.S.D.	40.740	48.709	182.172	80.362	61.736	2.891	2.341	49.873

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	255.926	354.409	1.341	419.358	206.568	1.777	1.300	794.906
S.D.	8.461	3.087	0.927	5.103	4.187	6.157	0.155	15.423
% R.S.D.	3.306	0.871	69.107	1.217	2.027	346.463	11.946	1.940

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sn (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	2.673	270.981	15.800	92.977	69.229	2.467	52.918	37.197
S.D.	0.111	2.462	33.395	19.781	24.863	0.638	18.406	11.362
% R.S.D.	4.167	0.909	211.362	21.483	35.914	25.861	34.783	30.546

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1.166	259.548	509.343	-1.042	178.779	1.995	442.457	4.459
S.D.	0.168	12.069	14.694	3.169	28.337	0.779	49.901	0.940
% R.S.D.	14.434	4.650	2.885	304.260	15.852	39.031	11.278	21.089

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	38.075	48.434	127.969	335.648	-110.193	261.514	217.772	-94.689
S.D.	3.788	1.028	22.444	1.132	21.207	6.645	1.167	32.097
% R.S.D.	9.948	2.123	17.539	0.427	19.245	0.771	0.536	33.902

Corrected Counts Statistics 1:25 PM August 17, 1992
 Task name : ALL_SIN
 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	0.011	0.006
Sr	2	0.017	0.004
Bi	3	-0.213	0.017
Ta	5	-0.009	0.005
Sn	7	0.011	0.025
Si	8	0.950	0.007
Al	9	1.848	0.010
H	10	0.037	0.024
Co	11	2.887	0.023
	12	3.711	0.011
Li	14	-0.024	0.009
Zn	15	7.941	0.043
Ni	16	2.945	0.042
La	17	-0.003	0.001
Eu	18	-0.069	0.005

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Fe	19	2.127	0.050
Ca	20	5.110	0.021
Cr	21	1.836	0.004
Nd	22	0.139	0.056
Ce	24	0.008	0.007
Sn	25	-0.060	0.005
Ba	26	13.943	0.057
P	27	0.010	0.003
S	28	0.006	0.002
Mg	29	3.302	0.010
As	30	0.547	0.005
Na	31	1.368	0.017
Mo	32	1.941	0.010
Se	33	0.246	0.005
Ag	34	4.856	0.014
Pb	35	0.399	0.007
Ti	36	5.271	0.019
Cd	37	17.130	0.051
38	38	4.016	0.013
39	39	1.490	0.004
40	40	7.675	0.009
42	42	0.154	0.033
43	43	1.275	0.005
44	44	3.211	0.006
45	45	0.070	0.003

WHC-SD-WM-TI-540, REV. 1

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Identity 1: ICV Identity 2: Quality Control 1:25 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-3.485	1.004	-277.529	-6.822	17.596	946.613	975.243	30.223
S.D.	3.347	0.223	24.180	5.538	8.215	7.113	5.492	9.820
% R.S.D.	96.044	22.164	8.712	81.176	46.683	0.751	0.563	32.492
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	976.482	1015.525	0.503	986.374	951.744	-5.332	-0.179	972.826
S.D.	7.912	2.908	1.089	5.405	13.253	3.078	0.318	23.082
% R.S.D.	0.810	0.286	216.533	0.548	1.392	57.732	177.136	2.373
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	978.028	1007.672	38.608	4.309	-75.429	990.747	36.978	19.338
S.D.	4.128	1.969	22.465	23.740	15.907	4.925	40.116	4.924
% R.S.D.	0.422	0.195	58.186	667.021	21.089	0.406	108.485	25.462
	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	962.486	1053.056	1010.871	1096.174	1421.115	1876.371	983.350	995.358
S.D.	2.812	8.514	12.889	5.422	29.899	5.196	16.078	7.457
% R.S.D.	0.292	0.808	1.275	0.535	2.104	0.277	1.635	0.751
	Ci	B	Y	In	Sb	V	Be	Li

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	964.052	942.651	10086.406	941.090	912.152	988.866	928.178	1130.345
S.D.	2.879	3.012	28.242	1.138	200.157	3.652	1.857	23.486
% R.S.D.	0.299	0.319	0.280	0.121	21.943	0.373	0.200	2.078

WHC-SD-WM-TI-540, REV. 1

Corrected Counts Statistics 1:27 PM August 17, 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	0.030	0.006
Sr	2	0.006	0.005
Bi	3	0.026	0.016
4	5	0.013	0.010
Sn	7	-0.004	0.023
9	8	0.080	0.006
Al	9	0.062	0.014
10	10	-0.007	0.008
11	11	0.007	0.002
12	12	0.054	0.004
14	14	-0.005	0.005
15	15	0.045	0.005
16	16	-0.037	0.020
17	17	-0.000	0.001
18	18	-0.047	0.008
19	19	-0.001	0.002
20	20	0.023	0.001
21	21	-0.012	0.005
22	22	0.051	0.055
24	24	0.021	0.004
25	25	-0.015	0.006
26	26	-0.004	0.007
P	27	0.006	0.005
S	28	0.013	0.010
Hg	29	0.001	0.001
As	30	-0.010	0.003
Na	31	0.079	0.011
Mo	32	0.009	0.008
Se	33	-0.037	0.007
Ag	34	-0.139	0.001
Pb	35	-0.009	0.004
Ti	36	-0.147	0.006
Cd	37	-0.092	0.012
B	38	0.036	0.013
K	39	-0.036	0.004
Mn	40	0.003	0.002
Sb	42	-0.003	0.024
V	43	0.011	0.002
Be	44	0.001	0.001
Tl	45	-0.066	0.002

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Identity 1: ICB Identity 2: Quality Control 1:27 PM August 17, 1992

Task name : ALL_SIN

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540,REV.1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	6.786	0.459	60.955	18.638	12.584	2.531	5.610	16.322
S.D.	3.030	0.252	22.104	11.359	7.724	5.974	7.627	3.092
% R.S.D.	44.656	54.810	36.262	60.946	61.380	236.039	135.944	18.947

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-1.925	3.229	2.850	-5.317	-9.425	7.109	1.300	-4.131
S.D.	0.707	0.972	0.594	0.594	6.467	3.078	0.547	0.955
% R.S.D.	36.738	30.109	20.850	11.162	1520.407	43.303	42.130	23.130

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-3.605	-1.456	10.215	61.862	66.129	2.166	-26.783	43.693
S.D.	0.196	2.522	21.973	18.815	17.072	0.485	81.800	22.420
% R.S.D.	5.439	173.223	215.112	30.415	25.817	22.379	305.411	51.312

	Mg (ppb)	As (ppb)	Na (ppb)	Mn (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	-0.000	1.682	35.803	-0.347	14.501	7.979	20.450	2.687
S.D.	0.168	5.660	8.017	3.945	44.366	0.432	10.296	1.099
% R.S.D.	93019096.985	336.589	22.393	1137.143	305.944	5.413	50.345	40.909

	Cd (ppb)	B (ppb)	K (ppb)	Hn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-0.709	3.931	201.399	0.820	-48.975	1.303	1.059	-76.934
S.D.	0.685	3.005	22.754	0.255	143.961	1.626	0.167	17.754
% R.S.D.	96.501	76.445	11.298	31.112	293.949	124.862	15.746	23.077

Corrected Counts Statistics 1:29 PM August 17, 1992

Task name : ALL_SIN

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	0.040	0.003
Sr	2	0.046	0.004
Bi	3	-0.052	0.008
Ta	5	-0.048	0.020
Sn	7	4.271	0.064
Si	8	0.513	0.002
Al	9	479.892	3.570
W	10	0.040	0.035
Co	11	0.003	0.009
Cu	12	0.073	0.003
Li	14	-0.003	0.003
Zn	15	0.148	0.005
Ni	16	-0.018	0.014

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L	17	-0.008	0.001
Eu	18	0.037	0.003
Fe	19	212.473	1.199
Ca	20	994.488	4.854
Cr	21	0.001	0.006
Nd	22	3.209	0.055
Ce	24	0.026	0.007
Sm	25	-7.078	0.007
Ba	26	0.031	0.005
P	27	0.016	0.003
S	28	1.298	0.016
Mg	29	677.559	3.234
As	30	0.325	0.004
Na	31	0.106	0.017
Mo	32	0.005	0.011
Se	33	-0.050	0.007
Ag	34	-0.137	0.005
Pb	35	-0.096	0.007
Ti	36	-0.115	0.001
Cd	37	0.338	0.036
Co	38	-0.403	0.008
V	39	-0.046	0.006
Mn	40	1.382	0.003
Sb	42	0.014	0.015
B	43	0.010	0.002
K	44	0.003	0.001
T	45	-0.072	0.003

WHC-SD-WM-TI-540, REV. 1

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Identity 1: ICSEA-I Identity 2: ICSEA 1:29 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	12.655	2.467	-49.909	-50.635	1446.862	472.945	260509.248	35.327
S.D.	1.588	0.179	11.807	22.548	21.428	2.258	1938.407	14.304
% R.S.D.	12.551	7.266	23.656	44.530	1.487	0.477	0.744	40.491

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-3.057	8.488	3.143	7.619	5.854	-35.546	6.991	97511.322
S.D.	3.211	0.846	0.333	0.644	4.311	3.078	0.216	550.371
% R.S.D.	105.024	9.963	10.583	8.459	73.649	8.660	3.091	0.564

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	192154.935	5.824	-116.066	34.883	-21828.890	4.456	127.307	1118.493
S.D.	937.882	3.321	27.723	31.226	22.353	0.345	47.821	28.447
% R.S.D.	0.488	57.024	23.885	36.787	0.102	7.734	37.564	2.543

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	197578.101	634.253	55.975	-2.778	-28.055	8.852	-184.255	8.490
S.D.	943.021	6.546	12.590	5.925	43.191	1.944	16.757	0.106
% R.S.D.	0.477	1.032	22.492	213.265	33.466	21.956	9.095	1.245

	Cd	B	K	Mn	Sb	V	Re	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	23.379	-99.619	136.608	33.892	55.096	0.000	1.540	-130.197
S.D.	2.011	1.892	37.407	0.538	88.925	1.626	0.289	30.751
Z R.S.D.	8.604	1.899	27.383	1.883	161.398	414180.827	18.750	23.619

WHC-SD-WM-TI-540, REV. 1

Corrected Counts Statistics 1:31 PM August 17, 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	ZR.S.D. Kpulses
-----------------	--------------	--------------	-----------------

Zr	1	0.033	0.005
Sr	2	0.051	0.001
Bi	3	-0.068	0.014
La	5	-0.030	0.022
Sn	7	4.397	0.018
Pi	8	0.509	0.007
Al	9	476.980	3.490
W	10	0.025	0.045
Co	11	1.416	0.015
Cu	12	1.900	0.009
Li	14	-0.000	0.003
Zn	15	7.838	0.038
Q	16	2.943	0.016
La	17	-0.009	0.001
Q	18	0.045	0.001
Fe	19	215.113	1.387
Ca	20	998.938	5.091
Ti	21	0.927	0.018
Nd	22	3.287	0.018
Q	24	0.026	0.003
Sm	25	-7.074	0.009
Ba	26	7.025	0.045
P	27	0.020	0.004
S	28	1.252	0.013
Mg	29	676.551	4.423
As	30	0.338	0.001
Na	31	0.111	0.014
Mo	32	-0.009	0.008
Se	33	0.014	0.010
Ag	34	2.638	0.018
Pb	35	0.347	0.004
Ti	36	-0.120	0.004
Cd	37	17.330	0.075
B	38	-0.410	0.002
K	39	-0.051	0.006
Mn	40	5.218	0.036
Sb	42	0.022	0.009
V	43	0.651	0.007
Re	44	1.623	0.012
Tl	45	-0.073	0.002

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Identity 1: ICSAB Identity 2: Quality Control 1:31 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

WHC-SD-WM-TI-540;REV.1

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	U (ppb)
Mean	8.804	2.757	-71.649	-29.973	1482.965	467.883	258928.119	27.045
S.D.	2.824	0.059	20.093	24.993	6.092	7.619	1895.003	18.503
% R.S.D.	32.073	2.138	28.044	83.385	0.411	1.628	0.732	68.413

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	476.974	514.221	3.479	973.521	951.212	-37.323	7.484	98723.262
S.D.	5.008	2.354	0.316	4.728	5.112	6.157	0.039	636.697
% R.S.D.	1.050	0.458	9.096	0.486	0.537	16.496	0.519	0.645

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	193014.140	511.571	-90.805	82.005	-21816.491	500.189	191.068	1011.466
S.D.	983.750	9.587	6.815	13.187	26.485	3.188	57.474	35.363
% R.S.D.	0.510	1.874	7.505	16.081	0.121	0.637	30.080	3.496

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	197284.165	659.867	60.009	-9.724	169.621	1046.903	860.527	7.696
S.D.	1289.890	1.261	10.326	4.179	57.187	6.589	8.942	0.643
% R.S.D.	0.654	0.191	17.207	42.970	33.715	0.629	1.039	8.362

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	975.256	-101.428	104.212	503.807	104.071	501.074	469.432	-142.033
S.D.	4.203	0.491	35.684	3.745	56.107	5.634	3.549	20.501
% R.S.D.	0.431	0.484	34.242	0.743	53.913	1.124	0.756	14.434

Corrected Counts Statistics 1:33 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.017	0.003
Sr	2	-0.006	0.004
Bi	3	-0.021	0.013
Ta	5	-0.006	0.029
Sn	7	-0.018	0.036
S	8	0.067	0.003
Al	9	0.260	0.067
W	10	-0.040	0.013
Co	11	0.010	0.006
Cu	12	0.047	0.007
Li	14	-0.017	0.011

597

Zn	15	0.047	0.003
Ni	16	-0.042	0.017
La	17	-0.001	0.001
Eu	18	-0.056	0.004
Fe	19	0.083	0.025
Ca	20	0.534	0.140
Cr	21	-0.012	0.008
Nd	22	0.035	0.017
Ce	24	0.003	0.008
Sn	25	-0.043	0.010
Ba	26	-0.031	0.009
P	27	0.008	0.007
S	28	0.001	0.005
Hg	29	0.339	0.092
As	30	-0.011	0.005
Na	31	0.016	0.004
Mo	32	0.004	0.001
Se	33	-0.051	0.009
Pb	34	-0.137	0.005
Cd	35	-0.013	0.003
Mn	36	-0.154	0.008
Co	37	-0.120	0.021
Al	38	-0.010	0.014
V	39	-0.070	0.004
Cr	40	-0.001	0.002
Fe	42	0.005	0.016
Ag	43	0.018	0.001
Tl	44	-0.002	0.001
Pb	45	-0.053	0.004

WHC-SD-WM-TI-540, REV. 1

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Identity 1: XXX Identity 2: Rinse 1:33 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	0.000	-0.187	-5.685	-2.654	7.683	-11.571	113.287	2.860
S.D.	1.588	0.206	18.784	32.817	11.886	3.487	36.387	5.170
Z R.S.D.	39643858917.000	110.221	330.418	1276.533	154.704	30.136	32.119	180.800

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-0.906	1.383	1.341	-5.066	-1.809	1.777	0.739	34.574
S.D.	2.076	1.996	1.379	0.316	5.402	3.078	0.272	11.363
Z R.S.D.	229.169	144.305	102.845	6.239	298.666	173.232	36.745	32.866

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	95.070	-1.092	3.197	-14.396	-20.665	0.270	-0.216	16.345
S.D.	27.070	4.447	6.678	35.156	31.814	0.646	111.582	10.866
Z R.S.D.	28.474	407.282	208.914	244.205	153.948	239.533	51610.605	66.480

	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	58.465	-0.685	-11.854	-3.125	-79.020	3.727	10.215	1.415

WHC-SD-WM-TI-540, REV. 1

S.L.	26.847	9.428	3.057	0.521	55.861	1.883	7.593	1.431
Z R.S.D.	27.265	1377.055	25.791	16.669	79.779	21.571	74.331	101.873
	Cd	B	K	Mn	Sb	V	Be	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-2.259	-7.076	-21.052	0.178	2.041	6.511	0.000	38.467
S.D.	1.192	3.388	28.242	0.252	99.153	0.781	0.167	35.508
Z R.S.D.	52.774	47.882	134.156	141.659	4859.012	11.999	7182246.814	92.308

Corrected Counts Statistics 1:35 PM August 17, 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	ZR.S.D. Kpulses
Zr	1	0.032	0.004
Sr	2	0.011	0.001
Pt	3	0.004	0.023
Ta	5	0.007	0.027
Sm	7	0.042	0.013
Si	8	0.098	0.005
Al	9	0.113	0.026
H	10	-0.018	0.027
Co	11	0.298	0.010
Fe	12	0.256	0.003
Li	14	-0.002	0.003
Ni	15	0.391	0.002
La	16	0.245	0.015
Eu	17	-0.001	0.001
Pe	18	-0.034	0.007
Cr	19	0.040	0.008
Nd	20	0.071	0.006
Ce	21	0.029	0.002
Sn	22	-0.011	0.022
Ba	24	0.027	0.009
P	25	-0.010	0.012
S	26	-0.002	0.008
Hg	27	0.006	0.004
As	28	0.007	0.006
Na	29	0.030	0.004
Mo	30	0.013	0.007
Se	31	0.065	0.013
Ag	32	0.020	0.006
Pb	33	-0.037	0.003
Ti	34	-0.070	0.004
Cd	35	-0.010	0.010
B	36	-0.137	0.003
K	37	0.147	0.002
Mn	38	0.003	0.005
Sb	39	-0.048	0.006
V	40	0.256	0.006
Be	42	0.009	0.009
	43	0.151	0.002
	44	0.035	0.002

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T1 45 -0.038 0.008

Identity 1: CRI-I Identity 2: CRI 1:35 PM August 17, 1992

WHC-SD-WM-TI-540, REV. 1

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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	7.887	0.715	29.757	11.389	27.732	22.418	33.479	11.744
S.D.	2.291	0.059	32.048	30.028	4.297	5.740	13.852	10.864
% R.S.D.	29.047	8.248	107.698	263.647	15.493	25.604	41.375	92.510

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	97.048	59.144	3.227	38.180	89.822	5.332	2.196	14.687
S.D.	3.241	0.846	0.404	0.251	4.835	3.078	0.441	3.565
% R.S.D.	3.339	1.430	12.524	0.658	5.383	57.738	20.075	24.273

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	5.705	21.293	-14.789	86.322	80.595	2.345	-37.410	30.728
S.D.	1.063	0.834	9.004	38.928	35.749	0.602	66.365	11.962
% R.S.D.	18.636	3.917	60.880	45.097	44.356	25.680	177.397	38.928

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	8.359	45.742	24.708	5.036	3.724	33.787	18.875	4.459
S.D.	1.166	12.279	9.458	3.309	19.173	1.512	24.584	0.589
% R.S.D.	13.953	26.844	38.279	65.693	514.769	4.474	130.246	13.210

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	12.679	-4.010	121.490	31.803	26.528	110.164	10.783	168.664
S.D.	0.117	1.115	39.411	0.682	57.861	1.626	0.500	73.916
% R.S.D.	0.920	27.799	32.440	2.145	218.115	1.476	4.639	43.825

Corrected Counts Statistics 1:37 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.014	0.004
Sr	2	0.007	0.005
Bi	3	-0.104	0.024
Ta	5	-0.012	0.013
Sn	7	0.008	0.031
Si	8	0.511	0.012
Al	9	0.971	0.021
W	10	0.017	0.021
Ce	11	1.464	0.016

600

Cu	12	1.909	0.006
Li	14	-0.016	0.007
Zn	15	4.007	0.029
Ni	16	1.481	0.023
La	17	-0.001	0.001
Eu	18	-0.050	0.008
Fe	19	1.096	0.023
Ca	20	2.645	0.014
Cr	21	0.916	0.002
Nd	22	0.067	0.062
Ce	24	0.006	0.007
Sn	25	-0.039	0.012
Ba	26	6.985	0.037
P	27	0.012	0.003
S	28	0.015	0.005
Hg	29	1.661	0.012
As	30	0.277	0.007
Na	31	0.693	0.013
Mo	32	1.205	0.015
Se	33	0.103	0.001
Ag	34	1.826	0.009
Pb	35	0.205	0.016
Bi	36	2.526	0.017
Cd	37	8.718	0.090
Co	38	2.062	0.006
K	39	0.714	0.006
Mn	40	3.946	0.018
Sh	42	0.113	0.021
Ge	43	0.654	0.002
Br	44	1.640	0.009
Tl	45	0.021	0.004

WHC-SD-WM-TI-540, REV. 1

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Identity 1: CCV Identity 2: Quality Control 1:37 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-1.651	0.493	-123.896	-10.528	16.594	470.414	499.294	24.079
S.D.	2.291	0.270	33.456	15.055	10.355	13.196	11.219	8.366
% R.S.D.	138.778	54.740	27.003	142.999	62.403	2.805	2.247	34.744

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	493.054	516.805	1.509	492.286	484.226	1.777	1.143	499.340
S.D.	5.460	1.729	0.824	3.588	7.184	6.157	0.505	10.429
% R.S.D.	1.107	0.334	54.648	0.729	1.484	346.463	44.154	2.087

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	502.313	505.383	13.241	-1.447	-3.266	497.572	68.859	42.835
S.D.	2.734	0.946	24.864	23.740	36.721	2.627	40.116	9.927
% R.S.D.	0.544	0.187	187.777	1926.884	444.234	0.528	58.258	23.180

Mo 3e Ag Fe Ti

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	483.964	542.436	499.761	622.737	708.088	743.193	526.701	492.396
S.D.	3.536	13.393	9.754	8.009	7.243	3.268	37.668	3.122
% R.S.D.	0.731	2.469	1.952	1.286	1.023	0.440	7.152	0.631

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	492.857	481.822	5058.594	483.986	661.157	503.679	474.439	492.410
S.D.	5.047	1.498	39.411	2.211	127.827	1.824	2.589	31.175
% R.S.D.	1.024	0.311	0.779	0.457	19.334	0.358	0.546	4.502

WHC-SD-WM-TI-540, REV. 1

Corrected Counts Statistics 1:39 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

Element Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
1	0.029	0.003	
2	0.014	0.003	
3	0.033	0.021	
5	0.017	0.006	
7	0.026	0.018	
8	0.091	0.003	
9	0.093	0.027	
10	0.012	0.046	
11	0.002	0.006	
12	0.058	0.002	
14	0.000	0.006	
15	0.044	0.001	
16	0.000	0.012	
17	0.000	0.002	
18	-0.036	0.004	
19	-0.009	0.005	
20	0.040	0.002	
21	-0.007	0.006	
22	0.071	0.102	
24	0.031	0.002	
25	-0.005	0.006	
26	0.006	0.003	
27	0.007	0.003	
28	0.001	0.005	
29	0.009	0.001	
30	-0.012	0.002	
31	0.042	0.002	
32	0.012	0.004	
33	-0.046	0.010	
34	-0.126	0.006	
35	-0.009	0.004	
36	-0.143	0.003	
37	-0.110	0.027	
38	0.001	0.009	
39	-0.042	0.010	
40	0.006	0.002	
42	-0.012	0.020	

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V	43	0.016	0.001
Be	44	-0.000	0.001
Tl	45	-0.054	0.004

WHC-SD-WM-TI-540, REV. 1

Identity 1: CCB Identity 2: Quality Control 1:39 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	6.236	0.834	71.336	22.812	22.609	15.186	22.802	23.787
S.D.	1.681	0.128	30.096	6.595	5.990	3.131	14.692	18.556
% R.S.D.	26.956	15.408	42.189	28.909	26.494	20.620	64.433	78.010

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-3.624	4.428	3.520	-5.401	11.600	10.663	2.061	-7.649
S.D.	1.932	0.479	0.700	0.126	3.836	8.145	0.293	2.295
% R.S.D.	53.311	10.827	19.885	2.325	33.065	76.378	14.214	30.000

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-0.389	1.638	18.503	106.445	97.128	2.919	-16.157	18.613
S.D.	0.402	3.104	40.998	6.554	17.072	0.209	42.174	10.594
% R.S.D.	103.501	189.524	221.573	6.193	17.577	7.154	261.035	56.914

	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	2.138	-1.563	7.562	1.216	-42.693	13.091	19.663	3.481
S.D.	0.337	2.706	1.310	2.105	58.420	2.060	8.295	0.560
% R.S.D.	15.746	173.051	17.326	173.146	136.835	15.736	42.187	16.079

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-1.680	-4.482	162.524	1.145	-106.112	5.209	0.578	32.549
S.D.	1.492	2.192	65.543	0.213	124.911	0.451	0.167	31.175
% R.S.D.	88.788	48.904	40.328	18.560	117.717	8.660	28.867	95.779

Corrected Counts Statistics 1:42 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
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Zr	1	-0.028	0.001
Sr	2	189.582	0.670
Bi	3	-0.057	0.017
Ta	5	-0.028	0.015
Sn	7	14.574	0.154
Si	8	0.066	0.005
Al	9	-0.278	0.015

603

W	10	0.312	0.013
Co	11	28.361	0.097
Cu	12	18.266	0.073
Li	14	78.582	0.467
Zn	15	78.329	0.297
Ni	16	14.959	0.108
La	17	-0.003	0.002
Eu	18	-0.056	0.002
Fe	19	10.526	0.038
Ca	20	50.037	0.205
Cr	21	9.222	0.053
Md	22	0.116	0.079
Ce	24	0.090	0.001
Sa	25	-0.305	0.007
Ba	26	137.656	0.533
P	27	0.007	0.003
S	28	0.098	0.009
Mg	29	16.195	0.049
0-5	30	0.015	0.004
Na	31	13.002	0.068
32	32	0.014	0.010
Se	33	0.474	0.011
34	34	-0.138	0.002
Pb	35	0.004	0.006
36	36	-0.162	0.010
37	37	170.955	0.270
38	38	20.338	0.062
39	39	0.712	0.005
40	40	38.303	0.077
42	42	0.799	0.023
43	43	0.014	0.002
44	44	-0.001	0.001
45	45	-0.062	0.008

WHC-SD-WM-TI-540, REV. 1

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Identity 1: SST1 Identity 2: Quality Control 1:42 PM August 17, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-24.760	9677.598	-56.699	-27.669	4883.855	-11.932	-178.617	125.953
S.D.	0.635	34.184	24.159	16.444	51.438	4.891	7.911	5.317
% R.S.D.	2.566	0.353	42.610	59.431	1.053	40.993	4.429	4.222

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9630.741	5044.595	9883.817	9826.736	4787.451	-7.109	0.717	4827.261
S.D.	32.874	20.082	58.753	37.275	34.332	9.235	0.134	17.379
% R.S.D.	0.341	0.398	0.594	0.379	0.717	129.899	18.752	0.360

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9653.919	5039.998	-33.689	361.136	-832.817	9760.956	-21.470	142.235
S.D.	39.639	28.850	32.057	2.452	20.169	37.760	40.116	19.649
% R.S.D.	0.411	0.572	95.156	0.670	2.422	0.387	184.845	13.215

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	4722.225	47.694	9810.941	2.054	1598.103	8.353	50.368	-0.122
S.D.	14.328	8.117	51.674	4.970	69.401	0.779	13.840	1.798
% R.S.D.	0.303	17.018	0.527	238.437	4.343	9.321	27.477	1472.243

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	9581.217	4792.666	5045.635	4691.408	4858.688	3.126	0.481	-38.467
S.D.	15.099	14.676	34.284	9.432	139.106	1.193	0.334	68.952
% R.S.D.	0.158	0.306	0.679	0.201	2.863	38.183	69.282	179.249

Corrected Counts Statistics 1:44 PM August 17, 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	-0.136	0.003	
2	0.042	0.017	
Bi	3.695	0.013	
5	-0.007	0.004	
7	-0.164	0.018	
8	0.013	0.007	
9	0.686	0.006	
10	-0.079	0.026	
11	-0.005	0.011	
12	0.111	0.003	
14	-0.006	0.016	
Zn	0.286	0.002	
Ni	-0.013	0.007	
La	0.952	0.005	
Eu	73.714	0.424	
Fe	0.021	0.007	
Ca	0.277	0.002	
Cr	-0.011	0.007	
Nd	12.796	0.044	
Ce	1.153	0.005	
Sm	1.587	0.004	
Ba	-0.399	0.017	
P	0.011	0.002	
S	0.010	0.005	
Hg	0.019	0.001	
Au	0.035	0.010	
Ni	0.023	0.018	
Mo	0.008	0.007	
Se	-0.040	0.002	
Ag	13.078	9.036	
Pb	2.094	0.039	
Ti	-0.193	0.007	

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Ed	37	-0.066	0.026
B	38	0.041	0.015
K	39	-0.057	0.011
Mn	40	0.007	0.001
Sb	42	-0.021	0.006
V	43	0.033	0.002
Be	44	-0.004	0.001
Tl	45	-0.052	0.003

WHC-SD-WM-TI-540, REV. 1

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Identity 1: SST2 Identity 2: Quality Control 1:44 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-84.185	2.297	5235.643	10.438	-41.103	-69.785	344.385	-13.185
S.D.	1.385	0.870	18.573	4.325	5.990	7.822	3.490	10.712
R.S.D.	1.645	37.865	0.355	41.432	14.573	11.209	1.014	81.241

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-6.002	19.007	2.766	24.993	7.237	5084.786	4959.574	5.966
S.D.	3.633	0.799	2.070	0.218	2.265	26.659	28.474	2.986
R.S.D.	60.526	4.204	74.829	0.870	31.298	0.524	0.574	50.049

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	45.539	-0.910	5135.803	4946.655	5032.031	2.583	52.918	36.821
S.D.	0.399	3.950	17.759	22.150	12.906	1.095	24.349	9.839
R.S.D.	0.876	434.122	0.346	0.448	0.256	42.412	46.013	26.721

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	5.054	-55.554	-6.558	-1.042	-7.769	4951.626	4986.903	-5.802
S.D.	0.337	18.322	13.873	3.647	8.302	13.610	93.061	1.326
R.S.D.	6.662	32.981	211.527	350.140	106.864	0.275	1.866	22.845

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	0.747	4.954	61.018	1.194	-159.167	17.970	-0.385	44.385
S.D.	1.476	3.549	68.671	0.071	36.731	1.193	0.167	27.120
R.S.D.	197.577	71.639	112.543	5.946	23.077	6.641	43.302	61.101

Corrected Counts Statistics 1:47 PM August 17, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.P. Kpulses
Zr	1	17.862	0.023
Sr	2	0.127	0.003

Bi	3	-0.985	0.013
Ta	5	8.437	0.053
Sn	7	0.148	0.019
Si	8	8.916	0.012
Al	9	8.971	0.020
W	10	24.249	0.062
Co	11	-0.057	0.001
Cu	12	0.065	0.003
Li	14	-0.015	0.007
Zn	15	1.104	0.013
Ni	16	0.177	0.012
La	17	-0.001	0.001
Eu	18	-0.083	0.007
Fe	19	0.009	0.008
Ca	20	0.525	0.000
Cr	21	0.026	0.012
Hd	22	-0.110	0.038
Ce	24	0.015	0.005
Ba	25	-0.071	0.003
Sr	26	0.002	0.004
Pb	27	0.655	0.014
Hg	28	2.515	0.038
As	29	0.029	0.001
Na	30	2.594	0.016
K	31	0.106	0.007
Sc	32	19.210	0.106
Ag	33	0.799	0.011
Pb	34	0.504	0.027
Pt	35	-0.062	0.003
Cd	36	26.303	0.101
B	37	-0.302	0.013
Br	38	-0.005	0.010
Mn	39	-0.049	0.002
Se	40	0.000	0.002
V	42	0.012	0.027
Be	43	12.507	0.012
Ge	44	31.428	0.004
Tl	45	0.584	0.005

WHC-SD-WM-TI-540, REV. 1

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Identity 1: SST3 Identity 2: Quality Control 1:47 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	9818.699	6.619	-1373.641	9536.921	63.375	9587.258	4842.557	9909.845
S.D.	12.607	0.153	18.864	60.168	6.448	12.941	10.980	25.461
% R.S.D.	0.128	2.314	1.373	0.621	10.174	0.135	0.227	0.257

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-23.554	6.366	1.593	127.729	68.111	3.554	-1.076	0.459
S.D.	0.340	0.959	0.856	1.647	3.836	5.332	0.448	3.822
% R.S.D.	1.442	15.063	53.740	1.290	5.631	150.011	41.611	832.618

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	93.368	19.473	-55.243	37.402	-108.493	2.572	10318.505	5415.400
S.D.	0.008	6.296	15.433	19.737	8.201	0.304	223.923	81.059
Z R.S.D.	0.009	32.334	27.936	53.305	7.559	11.808	2.170	1.497

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	8.165	4915.094	55.723	10092.517	5046.974	248.604	-103.948	4849.081
S.D.	0.337	30.301	4.922	55.244	67.752	10.120	5.944	18.596
Z R.S.D.	4.124	0.616	8.833	0.552	1.342	4.071	5.718	0.383

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-12.455	-5.897	112.851	0.384	40.812	9764.173	9077.876	5696.109
S.D.	0.754	2.421	14.963	0.255	162.238	9.473	1.202	44.689
Z R.S.D.	6.051	41.053	13.259	66.552	397.524	0.097	0.013	0.784

Corrected Counts Statistics 1:49 PM August 17, 1992

Peak 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	ZR.S.D. Kpulses
Zr	1	0.026	0.003
	2	0.002	0.005
Bi	3	-0.044	0.013
Pa	5	0.011	0.008
Sb	7	-0.017	0.016
Si	8	0.105	0.008
W	9	0.025	0.005
	10	0.032	0.031
	11	0.008	0.009
Cu	12	0.044	0.002
Li	14	-0.019	0.004
Zn	15	0.217	0.002
Ni	16	-0.059	0.017
La	17	-0.001	0.002
Eu	18	-0.052	0.006
Fe	19	-0.000	0.009
Ca	20	0.700	0.003
Cr	21	-0.005	0.005
Nd	22	-0.018	0.012
Ce	24	0.004	0.005
Sm	25	-0.024	0.004
Ba	26	0.004	0.008
P	27	0.010	0.003
S	28	0.007	0.009
Mg	29	0.040	0.001
As	30	-0.004	0.009
Na	31	0.121	0.011
Mo	32	0.013	0.003
Se	33	-0.032	0.009
Ag	34	-0.109	0.001

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	35	-0.044	0.013
Tl	36	-0.152	0.004
Cd	37	-0.128	0.028
B	38	0.025	0.007
K	39	-0.044	0.009
Mn	40	0.006	0.003
Sb	42	-0.020	0.010
V	43	0.009	0.004
Be	44	0.007	0.002
Tl	45	-0.061	0.004

WHC-SD-WM-TI-540, REV. 1

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Identity 1: R1752 Dig Blank Identity 2: Direct 1:49 PM August 17, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	4.769	0.238	-37.838	16.472	8.240	29.649	-14.116	32.077
S.D.	1.456	0.265	17.920	9.169	5.402	8.835	2.786	12.726
% R.S.D.	30.528	111.346	47.359	55.663	65.555	29.797	19.737	39.674
	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-1.359	0.461	1.090	16.327	-7.343	1.777	0.986	-3.672
S.D.	3.157	0.576	0.476	0.218	5.456	8.145	0.409	3.903
% R.S.D.	232.316	125.116	43.686	1.332	74.299	458.328	41.477	106.312
	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	127.205	2.730	-18.219	-10.075	36.164	2.727	36.978	29.662
S.D.	0.511	2.580	5.000	19.937	12.906	0.522	46.016	18.595
% R.S.D.	0.402	94.511	27.444	197.798	35.686	19.145	124.441	62.688
	Hg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	11.178	13.149	67.322	1.390	39.386	19.325	-63.007	1.832
S.D.	0.337	16.024	8.321	1.592	54.111	0.374	29.533	0.741
% R.S.D.	3.012	121.864	12.360	114.530	137.386	1.935	46.872	40.415
	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-2.689	1.179	145.246	1.955	-153.046	-0.520	2.696	-35.508
S.D.	1.545	1.739	55.104	0.425	60.293	2.817	0.500	33.608
% R.S.D.	57.450	147.412	37.939	40.306	39.395	541.241	18.558	94.648

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Corrected Counts Statistics 1:52 PM August 17, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.035	0.006
Sr	2	0.120	0.006
Bi	3	-0.420	0.026
Ta	5	0.024	0.009
Sn	7	-0.007	0.012
Si	8	-0.582	0.005
Al	9	33.911	0.339
W	10	1.626	0.120
Co	11	0.158	0.007
Cu	12	0.063	0.002
Li	14	-0.009	0.004
Zn	15	0.196	0.003
Ni	16	0.034	0.007
La	17	-0.002	0.002
Eu	18	0.157	0.004
Fe	19	0.143	0.012
Ca	20	0.542	0.035
Cr	21	216.848	2.998
Ba	22	0.111	0.050
Ce	24	0.026	0.004
Sm	25	-0.000	0.005
Ra	26	0.005	0.005
Pb	27	1.472	0.019
Th	28	41.024	0.426
Hg	29	0.053	0.001
Mo	30	0.233	0.004
Na	31	1282.495	1126.460
Mg	32	0.531	0.013
Se	33	11.540	0.150
Hq	34	-0.091	0.008
Pb	35	-0.091	0.003
Ti	36	-0.116	0.006
B	37	-0.086	0.042
K	38	0.371	0.009
Mn	39	4.454	0.035
Sb	42	0.058	0.025
V	43	0.031	0.004
Be	44	0.011	0.001
Tl	45	-0.049	0.004

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Identity 1: R1753 Sam BY-104 Identity 2: 0.5002g in 50ml 1:52 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	9.904	6.245	-571.199	29.250	11.582	-715.203	18382.497	207.675
S.D.	3.224	0.281	36.490	10.719	3.858	5.636	183.861	55.073
% R.S.D.	32.553	4.502	6.388	37.102	33.315	0.788	1.000	26.519

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	49.600	5.720	2.347	13.731	22.456	-0.000	15.035	62.265
S.D.	2.312	0.576	0.508	0.404	2.265	8.145	0.242	5.437
% R.S.D.	4.662	10.074	21.651	2.940	10.087	2995324.000	1.612	8.732

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-57.879	118396.807	34.875	83.444	110.560	2.788	23331.145	88106.584
S.D.	4.567	1636.656	20.134	18.815	14.649	0.370	304.262	1044.579
% R.S.D.	7.891	1.382	57.731	22.548	13.250	13.285	1.304	1.186

	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	15.066	408.520	970123.049	271.428	34645.906	25.933	-174.020	8.367
S.D.	0.292	7.141	852114.291	6.813	418.096	3.137	6.818	1.020
% R.S.D.	1.935	1.748	87.836	2.510	1.207	12.096	3.918	12.192

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-0.373	82.872	29292.734	1.922	324.457	16.408	3.947	76.934
S.D.	2.350	2.123	227.448	0.126	151.569	2.744	0.167	36.958
% R.S.D.	629.663	2.562	0.776	6.550	46.715	16.723	4.225	48.038

Corrected Counts Statistics 1:59 PM August 17, 1992

Task name : ALL_SIH

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	0.017	0.002
Sr	2	0.088	0.001
Bi	3	-0.421	0.017
Ta	5	-0.034	0.012
Sn	7	0.003	0.033
Si	8	-0.601	0.003
Al	9	35.625	0.277
W	10	1.305	0.044
Co	11	0.130	0.007
Cu	12	0.040	0.004
Li	14	-0.028	0.004
Zn	15	1.018	0.037
Ni	16	0.025	0.005
La	17	-0.001	0.001
Eu	18	0.131	0.004
Fe	19	0.145	0.007
Ca	20	0.374	0.015
Cr	21	219.517	1.914
Nd	22	-0.006	0.054

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WHC-SD-WM-TI-540, REV. 1

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Ce	24	-0.004	0.005
Sm	25	-0.038	0.002
Ba	26	-0.031	0.003
P	27	1.397	0.016
S	28	44.393	0.395
Hg	29	0.032	0.002
As	30	0.228	0.010
Na	31	1314.153	1154.057
Mo	32	0.491	0.014
Se	33	11.676	0.053
Ag	34	-0.142	0.003
Pb	35	-0.098	0.007
Ti	36	-0.157	0.002
Cd	37	-0.055	0.004
B	38	0.391	0.002
K	39	4.569	0.046
Mn	40	0.015	0.005
Sb	42	0.023	0.018
3-	43	0.026	0.001
Be	44	0.009	0.001
Tl	45	-0.070	0.002

Identity 1: R1753 Dup BY-104 Identity 2: 0.5007g in 50ml 1:59 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr	Sr	Ri	Ta	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-0.183	4.628	-572.649	-35.926	14.700	-736.174	19313.041	70.762
S.D.	0.953	0.051	24.342	13.073	11.094	3.314	150.503	20.841
% R.S.D.	519.615	1.103	4.251	36.388	75.469	0.450	0.779	29.452

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	39.861	-0.554	-0.042	116.886	19.476	5.332	13.310	62.877
S.D.	2.458	0.998	0.476	4.656	1.463	6.157	0.272	3.056
% R.S.D.	6.165	180.019	1134.109	3.983	7.512	115.476	2.041	4.860

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-92.243	119854.174	-11.932	-46.050	-7.233	0.243	22135.619	95341.157
S.D.	1.465	1044.916	21.649	19.781	7.159	0.210	255.212	848.613
% R.S.D.	1.588	0.872	181.436	42.954	98.974	86.782	1.153	0.890

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9.040	398.307	994071.092	250.762	35157.643	6.982	-189.766	0.916
S.D.	0.445	20.206	872989.841	7.411	17.627	1.122	17.032	0.280
% R.S.D.	4.928	5.073	87.820	2.955	0.050	16.071	8.976	30.551

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1.401	87.590	30037.835	2.273	110.193	12.501	3.273	-115.402
S.D.	0.226	0.472	298.978	0.553	107.612	0.451	0.289	20.501
% R.S.D.	16.164	0.539	0.995	24.314	97.658	3.608	8.824	17.765

Corrected Counts Statistics 2:11 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.000	0.017
Sr	2	0.024	0.012
Bi	3	-0.108	0.031
Ta	5	-0.019	0.016
Sn	7	-0.018	0.013
Si	8	-0.033	0.011
Al	9	5.760	0.006
Co	10	0.216	0.020
Co	11	0.016	0.011
Li	12	0.035	0.011
Li	14	-0.047	0.018
Li	15	0.339	0.007
Ni	16	-0.063	0.006
La	17	-0.003	0.002
F	18	-0.038	0.014
F	19	0.062	0.060
Cr	20	0.186	0.001
Cr	21	37.259	0.105
Cr	22	-0.015	0.150
Ce	24	-0.016	0.021
Sm	25	-0.050	0.022
Pr	26	-0.047	0.020
P	27	0.227	0.002
P	28	6.762	0.068
Hg	29	0.015	0.001
Hg	30	0.037	0.004
Na	31	333.502	2.072
Mo	32	0.082	0.009
Se	33	1.964	0.015
Ag	34	-0.137	0.010
Pb	35	-0.040	0.008
Ti	36	-0.163	0.015
Cd	37	-0.175	0.069
B	38	0.041	0.007
K	39	0.685	0.009
Mn	40	0.902	0.002
Sb	42	0.028	0.010
V	43	0.012	0.006
Be	44	-0.001	0.001
Tl	45	-0.062	0.017

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613

Identity 1: R1753 Sam Dil'n Identity 2: .5002g-50ml-1ml-5ml

2:13 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-9.537	1.344	-128.582	-17.701	7.683	-120.044	3099.280	25.553
S.D.	9.594	0.587	43.460	17.610	4.244	12.192	3.302	8.041
% R.S.D.	100.590	43.685	33.800	99.486	55.241	10.156	0.107	31.467
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	1.359	-1.846	-2.431	31.607	-8.620	-5.332	1.904	24.936
S.D.	3.568	2.960	2.320	0.891	1.916	8.145	0.951	27.449
% R.S.D.	262.569	160.321	95.419	2.819	22.223	152.745	49.957	110.076
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	1.392	20347.620	-16.098	-97.847	-43.397	-0.904	3496.034	14535.096
S.D.	0.045	57.390	60.163	89.195	67.131	1.432	33.182	146.903
% R.S.D.	3.207	0.282	373.723	91.157	154.689	158.347	0.949	1.011
	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	3.888	82.533	252254.145	37.511	6031.181	8.852	-51.984	-0.305
S.D.	0.168	7.776	1567.535	4.451	77.550	3.607	17.728	2.670
% R.S.D.	4.330	9.421	0.621	11.867	1.286	40.748	34.103	874.300
	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-5.340	4.954	4872.858	0.694	138.761	2.094	0.289	-44.385
S.D.	3.865	1.706	56.608	0.255	60.396	4.303	0.334	150.997
% R.S.D.	72.365	34.448	1.162	36.783	43.525	206.495	115.469	340.196

Corrected Counts Statistics 2:16 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.008	0.005
Sr	2	0.024	0.003
Bi	3	-0.099	0.009
Ta	5	-0.015	0.026
Sn	7	-0.011	0.029
Si	8	-0.035	0.006
Al	9	5.924	0.044
W	10	0.191	0.022
Co	11	0.026	0.007
Cu	12	0.036	0.004
Li	14	-0.037	0.008
Zn	15	0.406	0.005
Ni	16	-0.040	0.011
La	17	-0.003	0.001
Eu	18	-0.036	0.008
Fe	19	0.015	0.012
Ca	20	0.189	0.002

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C	21	37.237	0.322
Hd	22	0.025	0.064
Ce	24	-0.012	0.008
Sn	25	-0.050	0.010
Ba	26	-0.041	0.009
P	27	0.228	0.005
S	28	7.221	0.033
Hg	29	0.010	0.001
As	30	0.024	0.015
Na	31	334.047	1.477
Mo	32	0.090	0.005
Se	33	1.971	0.004
Ag	34	-0.140	0.005
Pb	35	-0.037	0.006
Ti	36	-0.157	0.005
Cd	37	-0.134	0.032
B	38	0.052	0.009
K	39	0.705	0.009
Mn	40	0.005	0.003
Sb	42	-0.008	0.020
V	43	0.018	0.003
Be	44	-0.000	0.002
Al	45	-0.056	0.001

WHC-SD-WM-TI-540.REV.1

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ity 1: R1753 Dup Dil'n Identity 2: .5007g-50ml-1ml-5ml 2:16 PM August 17, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-5.319	1.344	-116.761	-13.145	10.134	-121.490	3188.498	15.404
S.D.	2.600	0.156	13.170	29.426	9.725	5.974	23.915	8.875
% R.S.D.	48.888	11.601	11.279	223.853	95.966	4.917	0.750	57.614

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	4.530	-1.754	-1.174	40.106	-1.277	-5.332	2.039	3.213
S.D.	2.458	1.048	1.047	0.644	3.364	3.078	0.543	5.552
% R.S.D.	54.254	59.751	89.210	1.507	263.458	57.732	26.648	172.810

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1.923	20335.609	-0.148	-79.143	-42.364	-0.479	3501.348	15522.136
S.D.	0.109	176.054	25.793	32.684	30.107	0.676	80.231	79.871
% R.S.D.	5.657	0.866	17369.593	41.297	71.067	141.148	2.291	0.457

	Hg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	2.624	58.013	252666.412	41.505	6076.955	7.605	-46.473	0.916
S	0.168	27.353	1117.118	2.673	28.172	1.768	15.185	0.826
% R.S.D.	6.415	47.150	0.442	6.441	0.464	23.242	32.676	90.185

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-3.044	7.627	5000.281	0.780	-77.543	6.251	0.578	14.755

615

S.D.	1.797	2.097	56.484	0.394	121.566	2.387	0.441	10.250
% R.S.D.	59.043	27.489	1.130	40.230	156.772	38.186	76.376	69.282

WHC-SD-WM-TI-540.REV.1

Corrected Counts Statistics 2:21 PM August 17, 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	0.049	0.009
Sr	2	1.376	0.082
Bi	3	-0.057	0.014
Ta	5	0.029	0.009
Sn	7	-0.177	0.064
7	8	0.037	0.008
Al	9	5.940	0.070
1	10	0.727	0.036
Co	11	0.073	0.004
2	12	0.076	0.008
7	14	0.015	0.010
2	15	0.195	0.001
4	16	0.095	0.008
La	17	-0.001	0.002
4	18	0.009	0.002
0	19	0.134	0.008
0	20	2.411	0.050
0	21	49.088	0.126
0	22	0.059	0.054
0	24	0.044	0.022
0	25	0.017	0.017
0	26	0.027	0.017
0	27	2.021	0.063
0	28	95.886	1.299
Mg	29	0.029	0.001
As	30	0.038	0.017
Na	31	-28.423	0.000
Mo	32	0.422	0.002
Se	33	2.548	0.028
Ag	34	-0.094	0.007
Pb	35	-0.025	0.012
Ti	36	-0.124	0.013
Cd	37	0.111	0.034
B	38	0.195	0.020
K	39	3.603	0.021
Mn	40	0.004	0.003
Sb	42	0.027	0.022
V	43	0.035	0.007
Be	44	0.001	0.001
Tl	45	-0.045	0.015

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Identity 1: R1754 Sam BY-104 Identity 2: .5024g in 50ml

2:22 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00
On-peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540.REV.1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	H (ppb)
Mean	17.607	70.376	-56.752	36.389	-45.447	-44.113	3197.003	208.092
S.D.	4.932	4.177	19.701	10.346	21.543	9.032	37.758	14.722
% R.S.D.	28.009	5.936	34.715	28.432	47.402	20.475	1.181	7.075
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	20.497	9.503	5.448	13.522	41.931	1.777	5.109	57.981
S.D.	1.414	2.254	1.208	0.073	2.581	8.145	0.140	3.585
% R.S.D.	6.900	23.724	22.175	0.536	6.154	458.328	2.739	6.182
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	422.829	26805.674	10.333	162.579	165.323	4.358	32082.398	205908.539
S.D.	9.742	68.625	21.792	96.261	52.727	1.274	1005.169	2789.136
% R.S.D.	2.304	0.256	210.896	59.209	31.893	29.230	3.133	1.355
	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	7.970	80.172	-21524.874	214.466	7638.176	25.060	-18.129	6.841
S.D.	0.168	32.023	0.000	0.796	150.990	2.706	28.179	2.335
% R.S.D.	2.112	39.943	0.000	0.371	1.977	10.797	155.437	34.128
	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	10.663	41.279	23778.987	0.559	136.721	19.533	1.059	196.525
S.D.	1.929	4.612	133.466	0.376	135.558	5.318	0.167	135.889
% R.S.D.	18.088	11.173	0.561	67.189	99.150	27.227	15.746	127.566

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Corrected Counts Statistics 2:30 PM August 17, 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	0.029	0.006
Sr	2	0.285	0.007
Bi	3	-0.054	0.034
Ta	5	-0.017	0.017
Sn	7	-0.073	0.017
Si	8	0.111	0.006
Al	9	1.040	0.031
H	10	0.176	0.025
Co	11	0.017	0.014
Cu	12	0.954	0.003

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Li	14	-0.005	0.008
Zn	15	0.301	0.007
Ni	16	-0.024	0.009
La	17	-0.001	0.002
Eu	18	-0.041	0.005
Fe	19	0.006	0.005
Ca	20	0.496	0.002
Cr	21	8.083	0.062
Nd	22	0.131	0.082
Ce	24	0.011	0.006
Sm	25	-0.012	0.007
Ba	26	-0.001	0.006
P	27	0.346	0.002
S	28	15.562	0.060
Hg	29	0.008	0.001
As	30	0.008	0.007
Na	31	590.239	3.141
Mo	32	0.082	0.005
Ag	33	0.375	0.009
Ti	34	-0.125	0.002
Al	35	-0.030	0.001
Si	36	-0.139	0.005
K	37	-0.030	0.024
Rb	38	0.030	0.011
Sr	39	0.550	0.012
Sb	40	0.006	0.003
Bi	42	-0.019	0.006
Pb	43	0.001	0.003
Be	44	-0.004	0.000
Br	45	-0.088	0.005

WHC-SD-WM-TI-540.REV.1

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Identity 1: R1754 Sam BY-104 Identity 2: .5024g-50ml-1ml-5ml

2:31 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	N (ppb)
Mean	6.236	14.701	-52.045	-15.221	-10.472	36.881	536.574	73.107
S.D.	3.537	0.347	47.769	18.655	5.654	6.356	16.577	10.147
% R.S.D.	56.727	2.363	91.785	122.557	53.993	17.234	3.089	13.877

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	1.586	3.413	2.892	26.918	3.938	5.332	1.748	-0.918
S.D.	4.670	0.890	0.949	0.617	2.967	8.145	0.303	2.264
% R.S.D.	294.565	26.070	32.826	3.076	75.331	152.760	17.344	246.651

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	81.958	4418.142	41.902	18.697	74.396	2.369	5392.936	33430.675
S.D.	0.358	34.018	33.076	24.033	22.353	0.380	24.349	129.590
% R.S.D.	0.437	0.770	78.937	128.540	30.046	16.052	0.452	0.388

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
--	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------

	2.041	33.780	446463.884	37.337	1181.872	13.340	-29.152	4.092
S.D.	0.168	12.594	2376.075	2.570	54.475	0.748	2.362	0.940
% R.S.D.	8.248	37.283	0.532	6.883	4.609	5.607	8.102	22.977

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	2.801	2.359	3998.175	1.087	-148.964	-6.771	-0.481	-272.230
S.D.	1.345	2.651	75.652	0.368	39.358	2.067	0.000	40.680
% R.S.D.	48.011	112.394	1.892	33.836	26.421	30.530	0.000	14.943

Corrected Counts Statistics 2:35 PM August 17, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540,REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
1	0.017	0.006	
2	0.017	0.007	
3	-0.096	0.020	
5	-0.011	0.010	
7	0.012	0.015	
8	0.501	0.008	
9	0.972	0.009	
10	0.024	0.005	
11	1.376	0.009	
12	1.851	0.008	
14	-0.020	0.014	
15	3.908	0.026	
16	1.371	0.026	
17	-0.002	0.002	
18	-0.051	0.004	
19	1.051	0.008	
20	2.523	0.009	
21	0.874	0.009	
22	0.079	0.065	
24	0.022	0.008	
25	-0.040	0.010	
26	6.818	0.017	
27	0.010	0.002	
28	0.018	0.001	
29	1.591	0.004	
30	0.257	0.007	
31	0.706	0.021	
32	1.146	0.015	
33	0.103	0.003	
34	1.780	0.002	
35	0.194	0.011	
36	2.450	0.013	
37	8.267	0.106	
38	1.975	0.008	
39	0.707	0.005	
40	3.704	0.007	
42	0.109	0.016	
43	0.625	0.003	

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Be	44	1.547	0.003
Tl	45	0.006	0.008

WHC-SD-WM-TI-540, REV. 1

Identity 1: CCV Identity 2: Quality Control 2:35 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-0.183	1.021	-112.065	-9.364	17.819	459.205	499.656	26.891
S.D.	3.347	0.340	28.831	11.521	5.057	9.032	4.866	1.852
% R.S.D.	1824.829	33.292	25.727	123.040	28.377	1.967	0.974	6.885

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	463.385	500.657	1.048	479.853	449.213	-0.000	1.053	478.687
S.D.	3.157	2.254	1.712	3.286	8.283	9.145	0.242	3.475
% R.S.D.	0.681	0.450	163.374	0.685	1.844	2995324.000	23.016	0.726

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	478.834	482.270	18.104	64.739	-12.399	485.748	31.665	50.915
S.D.	1.650	5.160	26.142	36.200	31.460	1.199	27.609	2.491
% R.S.D.	0.345	1.070	144.398	55.917	253.722	0.247	87.194	4.893

	Mg (ppb)	As (ppb)	Na (ppb)	Ko (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	463.552	506.021	509.595	591.653	712.943	725.738	500.719	478.471
S.D.	1.271	13.624	16.159	7.838	16.985	0.779	25.034	2.433
% R.S.D.	0.274	2.692	3.171	1.325	2.382	0.107	5.000	0.509

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	467.592	461.143	5015.399	454.362	636.670	480.500	447.482	565.172
S.D.	5.931	1.770	33.248	0.884	97.181	1.966	0.764	73.916
% R.S.D.	1.268	0.384	0.663	0.194	15.264	0.409	0.171	13.077

Corrected Counts Statistics 2:37 PM August 17, 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	0.018	0.005
Sr	2	-0.009	0.002
Bi	3	-0.014	0.015
Ta	5	0.006	0.012
Sn	7	-0.030	0.021
Si	8	0.063	0.005
Al	9	0.014	0.005
W	10	0.010	0.031

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WHC-SD-WM-TI-540,REV.1

	11	-0.008	0.018
	12	0.033	0.001
Li	14	-0.013	0.018
Zn	15	0.041	0.006
Ni	16	-0.081	0.013
La	17	-0.002	0.001
Eu	18	-0.067	0.004
Fe	19	-0.017	0.013
Ca	20	0.023	0.001
Cr	21	-0.019	0.008
Nd	22	-0.001	0.071
Ce	24	0.001	0.005
Sm	25	-0.038	0.003
Ba	26	-0.033	0.005
P	27	0.008	0.002
S	28	-0.008	0.004
Mg	29	0.001	0.001
As	30	-0.016	0.008
Hg	31	0.027	0.009
Mo	32	0.008	0.006
Ag	33	-0.043	0.009
Cd	34	-0.150	0.004
Ti	35	-0.016	0.014
K	36	-0.160	0.008
Se	37	-0.110	0.036
Re	38	-0.020	0.007
Ir	39	-0.054	0.006
	40	0.007	0.004
	42	-0.022	0.018
	43	0.010	0.003
	44	-0.001	0.001
	45	-0.057	0.005

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Identity 1: CCB Identity 2: Quality Control 2:37 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	0.183	-0.323	4.750	10.187	3.896	-15.186	-20.269	23.270
S.D.	2.714	0.088	21.264	13.509	7.138	5.010	2.498	12.738
% R.S.D.	1479.865	27.348	447.693	132.605	183.207	32.991	12.275	54.741
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-6.794	-2.584	1.886	-5.736	-14.473	-3.555	-0.045	-11.321
S.D.	5.946	0.160	2.294	0.725	4.215	3.078	0.272	5.966
% R.S.D.	87.514	6.184	121.659	12.641	29.126	86.596	605.097	52.703
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-3.601	-4.914	-10.431	-24.465	-7.233	0.098	-5.530	-2.116
S.D.	0.189	4.447	28.397	22.425	9.470	0.304	33.182	8.938
% R.S.D.	5.239	90.497	272.229	91.568	130.931	209.666	600.083	422.472

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	-0.000	-9.338	-3.533	-1.042	-24.669	3.990	3.129	0.244
S.D.	0.168	14.920	6.822	2.901	51.589	1.630	32.068	1.375
Z R.S.D.	93019096.985	159.780	193.116	278.499	209.129	40.865	1024.951	562.917

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-1.699	-9.356	80.455	1.311	-165.289	0.261	0.385	5.918
S.D.	2.005	1.701	39.054	0.444	108.306	2.344	0.289	43.789
Z R.S.D.	118.006	18.179	48.542	35.425	65.525	898.645	75.000	739.932

WHC-SD-WM-TI-540, REV. 1

Corrected Counts Statistics 2:39 PM August 17, 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	ZR.S.D. Kpulses
1	0.042	0.013	
2	1.633	0.118	
3	-0.087	0.046	
5	0.013	0.022	
7	-0.125	0.018	
8	0.045	0.015	
9	5.591	0.120	
10	0.561	0.006	
11	0.017	0.017	
12	0.074	0.011	
14	0.003	0.007	
15	0.255	0.008	
16	0.039	0.018	
17	0.000	0.001	
18	-0.005	0.013	
19	0.084	0.013	
20	2.676	0.088	
21	35.270	0.527	
22	0.143	0.088	
24	0.035	0.024	
25	0.002	0.025	
26	0.029	0.020	
27	1.133	0.007	
28	74.492	0.729	
29	0.030	0.001	
30	0.029	0.008	
31	-28.710	0.000	
32	0.318	0.009	
33	1.786	0.030	
34	-0.101	0.007	
35	-0.011	0.005	
36	-0.127	0.017	
37	0.192	0.011	
38	0.161	0.014	
39	2.702	0.036	
40	0.005	0.002	

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	42	-0.001	0.012
	43	0.010	0.009
Be	44	-0.001	0.001
Tl	45	-0.082	0.017

WHC-SD-WM-TI-540, REV. 1

Identity 1: 51754 Dup BY-104 Identity 2: .5015g in 50ml
 Task name: ALL_SIN
 Sample Weight: 1.0000 Solution Volume: 1.00
 On-peak Integrations: 3 Off-peak Integrations: 1

	✓ Zr	Sr	Rb	Ta	Sn	Bi	✓ Pb	Hg
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	13.389	83.512	-77.824	17.872	-12.031	-11.125	79.7347	176.471
S.D.	7.356	6.025	65.549	17.872	7.351	11.127	45.751	2.171
% R.S.D.	53.001	7.215	65.665	140.257	21.305	46.758	2.173	1.294

4	✓ Co	✓ Cu	Li	Zn	✓ Ni	La	Eu	✓ Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1.586	3.949	3.898	21.141	24.052	3.886	4.145	35.033
S.D.	5.755	3.049	0.880	1.046	5.755	3.032	0.879	5.751
% R.S.D.	365.508	34.070	22.581	4.947	23.747	40.692	21.206	16.415

4	✓ Ca	✓ Cr	Mn	Se	Sn	Br	✓ P	✓ S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	483.947	19261.511	43.941	117.111	115.740	4.567	17927.366	155948.507
S.D.	16.597	287.799	35.076	103.625	75.831	1.407	111.761	1566.030
% R.S.D.	3.430	1.494	79.825	87.101	65.807	30.645	0.625	0.979

0	Hg	As	Na	✓ Mo	Se	Ag	Te	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9.456	64.883	-21741.976	140.674	5224.536	12.117	14.739	4.132
S.D.	9.168	15.279	0.000	4.911	56.155	11.657	11.162	7.050
% R.S.D.	1.391	22.844	0.000	3.569	10.733	11.196	74.721	17.010

0	Id	B	✓ Y	✓ Nb	Sn	✓ I	Be	✓ Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	15.219	33.416	17939.172	0.439	-74.650	1.151	0.785	-216.015
S.D.	9.606	3.185	235.488	1.151	11.547	0.075	0.189	147.556
% R.S.D.	3.982	9.532	1.313	41.717	21.010	6.55743	75.000	48.315

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Corrected Counts Statistics 2:45 PM August 17, 1992
 Task name: ALL_SIN
 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.	0.007	0.007
Sr	2	0.331	0.003

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Bi	3	-0.012	0.025
Ta	5	-0.008	0.004
Sn	7	-0.074	0.008
Si	8	0.079	0.008
Al	9	0.957	0.023
H	10	0.132	0.032
Co	11	-0.012	0.006
Cu	12	0.048	0.003
Li	14	-0.017	0.007
Zn	15	0.137	0.005
Ni	16	-0.027	0.012
La	17	-0.004	0.002
Eu	18	-0.058	0.006
Fe	19	0.001	0.006
Ca	20	0.584	0.003
Cr	21	5.097	0.032
Nd	27	-0.075	0.031
Ce	24	0.003	0.010
Sr	25	-0.038	0.011
Th	26	-0.025	0.007
U	27	0.134	0.009
Mo	28	12.331	0.228
Y	29	0.007	0.002
Sc	30	-0.001	0.007
Yb	31	616.943	5.096
Ag	32	0.046	0.004
Pr	33	0.292	0.021
Ge	34	-0.135	0.005
Pb	35	-0.032	0.009
Te	36	-0.146	0.006
Ir	37	-0.028	0.017
Rh	38	0.026	0.012
Se	39	0.414	0.008
As	40	-0.001	0.004
Br	42	-0.038	0.006
K	43	0.005	0.007
Rb	44	-0.002	0.001
Tl	45	-0.067	0.002

WHC-SD-WM-TI-540, REV. 1

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Identity 1: R1754 Dep Dil'n4 Identity 2: .5015g in 50ml 1-5ml

1:45 PM August 17, 1992

Last name: ALL_SIN

Sample Weight: 1.000g Solution Volume: 1.00

On-Peak Integrations: 3 Off-Peak Integrations: 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Er (ppb)	Pr (ppb)	La (ppb)	Y (ppb)
Mean	-5.502	17.015	7.651	-4.4	-17.440	12.378	171.874	50.769
S.D.	1.789	0.154	40.725	4.034	2.701	3.426	12.526	17.040
% R.S.D.	72.742	0.964	532.306	87.1	15.447	51.577	2.547	21.564
	Co (ppb)	Cu (ppb)	Li (ppb)	Cr (ppb)	624 (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-8.380	1.566	1.341	8.721	2.767	-11.212	0.560	-3.213
S.D.	2.184	0.705	0.255	0.957	2.742	8.145	0.370	2.528
% R.S.D.	25.964	50.967	52.817	9.077	115.203	57.251	65.101	78.680

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	F (ppb)	S (ppb)
Mean	100.440	2334.945	-41.084	-15.535	-5.166	0.511	2759.376	26492.570
S.D.	0.572	17.945	12.562	12.512	34.004	0.083	135.571	189.620
% R.S.D.	0.569	0.538	30.576	268.175	658.179	54.571	4.581	1.848

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1.750	17.187	466664.297	18.582	1003.169	2.430	-33.088	2.932
S.D.	0.445	12.217	4611.277	2.105	129.175	1.714	21.946	1.009
% R.S.D.	25.459	71.083	0.988	11.331	12.877	70.834	56.327	34.422

	Cd (ppb)	B (ppb)	I (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Ti (ppb)
Mean	-0.448	3.853	3117.012	0.152	-245.279	-7.546	0.193	-100.607
S.D.	0.941	2.899	54.237	0.512	25.971	2.027	0.334	20.701
% R.S.D.	210.123	75.232	1.743	197.441	13.522	55.791	173.203	20.777

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2.4 Corrected Counts Statistics 2:50 PM August 17, 1992

WHC-SD-WM-TI-540, REV. 1"

2.5 Task name : ALL_SIII

3 Sample Weight : 1.0000 Solution Volume : 1.20

4 On-Peak Integrations : 3 Off-Peak Integrations : 1

4 Analyte Channel Mean Kpulses S.D. Kpulses %R.S.D. Kpulses

Zr	1	0.011	0.004
Bi	2	0.018	0.007
Bi	3	-0.083	0.019
Bi	5	0.015	0.020
Si	7	0.041	0.013
Si	8	0.515	0.008
Si	9	0.962	0.006
W	10	0.930	0.042
W	11	1.406	0.019
Cu	12	1.911	0.006
Li	14	-0.019	0.012
Zn	15	3.773	0.010
Ni	16	1.477	0.016
La	17	-0.003	0.001
Er	18	-0.047	0.004
Fe	19	1.094	0.019
Ca	20	2.617	0.008
Cr	21	0.913	0.002
Nd	22	0.025	0.096
Ce	24	0.016	0.008
Sm	25	-0.030	0.004
Be	26	6.995	0.025
F	27	0.004	0.002
S	28	-0.903	0.010
Mg	29	1.645	0.005
	30	0.291	0.009
	31	0.897	0.014
Mo	32	1.203	0.006
Se	33	0.111	0.006
Ag	34	1.828	0.007

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Pb	35	0.199	0.007
Ti	36	2.528	0.016
Cd	37	8.703	0.059
B	38	2.037	0.010
K	39	0.714	0.006
Mn	40	3.906	0.015
Sb	42	0.064	0.021
V	43	0.650	0.003
Be	44	1.628	0.010
Tl	45	0.021	0.008

WHC-SD-WM-TI-540, REV. 1

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Identity 1: CCV Identity 2: Quality Control 2:50 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-3.301	1.072	-94.054	20.456	27.510	475.114	494.227	29.251
S.D.	2.224	0.340	27.565	22.573	4.266	8.835	2.990	16.930
% R.S.D.	67.358	31.706	29.308	110.349	15.508	1.859	0.605	57.879

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	473.350	517.266	1.090	488.100	483.162	-7.109	1.300	498.422
S.D.	6.322	1.669	1.489	1.258	5.201	5.332	0.254	8.903
% R.S.D.	1.336	0.323	136.695	0.258	1.076	74.997	19.584	1.786

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	496.904	503.927	-3.745	40.279	18.599	498.231	-63.978	4.231
S.D.	1.573	1.137	39.286	35.332	13.512	1.794	27.609	22.047
% R.S.D.	0.316	0.226	1048.895	87.717	72.648	0.360	43.155	521.031

	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Tl (ppb)
Mean	479.396	569.726	586.249	621.695	756.757	743.691	511.741	492.762
S.D.	1.438	16.911	10.590	2.869	38.388	3.352	16.534	2.911
% R.S.D.	0.300	2.968	1.806	0.462	5.073	0.451	3.231	0.591

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	492.016	475.925	5056.434	479.166	359.147	500.293	470.780	692.410
S.D.	3.282	2.386	35.684	1.786	125.106	2.067	2.964	71.752
% R.S.D.	0.667	0.501	0.706	0.373	35.113	0.413	0.630	10.363

Corrected Counts Statistics 2:52 PM August 17, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
-----------------	--------------	--------------	-----------------

	1	0.016	0.004
Bi	2	-0.003	0.007
Ta	3	-0.008	0.023
Sn	5	-0.006	0.012
Si	7	-0.013	0.003
Al	8	0.079	0.005
W	9	0.059	0.023
Co	10	0.015	0.025
Cu	11	-0.007	0.010
Li	12	0.049	0.005
Zn	14	-0.015	0.006
Ni	15	0.040	0.008
La	16	-0.039	0.016
Eu	17	-0.003	0.001
Fe	18	-0.050	0.010
Ca	19	-0.006	0.003
Cr	20	0.026	0.001
Nd	21	-0.004	0.013
Ce	22	-0.035	0.046
Sr	24	0.008	0.006
Ba	25	-0.029	0.008
Pb	26	-0.016	0.011
Cd	27	0.003	0.003
Mn	28	-0.008	0.009
V	29	0.000	0.002
Be	30	-0.009	0.011
Tl	31	0.097	0.008
	32	0.004	0.002
	33	-0.032	0.013
	34	-0.127	0.007
	35	-0.025	0.004
	36	-0.139	0.003
	37	-0.092	0.057
	38	-0.000	0.004
	39	-0.058	0.006
	40	0.001	0.002
	42	-0.076	0.037
	43	0.006	0.004
	44	-0.003	0.001
	45	-0.068	0.014

WHC-SD-WM-TI-540, REV. 1

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Identity 1: CCB Identity 2: Quality Control 2:52 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-0.734	-0.017	13.272	-3.353	9.354	1.446	4.162	25.141
S.D.	1.984	0.368	33.144	13.145	0.841	5.460	12.628	10.000
% R.S.D.	270.416	2163.333	249.732	392.097	8.990	377.492	303.384	39.777

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-6.681	1.937	1.634	-5.904	-0.957	-5.332	1.143	-6.425
S.D.	3.229	1.465	0.785	0.548	5.108	3.078	0.639	1.402

Z R.S.D. 48.329 75.624 48.040 16.062 533.513 37.732 55.912 21.822

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-3.031	3.094	-24.378	5.748	21.699	1.246	-74.605	-1.405
S.D.	0.203	7.345	18.319	26.256	24.604	0.749	48.699	19.682
Z R.S.D.	6.681	237.405	75.146	456.817	113.389	60.090	65.276	1400.909

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	-0.292	3.286	49.167	-3.125	41.288	12.468	-17.342	4.153
S.D.	0.445	21.397	5.908	0.902	81.581	2.706	8.516	0.635
Z R.S.D.	152.752	651.210	12.016	28.871	197.590	21.703	49.108	15.283

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-0.672	-4.639	58.858	0.534	-495.868	-2.604	-0.096	-97.648
S.D.	3.176	1.028	41.655	0.245	225.013	3.158	0.167	125.958
Z R.S.D.	472.592	22.164	70.772	45.995	45.378	121.262	173.209	128.993

WHC-SD-WM-TI-540, REV. 1

Corrected Counts Statistics 2:53 PM August 17, 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	Z R.S.D. Kpulses
-----------------	--------------	--------------	------------------

Zr	1	0.029	0.006
Sr	2	0.037	0.004
Pb	3	-0.078	0.022
Ta	5	-0.040	0.006
Se	7	4.120	0.050
Si	8	0.496	0.005
Q	9	472.093	1.706
W	10	-0.042	0.024
Co	11	0.005	0.004
Cu	12	0.072	0.004
Li	14	-0.025	0.003
Zn	15	0.135	0.005
Ni	16	-0.035	0.013
La	17	-0.007	0.001
Eu	18	0.032	0.002
Fe	19	211.050	0.430
Ca	20	990.631	2.201
Cr	21	0.013	0.012
Nd	22	3.179	0.093
Ce	24	-0.002	0.010
Sm	25	-6.987	0.007
Ba	26	0.017	0.008
P	27	0.019	0.006
S	28	1.237	0.024
Hg	29	657.236	1.108
As	30	0.322	0.002
Na	31	0.158	0.011
Mo	32	0.094	0.002

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	33	-0.050	0.009
Ag	34	-0.132	0.004
Pb	35	-0.105	0.012
Ti	36	-0.138	0.007
Cd	37	0.248	0.027
B	38	-0.426	0.015
K	39	-0.057	0.007
Mn	40	1.365	0.014
Sb	42	0.012	0.024
V	43	0.004	0.002
Be	44	0.003	0.000
Tl	45	-0.091	0.003

WHC-SD-WM-TI-540, REV. 1

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Identity 1: ICSA-F Identity 2: ICSA 2:54 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	6.603	2.025	-86.350	-42.973	1390.405	454.143	256274.929	1.853
S.D.	3.177	0.223	30.524	7.185	16.595	5.424	926.453	9.570
% R.S.D.	48.113	10.989	35.349	17.078	1.194	1.194	0.362	516.397

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-2.604	8.211	0.377	6.970	9.213	-30.214	6.655	96858.233
S.D.	1.373	1.048	0.333	0.644	3.992	3.078	0.140	197.305
% R.S.D.	52.718	12.763	88.206	10.518	1872.654	10.188	2.103	0.204

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	191409.517	12.557	-122.447	-37.417	-21547.840	3.493	175.128	993.328
S.D.	425.329	6.468	40.269	43.907	21.992	0.587	88.752	51.506
% R.S.D.	0.222	51.505	32.887	117.079	0.102	16.792	50.679	5.185

	Hg (ppb)	As (ppb)	Na (ppb)	Hf (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	191651.846	629.699	95.563	-2.952	-72.065	10.847	-206.300	4.397
S.D.	322.984	4.445	8.017	1.984	54.846	1.416	28.735	1.247
% R.S.D.	0.169	0.706	8.390	36.740	76.106	13.055	13.929	28.362

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	18.337	-105.123	63.177	32.416	44.893	-4.167	1.540	-298.861
S.D.	1.485	3.569	45.354	1.522	145.170	1.626	0.000	23.486
% R.S.D.	8.096	3.396	71.788	4.697	323.367	39.025	0.000	7.859

ected Counts Statistics 2:56 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	6.603	2.467	-127.939	-60.277	1376.037	451.612	250492.055	19.934
S.D.	3.664	0.340	11.549	10.472	7.169	3.809	425.633	7.451
Z R.S.D.	55.486	13.776	9.027	-17.405	0.521	0.844	0.170	37.379

WHC-SD-WM-TI-540, REV. 1

	435.187	503.887	3.018	923.033	883.526	-33.769	6.565	94590.396
	1.932	0.890	0.251	2.364	0.975	5.332	0.336	176.473
Z R.S.D.	0.444	0.177	8.334	0.256	0.110	15.789	5.120	0.187

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	187738.273	487.912	-85.847	-27.345	-21438.314	483.149	63.545	1069.187
S.D.	141.233	6.437	16.355	43.235	24.210	0.354	57.474	3.079
Z R.S.D.	0.075	1.319	19.051	158.113	0.113	0.073	90.445	0.288

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	186475.011	676.758	84.468	-10.419	204.786	1016.856	711.722	5.375
S.D.	250.632	10.542	12.016	3.126	48.838	0.748	49.620	1.164
Z R.S.D.	0.134	1.558	14.226	30.001	23.848	0.074	6.972	21.651

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	918.565	-106.224	158.205	479.945	79.584	478.938	441.417	-88.771
S.D.	5.198	1.571	58.790	1.131	52.305	1.626	0.764	67.800
Z R.S.D.	0.566	1.479	37.161	0.236	65.723	0.340	0.173	76.376

Corrected Counts Statistics 2:59 PM August 17, 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	ZR.S.D. Kpulses
1	0.037	0.004	
2	0.018	0.001	
3	0.030	0.031	
5	0.015	0.014	
7	0.055	0.028	
8	0.073	0.006	
9	0.177	0.019	
10	0.022	0.007	
11	0.007	0.009	
12	0.062	0.001	
14	0.001	0.002	
15	0.043	0.008	
16	-0.033	0.007	
17	0.002	0.000	
18	-0.038	0.005	
19	0.037	0.013	
20	0.203	0.040	
21	0.007	0.009	
22	0.112	0.079	
24	0.038	0.009	
25	0.002	0.003	
26	0.010	0.008	
27	0.009	0.003	
28	-0.003	0.007	
29	0.114	0.026	
30	0.006	0.098	

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Na	31	0.108	0.012
Mo	32	0.028	0.007
Se	33	-0.035	0.004
Ag	34	-0.124	0.005
Pb	35	-0.020	0.009
Ti	36	-0.134	0.004
Cd	37	-0.032	0.030
B	38	0.007	0.004
K	39	-0.042	0.005
Mn	40	0.004	0.005
Sb	42	-0.005	0.018
V	43	0.018	0.003
Be	44	-0.004	0.001
Tl	45	-0.058	0.005

WHC-SD-WM-TI-540, REV. 1

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Identity 1: xxx Identity 2: Rinse 2:59 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

Pre-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr	Sr	Bi	Ta	Sn	Si	Al	N
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	11.005	1.038	67.027	20.539	32.299	-4.339	68.044	28.109
S.D.	2.224	0.059	44.233	15.385	9.202	6.628	10.104	2.584
Z R.S.D.	20.207	5.679	65.993	74.904	28.489	152.753	14.848	10.261
	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-1.698	5.628	3.688	-5.527	1.065	19.550	1.904	13.463
S.D.	3.157	0.320	0.262	0.981	2.353	0.000	0.332	5.751
Z R.S.D.	185.849	5.680	7.097	17.749	221.066	0.000	17.411	42.716
	Ca	Cr	Nd	Ce	Sr	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	31.162	8.918	34.630	136.580	118.826	3.228	15.724	9.747
S.D.	7.733	4.954	31.861	36.711	8.948	0.537	42.174	13.932
Z R.S.D.	24.814	55.553	92.005	26.859	7.531	16.626	268.213	142.934
	Mg	As	Na	Mo	Se	Hg	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	32.854	31.514	57.740	9.552	19.459	13.839	-5.532	5.130
S.D.	7.440	14.733	9.397	3.769	23.017	1.728	20.455	0.741
Z R.S.D.	22.646	46.750	16.276	39.457	118.284	12.483	369.777	14.434
	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	2.652	-3.066	160.364	-0.836	-59.178	5.251	-0.578	-8.877
S.D.	1.690	0.828	34.284	0.410	112.271	2.512	0.167	45.553
Z R.S.D.	63.739	27.015	21.379	72.836	189.718	49.179	28.868	513.160

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Corrected Counts Statistics 3:00 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	ZR.S.D. Kpulses
Zr	1	0.018	0.002
Sr	2	0.007	0.002
Bi	3	0.002	0.021
Ta	5	-0.017	0.013
Sn	7	0.071	0.012
Si	8	0.081	0.008
Al	9	0.031	0.015
W	10	-0.018	0.019
Co	11	0.284	0.004
Cu	12	0.236	0.005
Li	14	-0.013	0.003
Zn	15	0.371	0.002
Ni	16	0.220	0.021
La	17	0.001	0.001
Fe	18	-0.049	0.001
Mo	19	0.017	0.007
Cr	20	0.061	0.002
Ce	21	0.037	0.005
Sm	22	0.143	0.057
As	24	0.009	0.006
Sb	25	-0.017	0.007
Pb	26	-0.013	0.003
Hg	27	-0.001	0.004
Na	28	-0.004	0.008
Mg	29	0.021	0.001
Ca	30	0.002	0.003
K	31	0.080	0.010
Mn	32	0.012	0.008
Se	33	-0.026	0.003
Ag	34	-0.088	0.002
Pb	35	0.003	0.006
Ti	36	-0.158	0.005
Co	37	0.090	0.038
B	38	-0.002	0.006
K	39	-0.054	0.009
Mn	40	0.240	0.003
Sb	42	0.033	0.009
V	43	0.149	0.002
Be	44	0.031	0.001
Tl	45	-0.048	0.004

WHC-SD-WM-TI-540, REV. 1

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Identity 1: CRI-F Identity 2: CRI 3:01 PM August 17, 1992

Task name : ALL_SIN

Sample Weight : 1.0000 Solution Volume : 1.00 633

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr	Sr	Bi	Ta	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	0.550	0.476	27.329	-15.748	37.646	4.339	-11.220	11.591
S.D.	1.145	0.118	29.083	14.395	4.124	7.097	8.004	7.755
Z R.S.D.	208.167	24.744	106.418	91.413	10.955	209.662	71.333	66.910

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	92.179	53.700	1.886	35.710	81.627	15.995	1.165	4.284
S.D.	1.373	1.438	0.377	0.270	6.623	3.078	0.039	3.213
Z R.S.D.	1.489	2.678	20.001	0.812	8.114	19.245	3.331	75.000

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	3.638	25.479	47.164	8.625	59.930	1.578	-148.993	7.126
S.D.	0.404	2.502	22.773	23.773	20.640	0.233	55.981	17.042
Z R.S.D.	11.108	9.820	48.285	275.624	34.440	14.758	37.573	239.161

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	5.638	24.060	36.307	1.216	70.816	27.055	49.581	0.733
S.D.	0.337	5.736	7.216	3.910	15.218	0.571	13.009	0.940
Z R.S.D.	5.973	23.838	19.875	321.557	21.489	2.112	26.237	128.290

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	9.505	-5.032	80.455	29.801	173.452	109.122	9.627	79.893
S.D.	2.113	1.362	55.104	0.309	52.780	1.193	0.289	33.608
Z R.S.D.	22.233	27.064	68.491	1.035	30.429	1.094	3.000	42.066

Corrected Counts Statistics 3:02 PM August 17, 1992

Test name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	ZR.S.D. Kpulses
Zr	1	0.006	0.006
Sr	2	0.002	0.008
Bi	3	-0.076	0.025
Ta	5	-0.015	0.006
Sn	7	0.019	0.028
Si	8	0.477	0.004
Al	9	0.858	0.028
W	10	0.025	0.038
Co	11	1.323	0.009
Cu	12	1.825	0.015
Li	14	-0.022	-0.012
Zn	15	3.806	0.033
Ni	16	1.388	0.016
La	17	-0.003	0.001
Eu	18	-0.066	0.006
Fe	19	1.029	0.029
Ca	20	2.517	0.024
Cr	21	0.854	0.003
Nd	22	0.105	0.047
Ce	24	-0.003	0.007

	25	-0.056	0.010
	26	6.657	0.056
P	27	0.005	0.003
S	28	-0.006	0.003
Mg	29	1.560	0.013
As	30	0.246	0.005
Na	31	0.667	0.014
Mo	32	1.114	0.009
Se	33	0.096	0.003
Ag	34	1.754	0.018
Pb	35	0.195	0.006
Ti	36	2.362	0.014
Cd	37	8.069	0.039
B	38	1.942	0.021
K	39	0.694	0.005
Mn	40	3.696	0.040
Sb	42	0.083	0.025
V	43	0.607	0.003
Be	44	1.528	0.019
Li	45	-0.010	0.005

WHC-SD-WM-TI-540, REV. 1

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Identity 1: CCV Identity 2: Quality Control 3:02 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	H (ppb)
Mean	-6.053	0.221	-84.124	-13.806	20.158	433.894	437.765	27.342
S.D.	3.362	0.383	35.701	6.873	9.356	4.384	15.397	15.294
% R.S.D.	55.546	173.205	42.438	49.782	46.414	1.010	3.517	55.935

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	445.153	493.552	0.754	467.126	454.641	-7.109	0.022	468.896
S.D.	3.083	4.078	1.545	4.183	4.977	5.332	0.370	13.304
% R.S.D.	0.692	0.826	204.820	0.896	1.095	74.997	1658.417	2.837

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sr (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	477.624	471.533	28.570	-41.733	-61.996	474.272	-42.724	-0.610
S.D.	4.710	1.891	18.679	30.215	29.894	3.997	51.241	5.376
% R.S.D.	0.986	0.401	65.379	72.400	48.218	0.843	115.936	881.522

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	454.610	484.215	480.597	575.155	673.926	716.138	501.506	462.469
S.D.	3.669	8.425	10.270	4.542	21.173	6.575	13.009	2.567
% R.S.D.	0.807	1.740	2.137	0.790	3.142	0.918	2.594	0.555

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	456.482	453.438	4931.171	453.741	477.502	466.437	441.898	423.140
S.D.	2.167	4.970	29.216	4.841	150.826	2.397	5.437	43.789
% R.S.D.	0.475	1.096	0.592	1.068	31.586	0.512	1.230	10.349

Corrected Counts Statistics 3:05 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.022	0.004
Sr	2	0.001	0.004
Bi	3	-0.039	0.016
Ta	5	0.008	0.010
Sn	7	-0.013	0.015
Si	8	0.071	0.003
Al	9	0.040	0.008
W	10	-0.015	0.018
Co	11	0.002	0.007
Cu	12	0.049	0.005
33	14	-0.020	0.004
Zn	15	0.041	0.008
21	16	-0.013	0.008
Ca	17	-0.003	0.001
Eu	18	-0.052	0.002
44	19	-0.013	0.006
Ca	20	0.035	0.002
21	21	-0.013	0.006
Nd	22	0.032	0.096
24	24	0.005	0.004
25	25	-0.023	0.002
26	26	-0.014	0.006
27	27	0.015	0.001
28	28	-0.005	0.009
29	29	0.007	0.001
As	30	-0.010	0.003
31	31	0.057	0.011
Mo	32	0.013	0.008
Se	33	-0.062	0.007
Ag	34	-0.141	0.002
Pb	35	-0.018	0.008
Ti	36	-0.152	0.003
Cd	37	-0.092	0.030
B	38	-0.004	0.002
K	39	-0.048	0.005
Mn	40	-0.003	0.004
Sb	42	-0.008	0.007
V	43	0.007	0.003
Be	44	-0.002	0.002
Tl	45	-0.073	0.001

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Identity 1: CCB Identity 2: Quality Control 3:05 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540,REV.1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	2.751	0.187	-30.682	13.101	7.465	-7.232	-6.153	13.059
S.D.	2.224	0.184	21.955	11.337	5.012	3.314	4.309	7.520
% R.S.D.	80.829	98.333	71.556	86.537	52.954	45.826	70.035	57.584

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-3.397	1.845	0.964	-5.778	7.450	-8.887	0.963	-9.485
S.D.	2.262	1.248	0.442	1.095	2.438	6.157	0.140	2.792
% R.S.D.	66.586	67.668	45.810	17.389	32.731	69.280	14.525	29.433

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-1.350	-1.638	2.825	-8.641	39.264	1.392	111.366	5.022
S.D.	0.398	3.199	38.705	17.445	4.735	0.476	15.940	18.343
% R.S.D.	29.477	195.333	1370.240	201.893	12.059	34.219	14.313	365.244

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1.555	1.501	18.909	1.737	-138.193	7.356	-1.595	1.832
S.D.	0.337	5.896	8.321	4.243	41.257	0.648	19.809	0.461
% R.S.D.	21.651	392.888	44.006	244.277	29.855	8.807	1241.787	25.166

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-0.709	-5.661	121.490	0.091	-77.543	-2.083	0.000	-139.074
S.D.	1.697	0.545	33.667	0.431	40.761	2.344	0.441	8.877
% R.S.D.	239.175	9.623	27.712	45072.535	52.566	112.521	19006739.983	6.383

Corrected Counts Statistics 3:07 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	-0.009	0.004
Sr	2	187.456	1.261
Bi	3	-0.049	0.019
Ta	5	-0.002	0.005
Sn	7	14.266	0.096
Si	8	0.076	0.005
Al	9	-0.268	0.024
W	10	0.303	0.011
Co	11	27.695	0.182
Cu	12	18.155	0.113
Li	14	78.668	0.558
Zn	15	77.346	0.573
Ni	16	14.649	0.116
	17	-0.001	0.001
	18	-0.042	0.002
Fe	19	10.421	0.065
Ca	20	49.630	0.327
Cr	21	9.027	0.049

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Nd	22	0.114	0.025
Ce	24	0.115	0.006
Sm	25	-0.287	0.004
Ba	26	136.331	0.897
P	27	0.010	0.003
S	28	0.098	0.004
Mg	29	15.892	0.121
As	30	0.027	0.005
Na	31	13.015	0.077
Mo	32	0.004	0.004
Se	33	0.475	0.003
Ag	34	-0.136	0.003
Pb	35	-0.016	0.006
Ti	36	-0.151	0.002
Cd	37	166.967	1.396
B	38	20.175	0.137
K	39	0.703	0.004
Mn	40	37.669	0.307
Sb	42	0.812	0.010
Zn	43	0.003	0.004
Be	44	-0.003	0.001
Tl	45	-0.075	0.007

WHC-SD-WM-TI-540, REV. 1

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Identity 1: SST1 Identity 2: Quality Control 3:07 PM August 17, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-14.673	9569.073	-45.415	1.377	4780.714	-1.808	-173.369	122.980
S.D.	1.932	64.363	26.481	5.195	32.032	5.566	12.767	4.535
% R.S.D.	13.170	0.673	58.309	377.171	0.670	307.896	7.364	3.769

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	9404.371	5013.869	9894.672	9703.318	4688.584	3.554	1.680	4779.224
S.D.	61.828	31.239	70.153	71.931	37.136	5.332	0.155	29.701
% R.S.D.	0.657	0.623	0.709	0.741	0.792	150.011	9.238	0.621

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	9575.414	4933.716	-33.923	469.048	-778.053	9666.241	31.665	142.924
S.D.	63.056	26.819	9.669	23.773	12.399	63.626	47.821	8.127
% R.S.D.	0.659	0.544	28.503	5.068	1.594	0.658	151.024	5.686

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	4633.772	68.823	9820.775	-3.299	1633.692	9.101	4.703	2.016
S.D.	35.345	9.175	58.450	1.972	28.472	1.202	13.009	0.280
% R.S.D.	0.763	13.331	0.595	59.786	1.743	13.210	276.580	13.987

	Cd (ppb)	B (ppb)	V (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	9357.832	4754.140	4987.323	4613.704	4940.312	-5.208	-0.289	-159.787
S.D.	78.193	32.403	23.361	37.539	59.037	3.125	0.334	65.434

S.D. 0.836 0.682 0.468 0.816 1.195 60.005 115.471 40.951

Corrected Counts Statistics 3:09 PM August 17, 1992

WHC-SD-WM-TI-540,REV.1

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	-0.117	0.002
Sr	2	0.079	0.023
Bi	3	3.706	0.057
Ta	5	-0.012	0.007
Sn	7	-0.118	0.015
Si	8	0.021	0.002
Al	9	0.720	0.039
Fe	10	-0.032	0.016
Cu	11	-0.006	0.009
Zn	12	0.124	0.005
Co	14	0.018	0.004
Ni	15	0.445	0.022
La	16	-0.018	0.031
Pr	17	0.941	0.008
Eu	18	72.105	0.696
Gd	19	0.003	0.015
Ca	20	0.282	0.004
Sc	21	-0.010	0.006
Nd	22	12.523	0.081
Sm	24	1.177	0.012
Sr	25	1.588	0.021
Ba	26	-0.344	0.017
Th	27	0.013	0.002
Pa	28	0.008	0.002
U	29	0.021	0.002
As	30	0.021	0.005
Na	31	0.086	0.013
Mo	32	0.021	0.005
Se	33	-0.024	0.004
Ag	34	13.015	0.129
Pb	35	2.042	0.022
Ti	36	-0.176	0.004
Cd	37	-0.031	0.039
B	38	0.044	0.012
K	39	-0.044	0.005
Mn	40	0.010	0.007
Sb	42	-0.023	0.009
V	43	0.040	0.001
Be	44	-0.001	0.001
Tl	45	-0.055	0.005

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Identity 1: SST2 Identity 2: Quality Control

3:09 PM August 17, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

	Zr (ppb)	Sr (ppb)	Pi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-74.098	4.186	5251.136	5.207	-25.732	-61.468	363.205	5.984
S.D.	1.145	1.151	80.850	7.780	5.137	2.258	20.973	6.703
% R.S.D.	1.546	27.495	1.540	149.421	19.963	3.674	5.774	112.012

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-6.341	22.698	5.784	44.962	5.854	5024.358	4851.393	-1.989
S.D.	3.211	1.269	0.503	2.726	9.904	40.723	46.786	6.688
% R.S.D.	50.635	5.589	8.696	6.062	169.199	0.811	0.964	336.274

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sr (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	46.440	-0.364	5026.132	5053.128	5035.131	6.143	74.172	33.234
S.D.	0.700	3.104	32.619	51.134	63.704	1.007	36.813	3.286
% R.S.D.	1.508	853.286	0.649	1.012	1.265	16.393	49.631	9.886

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	5.832	-80.275	41.098	5.905	92.561	4928.062	4864.867	-2.565
S.D.	0.445	10.888	10.073	2.673	23.480	48.250	51.802	0.741
% R.S.D.	7.638	13.563	24.511	45.276	25.367	0.979	1.065	28.868

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	2.745	5.818	149.566	1.562	-169.370	23.960	0.481	23.672
S.D.	2.189	2.713	30.619	0.798	52.066	0.902	0.167	40.029
% R.S.D.	79.726	46.636	20.472	51.072	30.741	3.765	34.641	169.077

Corrected Counts Statistics 3:10 PM August 17, 1972

Peak name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	17.477	0.196
Sr	2	0.123	0.011
Pi	3	-0.950	0.016
Ta	5	8.220	0.080
Sn	7	0.144	0.023
Si	8	8.664	0.148
Al	9	8.805	0.081
W	10	23.490	0.377
Co	11	-0.053	0.015
Cu	12	0.055	0.003
Li	14	-0.020	0.013
Zn	15	1.837	0.023
Ni	16	0.185	0.017
La	17	-0.004	0.001
Eu	18	-0.065	0.019
Fe	19	0.022	0.018

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WHC-SD-WM-TI-540, REV. 1

	20	1.018	0.019
Li	21	0.027	0.007
Nd	22	-0.051	0.023
Ce	24	0.018	0.011
Sm	25	-0.079	0.010
Ba	26	-0.011	0.010
P	27	0.616	0.026
S	28	2.461	0.080
Hg	29	0.042	0.001
As	30	2.529	0.030
Na	31	0.158	0.024
Mo	32	18.784	0.204
Se	33	0.811	0.008
Ag	34	0.368	0.016
Pb	35	-0.074	0.005
Ti	36	25.618	0.309
Cd	37	-0.287	0.031
B	38	0.016	0.009
2	39	-0.061	0.009
Mn	40	-0.006	0.001
50	42	0.018	0.026
2	43	12.217	0.141
Ge	44	30.630	0.351
4	45	0.596	0.004

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Identity 1: SST3 Identity 2: Quality Control 3:10 PM August 17, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9606.676	6.432	-1323.907	9272.146	62.039	9314.266	4752.615	9600.523
S.D.	107.854	0.569	22.009	90.912	7.710	160.251	43.839	153.773
% R.S.D.	1.123	8.850	1.662	0.969	12.427	1.720	0.922	1.602

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-22.308	3.690	1.048	219.747	70.559	-10.664	0.112	6.425
S.D.	4.950	0.799	1.660	2.837	5.275	3.078	1.298	8.329
% R.S.D.	22.191	21.655	158.452	1.291	7.476	28.867	1159.652	129.625

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	108.693	20.201	-32.072	48.912	-132.259	1.571	9686.204	5297.894
S.D.	3.625	3.716	9.067	49.026	30.107	0.715	407.753	171.820
% R.S.D.	1.921	18.397	28.272	100.232	22.764	45.522	4.210	3.243

	Hg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	11.859	4791.605	95.311	9780.930	5117.103	197.861	-133.079	4723.569
S.D.	0.292	56.398	17.789	106.164	49.573	6.058	10.824	56.687
% R.S.D.	2.459	1.177	18.664	1.095	0.969	3.042	8.133	1.200

	Cd	B	V	Mn	Sb	V	Re	Il
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)

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WHC-SD-WM-TI-540, REV. 1

Mean	-11.614	-0.786	37.261	-0.591	79.584	9537.854	8847.396	5799.675
S.D.	1.726	2.192	55.356	0.048	156.316	110.411	101.180	35.508
% S.D.	14.858	278.775	148.569	13.842	196.418	1.158	1.146	0.612

Teresa L. Frasier
R1251-54
8/17/92

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WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
ANALYTICAL BATCH

WHC-SD-WM-TI-540.REV.1

Calibration

MEL. MET 7-20-92

Lab Segment Serial No.: J1754	Customer ID: BY-104
Analysis: IC: F, Cl, NO₂, NO₃, PO₄, SO₄	Sample Prep: H₂O Digest

Instrument: Dionex 4000i (WB97286)	Procedure/Rev: LA-533-105 (B-1) RUS
Technologist: David R. Jackson	Date: 8-14-92
Starting Time: 9:32	Temperature: 27°C
Ending Time: 10:28	Chemist: D. J. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R1751-7571	11		
2	REAGENT BLANK	R1752-7671	12		
3	BY104 RSA #429	R1754-7771	13		
4	BY-104 RSA #429 Dup.	R1754-7871	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
Dionex 2-IE LMCS	73C11EJ (.600mL)	73C11EJ (.600mL)	8-19-92	
8-19-92				

A-6000-881 (03/92)

PO₄ analysis has a large RPD. This is reproducible and consistent with a previous water digest done on this BY 104 sample.

643

Denise L. Hertz

00740042272

WHC-SD-WM-TI-540,REV.1

===== *8-14-92* =====
 : Sample Name: LMCS/73C11EJ Date: ~~Fri Aug 13~~ 09:32:10 1992!
 : Data File : c:\dx\data\92081401.D02 *Fri Aug 14*
 : Method : c:\dx\method\mel.met
 : ACI Address: 1 System : 1 Inject#: 2 Detector: CDM-1
 =====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	17.7	2405	5Hz	0.00	8.02		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.96		18175.208	208	1027	2	
2	1.14	FLUORIDE	54.847 <i>97.9%</i>	7206	45849	2	0.00
3	1.74	CHLORIDE	73.688 <i>98.3%</i>	6299	39975	2	-0.57
4	2.10	NITRITE	508.629 <i>101%</i>	27151	201728	2	-0.47
5	3.08		2857001.614	18761	161413	2	
6	3.48	NITRATE	609.233 <i>105%</i>	17242	211093	2	-4.13
7	5.39	PHOSPHATE	519.888 <i>101%</i>	5713	85371	1	-0.92
8	7.13	SULFATE	613.811 <i>102%</i>	15617	272701	1	-0.97

File: c:\dx\data\92081401.D02 Sample: LMCS/73C11EJ

DES 8-14-92

=====

Sample Name: BLK	Date: Thu Aug 13 09:51:03 1992
Data File : c:\dx\data\92081411.D04	Fri Aug 14
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1 Inject#: 4 Detector: CDM-1

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2405	5Hz	0.00	8.02		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.29		722.500	114	722	1	
2	1.76	CHLORIDE	0.020	33	427	1	0.57
3	2.77		2878.300	243	2878	1	
4	3.62	NITRATE	-0.153	61	504	1	-0.28
5	7.26	SULFATE	0.560	229	3580	1	0.83

File: c:\dx\data\92081411.D04 Sample: BLK

0 0 7 4 0 9 4 2 2 7 6

DRJ 8-14-92

=====

Sample Name: R1754	Date: Thu Aug 13 10:00:18 1992
Data File : c:\dx\data\92081411.D05	Fri 14
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1 Inject#: 5 Detector: CDM-1

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	21	2405	5Hz	0.00	8.02		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	101.634	12782	74770	1	0.00
2	1.76	CHLORIDE	11.041	943	4955	1	-0.30
3	2.10	NITRITE	151.004	7270	49383	1	-1.34
4	3.48	NITRATE	754.404	18278	221382	1	-4.97
5	5.49	PHOSPHATE	44.235	349	4945	1	0.04
6	7.19	SULFATE	419.774	8910	149969	1	-1.01

File: c:\dx\data\92081411.D05 Sample: R1754

=====

Sample Name: R1754	Date: Thu Aug 13 10:19:05 1992
Data File : c:\dx\data\92081401.D07	
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1 Inject#: 7 Detector: CDM-1

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	231	2405	5Hz	0.00	8.02		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.10		1278677.400	708	5535	1	
2	1.14	FLUORIDE	130.728	1161	7817	3	0.00
3	1.50		154965.401	74	671	4	
4	1.74	CHLORIDE	16.131	142	872	2	-0.57
5	2.09	NITRITE	176.815	672	4282	1	-0.95
6	3.58	NITRATE	778.053	2053	20096	1	-1.38
7	7.24	SULFATE	470.251	857	14174	1	0.56

File: c:\dx\data\92081401.D07 Sample: R1754

WHC-SD-WM-TI-540,REV.1

DRJ 8-14-92

Sample Name: R1754/D Date: Thu Aug 13 10:09:42 1992
 Data File : c:\dx\data\92081411.D06 Fri 14
 Method : c:\dx\method\mel.met
 ACI Address: 1 System : 1 Inject#: 6 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	21	2405	5Hz	0.00	8.02		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.08		45864.000	366	2184	1	
2	1.15	FLUORIDE	113.456	14145	84737	1	0.00
3	1.76	CHLORIDE	12.406	1035	5542	1	-0.30
4	2.10	NITRITE	163.290	7789	53497	1	-1.34
5	3.48	NITRATE	727.437	17556	212590	1	-4.97
6	5.49	PHOSPHATE	32.648	243	3445	1	0.04
7	7.18	SULFATE	473.049	10067	170322	1	-1.14

File: c:\dx\data\92081411.D06 Sample: R1754/D

WHC-SD-WM-TI-540,REV.1

Sample Name: R1754/D Date: Thu Aug 13 10:28:24 1992
 Data File : c:\dx\data\92081401.D08
 Method : c:\dx\method\mel.met
 ACI Address: 1 System : 1 Inject#: 8 Detector: CDM-1

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ
 External 1 231 2405 5Hz 0.00 8.02 5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.26		1204226.100	275	5213	1	
2	1.14	FLUORIDE	110.765	1074	6589	2	0.00
3	1.50		108397.191	58	469	2	
4	1.74	CHLORIDE	17.611	152	929	2	-0.57
5	2.09	NITRITE	167.912	621	4011	1	-0.95
6	3.58	NITRATE	714.256	1893	18547	1	-1.38
7	7.25	SULFATE	459.503	838	13839	1	0.69

File: c:\dx\data\92081401.D08 Sample: R1754/D

DATA REPROCESSED ON Wed Sep 23 11:34:19 1992

WHC-SD-WM-TI-540, REV.1

=====
! Sample Name: R1753/SPIKE Date: Wed Sep 16 15:44:18 1992!
! Data File : C:\DX\DATA\92091611.D06 !
! Method : c:\dx\method\mel.met !
! ACI Address: 1 System : 1 Inject#: 6 Detector: CDM-1 !
=====

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ

External 1 41 2465 5Hz 0.00 8.22 5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.16	FLUORIDE	102.600	6944	38728	1	0.00
2	1.81	CHLORIDE	52.687	2071	12237	2	-1.09
3	2.18	NITRITE	422.159	10469	73765	2	-2.24
4	2.84		128767.554	289	3141	2	
5	3.29		984702.996	3029	24017	2	
6	3.71	NITRATE	737.320	9946	110961	2	-7.02
7	5.54	PHOSPHATE	275.006	1309	18183	1	-1.77
8	7.17	SULFATE	512.812	5882	96387	1	-4.14

File: C:\DX\DATA\92091611.D06 Sample: R1753/SPIKE

650

8-24-92
MEL.MET Calibration
D. R. Jahan

DIONEX METHOD PARAMETERS - MEL.MET

System Parameters

WHC-SD-WM-TI-540,REV.1

System Name : system1/qpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 1.00
Run Time (minutes)..... 8.00
Sampling Rate (seconds)..... 0.20

-- DETECTOR 1 PARAMETERS -- Report Options

Save Data File..... Yes
Data File Name: c:\dx\data\92082401.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.prf

Integration Parameters

Starting Peak Width (seconds)..... 5.0
Peak Threshold (mV or uS/data pt interval)..... 0.040
Peak Area Reject..... 5
Area Reject for Reference Peaks..... 5
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description
0.99	Void volume treatment for this peak

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..... 17.7
Response Factor for Unknown Peaks..... 1.0
Calibration Standard Volume 1.0
Internal Standard Volume 1.0
Sample Unit PPM

Component # 1 FLUORIDE
 Reference Peak FLUORIDE
 Amount = $K_0 + K_1 \text{Area} + K_2 \text{Area}^2$
 $K_0 = -3.92445\text{E}-002$
 $K_1 = 6.95366\text{E}-005$
 $K_2 = -1.00889\text{E}-010$

Retention Time 1.12
 Window Size 7.00%

WHC-SD-WM-TI-540,REV.1

Level	Amount	Area	Height
1	1.07800E-001	2163	287
2	2.68700E-001	4321	653
3	5.34700E-001	8083	1277
4	1.05880E+000	16922	2688
5	2.07690E+000	31457	5162
6	4.00000E+000	64104	10195

Component # 2 CHLORIDE
 Reference Peak FLUORIDE
 Amount = $K_0 + K_1 \text{Area} + K_2 \text{Area}^2$
 $K_0 = -3.48391\text{E}-002$
 $K_1 = 1.09818\text{E}-004$
 $K_2 = -1.59906\text{E}-010$

Retention Time 1.66
 Window Size 7.00%

Level	Amount	Area	Height
1	1.27700E-001	1384	247
2	3.18400E-001	3202	543
3	6.33700E-001	6094	1001
4	1.25490E+000	12389	2086
5	2.46150E+000	23229	3912
6	4.74070E+000	46705	7745

Component # 3 NITRITE
 Reference Peak FLUORIDE
 Amount = $K_0 + K_1 \text{Area} + K_2 \text{Area}^2$
 $K_0 = 3.01551\text{E}-001$
 $K_1 = 1.35061\text{E}-004$
 $K_2 = 5.92784\text{E}-012$

Retention Time 1.97
 Window Size 7.00%

Level	Amount	Area	Height
1	1.01200E+000	6196	913
2	2.52200E+000	15935	2383
3	5.02000E+000	32935	4841
4	9.94100E+000	73584	10463
5	1.95000E+001	140207	20345
6	3.75600E+001	272736	37698

Component # 4 NITRATE
 Reference Peak FLUORIDE
 Amount = $K_0 + K_1 \text{Area} + K_2 \text{Area}^2$
 $K_0 = 9.82430\text{E}-002$
 $K_1 = 1.67434\text{E}-004$
 $K_2 = -5.63220\text{E}-011$

Retention Time 3.37
 Window Size 10.00%

Level	Amount	Area	Height
1	1.38720E+000	8467	915
2	3.45770E+000	19885	2112
3	6.88120E+000	39179	3960
4	1.36300E+001	85516	8009
5	2.67300E+001	167579	14573
6	5.14800E+001	347632	26737

652

00740342288

Component # 5 PHOSPHATE
Reference Peak FLUORIDE
Amount = $K0 + K1*Area + K2*Area**2$
K0 = 3.13578E-001
K1 = 3.58002E-004
K2 = -3.49391E-010

Retention Time 4.73
Window Size 10.00%

Level	Amount	Area	Height
1	1.08100E+000	2439	179
2	2.69650E+000	6634	482
3	5.36630E+000	13567	979
4	1.06300E+001	30481	2184
5	2.08500E+001	60672	4331
6	4.01500E+001	127060	8765

Component # 6 SULFATE
Reference Peak FLUORIDE
Amount = $K0 + K1*Area + K2*Area**2$
K0 = 2.48592E-001
K1 = 1.30794E-004
K2 = -3.74363E-011

Retention Time 5.52
Window Size 10.00%

Level	Amount	Area	Height
1	1.26550E+000	8687	560
2	3.15420E+000	22166	1400
3	6.27720E+000	44607	2794
4	1.24300E+001	97824	6120
5	2.43850E+001	194730	12010
6	4.69600E+001	403893	23738

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

WHC-SD-WM-TI-540,REV.1

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 OFF
Init		Valve B OFF
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	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	0.9	Inject Valve OFF
3	0.9	ACI Autosmp ON

GpmFile: C:\DX\METHOD\MEL.GPM
 Lo Pressure Limit = 200
 Hi Pressure Limit = 2000
 Eluant 1 - Eluant 1
 Eluant 2 - Eluant 2
 Eluant 3 - 3mM CO3/3mM HCO3
 Eluant 4 - Eluant 4

Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	100	0	0	0	0	0	

WHC-SD-WM-TI-540, REV. 1

PREPARED BY: **D. J. Hert** DATE COMPLETE: **7-27-92**

NARRATIVE: ☐ NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY

WHC-SD-WM-TI-540, REV. 1

ANALYTICAL BATCH

Lab Segment Serial No.: R1753, R1754	Customer ID: 1753 BY-104
Analysis: IC: F, Cl, NO ₂ , NO ₃ , PO ₄ , SO ₄	Sample Prep: H ₂ O Dig.

Instrument: DIONEX 4000i (WB 972 86)	Procedure/Rev: LA-533-105 (B-1)
Technologist: D. R. Parker	Date: 7-27-92
Starting Time: 12:27	Temperature: 25°C
Ending Time: 11:55	Chemist: D. J. HERT

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	R1751-7571	11		
2	REAGENT BLANK	R1752-7671	12		
3	BY-104 RSA# 429	R1753-7771	13		
4	BY-104 RSA# 429 Dup.	R1753-7871	14		
5	BY-104 RSA# 429 spk.	R1753-7971	15		
6	BY-104 RSA# 429	R1754-7771	16		
7	BY-104 RSA# 429 Dup.	R1754-7871	17		
8			18		
9			19		
10			20		

[illegible]

A-6000-881 (03/92)

Sample Name: LMCS/73C11EF Date: Mon Jul 27 12:27:40 1992
 Data File : c:\dx\data\92072701.D02
 Method : c:\dx\method\mel.met
 ACI Address: 1 System : 1 Inject#: 2 Detector: CDM-1

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ
 External 1 101 2495 5Hz 0.00 8.32 5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.97		32859.753	59	325	2	
2	1.15	FLUORIDE	67.353 104%	1554	9257	2	0.00
3	1.78	CHLORIDE	87.202 100%	1310	8018	2	0.00
4	2.15	NITRITE	600.676 101%	5804	40643	2	-0.46
5	3.28		3005894.461	3505	29761	2	
6	3.76	NITRATE	650.982 97.5%	3673	37509	2	4.16
7	5.48	PHOSPHATE	614.997 103%	1138	15901	1	-0.18
8	7.35	SULFATE	699.178 100%	3056	49828	1	0.41

File: c:\dx\data\92072701.D02 Sample: LMCS/73C11EF

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Sample Name: LMCS/73C11EF	Date: Wed Jul 29 10:44:11 1992
Data File : c:\dx\data\92072911.D02	
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1
	Inject#: 2
	Detector: CDM-1

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	101	2495	5Hz	0.00	8.32		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.96		23068.516	48	278	2	
2	1.14	FLUORIDE	68.673	106%	1490	9444	2 0.00
3	1.76	CHLORIDE	87.261	100%	1284	8023	2 -0.26
4	2.12	NITRITE	607.469	102%	5699	41116	2 -0.99
5	3.21		2966588.636	3473	29372	2	
6	3.68	NITRATE	660.081	98.8%	3711	38022	2 2.83
7	5.44	PHOSPHATE	614.445	103%	1128	15885	1 -0.04
8	7.18	SULFATE	699.741	100%	3096	49869	1 -1.05

File: c:\dx\data\92072911.D02 Sample: LMCS/73C11EF

Sample Name: BLK Date: Mon Jul 27 12:47:19 1992
 Data File : c:\dx\data\92072701.D04
 Method : c:\dx\method\mel.met
 ACI Address: 1 System : 1 Inject#: 4 Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2495	5Hz	0.00	8.32	5	

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.30		725.600	103	726	1	
2	1.79	CHLORIDE	0.047	93	665	1	0.56
3	2.16	NITRITE	0.175	29	146	1	-0.00
4	2.84		1937.200	177	1937	1	
5	3.82	NITRATE	0.054	182	1647	1	5.82
6	7.37	SULFATE	2.163	951	15089	1	0.68

File: c:\dx\data\92072701.D04 Sample: BLK

0.0740342297

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Sample Name: BLK	Date: Wed Jul 29 11:04:44 1992
Data File : c:\dx\data\92072911.D04	
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1
	Inject#: 4
	Detector: CDM-1

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REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	1	2495	5Hz	0.00	8.32		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.41		198.400	30	198	1	
2	1.76	CHLORIDE	0.018	57	408	1	-1.12
3	2.12	NITRITE	0.200	56	323	1	-1.85
4	2.80		1603.852	139	1604	2	
5	3.23		255.357	36	255	2	
6	3.73	NITRATE	-0.023	142	1223	1	3.32
7	7.22	SULFATE	0.138	43	563	1	-1.37

File: c:\dx\data\92072911.D04 Sample: BLK

Sample Name: R1753 Date: Mon Jul 27 12:57:01 1992
 Data File : c:\dx\data\92072701.D05
 Method : c:\dx\method\mel.met
 ACI Address: 1 System : 1 Inject#: 5 Detector: CDM-1

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ
 External 1 21 2495 5Hz 0.00 8.32 5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	73.207	8617	52059	3	0.00
2	1.56		25995.675	155	1238	4	
3	1.79	CHLORIDE	19.850	1571	8766	2	0.56
4	2.16	NITRITE	125.523	6025	40854	1	-0.00
5	3.66	NITRATE	711.035	16882	207284	1	1.39
6	5.51	PHOSPHATE	59.401	504	6914	1	0.36
7	7.34	SULFATE	253.315	5413	88339	1	0.27

File: c:\dx\data\92072701.D05 Sample: R1753

WHC-SD-WM-TI-540,REV.1

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: Sample Name: R1753                      Date: Wed Jul 29 11:14:51 1992:
: Data File  : c:\dx\data\92072911.D05
: Method     : c:\dx\method\mel.met
: ACI Address: 1      System : 1      Inject#: 5  Detector: CDM-1
=====
  
```

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	231	2495	5Hz	0.00	8.32		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
-1	1.14	FLUORIDE	66.463	641	3877	1	0.00
2	1.76	CHLORIDE	11.556	123	696	1	-0.26
3	2.12	NITRITE	240.141	886	6203	1	-0.99
4	3.71	NITRATE	498.634	1372	13327	1	3.67
5	5.47	PHOSPHATE	101.493	36	426	1	0.51
6	7.20	SULFATE	238.405	442	6961	1	-0.78

File: c:\dx\data\92072911.D05 Sample: R1753

Sample Name: R1753/D Date: Mon Jul 27 13:06:45 1992
 Data File : c:\dx\data\92072711.D06
 Method : c:\dx\method\mel.met
 ACI Address: 1 System : 1 Inject#: 6 Detector: CDM-1

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ
 External 1 21 2495 5Hz 0.00 8.32 5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	B1. Code	%Delta
1	1.15	FLUORIDE	76.169	8986	54351	3	0.00
2	1.56		22286.096	144	1061	4	
3	1.79	CHLORIDE	18.967	1490	8381	2	0.56
4	2.15	NITRITE	111.843	5324	36277	1	-0.46
5	3.65	NITRATE	755.796	17919	221839	1	1.11
6	5.51	PHOSPHATE	56.260	480	6506	1	0.36
7	7.34	SULFATE	276.567	5915	96779	1	0.27

File: c:\dx\data\92072711.D06 Sample: R1753/D

=====

Sample Name: R1753/D	Date: Wed Jul 29 11:24:58 1992
Data File : c:\dx\data\92072911.D06	
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1
	Inject#: 6
	Detector: CDM-1

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	231	2495	5Hz	0.00	8.32		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.14	FLUORIDE	68.327	658	3991	1	0.00
2	1.76	CHLORIDE	10.825	117	668	1	-0.26
3	2.12	NITRITE	254.857	953	6649	1	-0.99
4	3.70	NITRATE	482.471	1322	12937	1	3.39
5	5.47	PHOSPHATE	97.572	33	381	1	0.51
6	7.20	SULFATE	256.903	475	7535	1	-0.78

File: c:\dx\data\92072911.D06 Sample: R1753/D

DATA REPROCESSED ON Sat Aug 01 09:46:56 1992

WHC-SD-WM-TI-540,REV.1

Sample Name: R1753/SPK Date: Mon Jul 27 13:16:30 1992
Data File : C:\DX\DATA\92072711.D07
Method : c:\dx\method\mel.met
ACI Address: 1 System : 1 Inject#: 7 Detector: CDM-1

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ
External 1 21 2495 5Hz 0.00 8.32 5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	0.96		4224.911	40	201	2	
2	1.15	FLUORIDE	88.994	10324	64467	3	0.00
3	1.55		39961.375	208	1903	4	
4	1.79	CHLORIDE	39.994	2951	17684	2	0.56
5	2.16	NITRITE	242.342	11482	79999	3	-0.00
6	2.79		304581.388	414	14504	4	
7	3.27		634218.270	3696	30201	2	
8	3.63	NITRATE	874.927	20454	261787	2	0.55
9	5.49	PHOSPHATE	180.547	1657	22923	1	0.00
10	7.32	SULFATE	398.603	8631	141969	1	0.00

File: C:\DX\DATA\92072711.D07 Sample: R1753/SPK

DATA REPROCESSED ON Wed Jul 29 13:24:02 1992

WHC-SD-WM-TI-540,REV.1

=====
Sample Name: R1753/SPK Date: Wed Jul 29 11:35:05 1992
Data File : C:\DX\DATA\92072911.D07
Method : c:\dx\method\mel.met
ACI Address: 1 System : 1 Inject#: 7 Detector: CDM-1
=====

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ

External 1 231 2495 5Hz 0.00 8.32 5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	B1. Code	%Delta
1	0.97		29475.600	30	128	1	
2	1.15	FLUORIDE	213.122	2155	12932	1	0.00
3	1.76	CHLORIDE	200.300	1342	8052	2	-1.12
4	2.12	NITRITE	1507.825	6375	44720	2	-1.85
5	3.21		6427568.699	3307	27825	2	
6	3.66	NITRATE	2006.418	4800	50366	2	1.39
7	5.45	PHOSPHATE	1377.956	1122	15556	1	-0.73
8	7.18	SULFATE	1771.829	3425	55364	1	-1.91

File: C:\DX\DATA\92072911.D07 Sample: R1753/SPK

Sample Name: R1754 Date: Mon Jul 27 13:26:24 1992
 Data File : c:\dx\data\92072711.D08
 Method : c:\dx\method\mel.met
 ACI Address: 1 System : 1 Inject#: 8 Detector: CDM-1

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ
 External 1 21 2495 5Hz 0.00 8.32 5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	143.498	18676	111756	1	0.00
2	1.79	CHLORIDE	13.667	1104	6086	1	0.56
3	2.16	NITRITE	142.555	5058	46554	1	-0.00
4	3.63	NITRATE	924.819	21759	279086	1	0.55
5	5.50	PHOSPHATE	85.879	759	10371	1	0.18
6	7.29	SULFATE	602.285	13303	221098	1	-0.41

File: c:\dx\data\92072711.D08 Sample: R1754

DATA REPROCESSED ON Wed Jul 29 13:18:20 1992

WHC-SD-WM-TI-540,REV.1

=====
! Sample Name: R1754 Date: Wed Jul 29 11:45:17 1992!
! Data File : C:\DX\DATA\92072911.D08 !
! Method : c:\dx\method\mel.met !
! ACI Address: 1 System : 1 Inject#: 8 Detector: CDM-1 !
=====

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ

External 1 231 2495 5Hz 0.00 8.32 5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	B1. Code	%Delta
1	1.14	FLUORIDE	143.089	1419	8580	1	0.00
2	1.76	CHLORIDE	10.648	120	661	1	-0.26
3	2.12	NITRITE	188.185	669	4626	1	-0.99
4	3.70	NITRATE	779.802	2054	20139	1	3.39
5	5.47	PHOSPHATE	126.532	58	719	1	0.51
6	7.20	SULFATE	567.509	1078	17211	1	-0.78

File: C:\DX\DATA\92072911.D08 Sample: R1754

=====

Sample Name: R1754/D	Date: Mon Jul 27 13:36:12 1992
Data File : c:\dx\data\92072711.D09	
Method : c:\dx\method\mel.met	
ACI Address: 1	System : 1 Inject#: 9 Detector: CDM-1

=====

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA	REJ
External	1	21	2495	5Hz	0.00	8.32		5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.15	FLUORIDE	110.664	14089	82353	1	0.00
2	1.79	CHLORIDE	9.670	761	4367	2	0.56
3	2.16	NITRITE	118.131	3574	38381	2	-0.00
4	3.49	NITRATE	2075.538	60048	961041	1	-3.32
5	5.52	PHOSPHATE	48.916	397	5552	1	0.55
6	7.32	SULFATE	451.146	9800	161915	1	0.00

File: c:\dx\data\92072711.D09 Sample: R1754/D

DATA REPROCESSED ON Wed Jul 29 13:14:45 1992

WHC-SD-WM-TI-540,REV.1

=====
! Sample Name: R1754/D Date: Wed Jul 29 11:55:26 1992!
! Data File : C:\DX\DATA\92072901.D09 !
! Method : c:\dx\method\mel.met !
! ACI Address: 1 System : 1 Inject#: 9 Detector: CDM-1 !
=====

REPORT VOLUME DILUTION POINTS RATE START STOP AREA REJ

External 1 231 2495 5Hz 0.00 8.32 5

Pk. Num	Ret Time	Component Name	Concentration	Height	Area	Bl. Code	%Delta
1	1.14	FLUORIDE	106.336	1039	6317	1	0.00
2	1.76	CHLORIDE	3.726	72	395	1	-0.26
3	2.12	NITRITE	142.124	478	3229	1	-0.99
4	3.65	NITRATE	2655.249	6252	66707	1	1.99
5	5.47	PHOSPHATE	92.975	29	327	1	0.51
6	7.20	SULFATE	422.816	797	12695	1	-0.78

File: C:\DX\DATA\92072901.D09 Sample: R1754/D

7-20-92
MEL.MET Calibration
Dair R. Jensen

DIONEX METHOD PARAMETERS - MEL.MET

System Parameters

WHC-SD-WM-TI-540, REV.1

System Name : system1/gpm
Number of Detectors..... 1
Detector 1 Type..... CDM-1
Detector 1 real time plot scale (uS)..... 8.00
Run Time (minutes)..... 8.30
Sampling Rate (seconds)..... 0.20

BEST AVAILABLE COPY

-- DETECTOR 1 PARAMETERS -- Report Options

Save Data File..... Yes
Data File Name: c:\dx\data\92072001.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.prp

Integration Parameters

Starting Peak Width (seconds)..... 5.0
Peak Threshold (mV or uS/data pt interval)..... 0.040
Peak Area Reject..... 5
Area Reject for Reference Peaks..... 5
Percent Retention Time Window for Reference Peaks..... 5.0

Integration Timed Events

Time	Description
0.99	Void volume treatment for this peak

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

Component # 1 FLUORIDE
 Reference Peak
 Amount = KO + K1*Area + K2*Area**2
 KO = 1.10590E-002
 K1 = 7.17258E-005
 K2 = -9.55700E-011

Retention Time 1.15
 Window Size 7.00%
 MHC-SD-WM-TI-540, REV. 1

Level	Amount	Area	Height
1	1.07800E-001	1341	235
2	2.68700E-001	3490	571
3	5.34700E-001	7911	1286
4	1.03880E+000	14308	2425
5	2.07690E+000	30219	4896
6	4.00000E+000	60457	9634

Component # 2 CHLORIDE
 Reference Peak
 Amount = KO + K1*Area + K2*Area**2
 KO = -2.25465E-001
 K1 = 1.55458E-001
 K2 = -8.54848E-010

Retention Time 1.78
 Window Size 7.00%

Level	Amount	Area	Height
1	1.60000E-001	1531	251
2	3.98000E-001	3526	552
3	7.90000E-001	7907	1300
4	1.57000E+000	14591	2367
5	3.80000E+000	28806	4730
6	5.93000E+000	59002	9409

Component # 3 NITRITE
 Reference Peak
 Amount = KO + K1*Area + K2*Area**2
 KO = 1.54358E-001
 K1 = 1.42744E-004
 K2 = -5.25441E-012

Retention Time 2.16
 Window Size 7.00%
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Level	Amount	Area	Height
1	1.01200E+000	6324	702
2	2.52200E+000	15335	2153
3	5.02000E+000	36056	4988
4	9.94100E+000	67507	9678
5	1.95000E+001	136482	19085
6	3.75600E+001	264599	35107

Component # 4 NITRATE
 Reference Peak
 Amount = KO + K1*Area + K2*Area**2
 KO = -2.44721E-001
 K1 = 1.81419E-004
 K2 = -8.14975E-011

Retention Time 3.61
 Window Size 10.00%

Level	Amount	Area	Height
1	1.10200E+000	6240	660
2	2.24600E+000	15227	1529
3	5.46500E+000	672 32946	3202
4	1.08240E+001	60971	5706
5	2.12300E+001	126118	10874
6	4.08900E+001	256143	19890

0 3 7 4 0 9 4 2 3 1 6

Component # 5 PHOSPHATE
 Reference Peak FLUORIDE
 Amount = K0 + K1*Area + K2*Area**2
 K0 = 2.81289E-001 Retention Time 5.49
 K1 = 3.70866E-004 Window Size 10.00%
 K2 = -3.52642E-010

WHC-SD-WM-TI-540,REV.1

Level	Amount	Area	Height
1	1.20000E+000	2708	196
2	2.98000E+000	6704	474
3	5.93000E+000	16378	1133
4	1.18000E+001	31314	2170
5	2.30000E+001	65544	4465
6	4.44000E+001	136711	9065

Component # 6 SULFATE
 Reference Peak FLUORIDE
 Amount = K0 + K1*Area + K2*Area**2
 K0 = 5.87863E-002 Retention Time 7.32
 K1 = 1.40163E-004 Window Size 10.00%
 K2 = -4.84457E-011

Level	Amount	Area	Height
1	1.26000E+000	8764	545
2	3.15000E+000	20741	1253
3	6.27000E+000	47496	2858
4	1.24000E+001	89581	5382
5	2.44000E+001	185717	10959
6	4.69000E+001	385584	21632

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

Step Time Description WHC-SD-WM-TI-540,REV.1

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 OFF
Init		Valve B OFF
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	Inject Valve ON
2	0.1	GPM Run Gradient Clock
3	3.0	Inject Valve OFF
3	3.0	ACI Autosmp ON

GpmFile: C:\DX\METHOD\MEL.GPM
Lo Pressure Limit = 200
Hi Pressure Limit = 2000
Eluant 1 - Eluant 1
Eluant 2 - Eluant 2
Eluant 3 - 3mM CO3/3mM HCO3
Eluant 4 - Eluant 4

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Time	Flow	%1	%2	%3	%4	V5	V6	Comment
0.0	2.0	100	0	0	0	0	0	

WHC-SD-WM-TI-540, REV. 1

ACID DIGESTED SAMPLE ANALYSES

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

WHC-SB-WM-TI-540, REV. 1

Lab Segment Serial No.

R1778, R1779

Customer ID:

BY-104

Analysis:

I C P

Sample Prep:

ACID DIGEST

Instrument: WB39939

Procedure/ Rev: LA-505-151/C-0

Technologist: T.A. FRAZIER

Date: 7/14/92

Starting Time: : 12:40 pm

Temperature N/A

Ending Time: : 3:40 pm

Chemist: B. R. WELS

Comments:

	Description	Lab ID
1	ICV, SST1, SST2, SST3	—
2	LMCS DIGESTED STD	R1776-8550
3	DIGESTED REAGENT BLANK	R1777-8650
4	BY-104 Sample	R1778-8755
5	BY-104 DUP	R1778-8855
6	BY-104 Spike	R1778-8955
7	BY-104 Sample	R1779-8755
8	BY-104 Dup	R1779-8855
9	CCV, CCB	—
10		

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

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
ICP-SST-1	1B48AP DIRECT			DIRECT
ICP-SST-2	2B48AQ DIRECT			DIRECT
ICP-SST-3	3B48AQ DIRECT			DIRECT
SAMPLE SPIKE	1B48AO 10ML			50ML
SAMPLE SPIKE	2B48AP 10ML			50ML
SAMPLE SPIKE	3B48AP 10ML			50ML
ICP-SST-1	1B48AO 10ml			50ml
ICP-SST-2	2B48AP 10ml			50ml
ICP-SST-3	3B48AP 10ml			50ml
/				

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A-6000-881 (03/92)

00300947384

WHC-SD-WM-TI-540, REV. 1

Teresa L. Frazier
R1776-79
7/14/92

SKM 7-21-92
AK McShane
Att Am

Corrected Counts Statistics 1:57 PM July 14, 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	ZR.S.D. Kpulses
Zr	1	-0.001	0.007
Sr	2	-0.012	0.005
Bi	3	-0.036	0.008
53	5	-0.027	0.009
Sn	7	0.045	0.037
8	8	0.535	0.004
Al	9	1.935	0.009
10	10	0.080	0.063
11	11	1.120	0.020
12	12	1.694	0.008
14	14	-0.035	0.008
Zn	15	4.795	0.045
16	16	0.887	0.016
17	17	-0.003	0.001
18	18	-0.083	0.010
19	19	2.410	0.019
20	20	0.087	0.001
21	21	0.711	0.001
22	22	0.045	0.052
24	24	-0.002	0.009
25	25	-0.042	0.010
26	26	-0.029	0.008
P	27	0.007	0.002
S	28	0.029	0.008
Hg	29	0.008	0.001
As	30	0.198	0.001
Na	31	0.893	0.024
Mo	32	-0.004	0.007
Se	33	-0.025	0.009
Ag	34	-0.164	0.004
Pb	35	0.247	0.015
Ti	36	-0.155	0.009
Cd	37	0.886	0.027
B	38	0.317	0.012
K	39	-0.066	0.006
Hn	40	3.824	0.052
Sb	42	0.020	0.012
V	43	1.510	0.011
Be	44	1.109	0.016
45	45	-0.076	0.008

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Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
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WHC-SD-WM-TI-540, REV. 1

Mean	-6.156	-0.420	-66.521	-30.696	13.212	352.795	716.998	47.281
S.D.	3.078	0.172	8.463	6.941	8.735	2.944	3.497	18.532
% R.S.D.	50.007	40.993	12.723	22.613	66.111	0.835	0.488	39.196

Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	270.428	352.911	-1.055	443.738	213.144	-4.108	827.824
S.D.	4.730	1.731	0.745	4.276	3.769	4.108	6.631
% R.S.D.	1.749	0.490	70.612	0.964	1.768	100.002	0.801

Ca (ppb)	Cr (ppb)	Md (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-6.818	285.871	16.609	-50.363	-49.071	-0.652	19.040
S.D.	0.087	0.401	17.604	27.631	26.433	0.411	10.116
% R.S.D.	1.272	0.140	105.988	54.864	53.868	63.010	53.129

Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1.573	266.991	479.362	0.584	-19.917	-14.896	-1.616
S.D.	0.248	1.281	13.720	2.280	33.427	1.000	1.189
% R.S.D.	15.746	0.480	2.862	390.347	167.831	6.711	73.571

Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	39.373	57.429	-7.451	353.911	249.949	890.310	-102.023
S.D.	1.116	2.131	28.516	4.797	50.626	6.629	51.912
% R.S.D.	2.834	3.711	382.698	1.355	20.255	0.745	50.883

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Corrected Counts Statistics 1:59 PM July 14, 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	-0.039	0.007
Sr	2	252.665	2.160
Bi	3	-0.055	0.012
Ta	5	-0.018	0.008
Sn	7	21.327	0.184
Si	8	0.098	0.003
Al	9	-0.210	0.026
W	10	0.460	0.032
Co	11	41.379	0.389
Cu	12	22.705	0.148

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Zn	15	106.330	0.765
Ni	16	21.288	0.087
La	17	-0.002	0.001
Eu	18	-0.040	0.007
Fe	19	14.360	0.069

WHC-SD-WM-TI-540, REV. 1

Ca	20	63.329	0.419
Cr	21	12.974	0.080
Hd	22	0.311	0.079
Ce	24	0.124	0.011
Sm	25	-0.364	0.009
Ba	26	177.979	1.315
P	27	0.017	0.002
S	28	0.130	0.007
Mg	29	22.984	0.188
As	30	0.025	0.002
Na	31	17.024	0.133
Mo	32	0.001	0.005
Se	33	0.587	0.017
Pb	34	-0.079	0.005
Cd	35	-0.013	0.005
Hg	36	-0.147	0.005
Tl	37	247.665	1.593
	38	25.913	0.113
	39	0.929	0.002
	40	51.762	0.313
	42	1.072	0.010
	43	0.010	0.004
	44	-0.003	0.001
	45	-0.076	0.007

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Identity 1: SST1 Identity 2: Quality Control 1:59 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-22.720	9639.054	-85.227	-23.970	5004.792	13.182	-143.319	139.925
S.D.	2.993	82.419	11.797	6.520	43.190	2.058	10.405	9.432
% R.S.D.	13.175	0.855	13.842	27.202	0.863	15.610	7.260	6.741

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	10034.845	4851.402	9490.500	10074.269	5016.109	1.369	0.956	4934.297
S.D.	94.239	31.769	90.756	72.533	20.474	2.372	0.406	23.811
% R.S.D.	0.939	0.655	0.956	0.720	0.408	173.193	42.525	0.483

	Ca (ppb)	Cr (ppb)	Hd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	9538.055	5198.015	37.531	338.077	-882.366	9592.947	82.437	69.117
S.D.	63.310	31.937	27.177	33.958	23.195	70.874	14.001	9.941
% R.S.D.	0.664	0.614	72.413	10.044	2.629	0.739	16.984	14.383

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
--	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------

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S.D.	40.297	2.077	74.741	1.580	65.550	1.461	4.036	0.672
% R.S.D.	0.817	6.072	0.784	61.488	7.625	15.709	32.762	118.422

Cd	B	K	Mn	Sb	V	Be	Tl
(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)

WHC-SD-WM-TI-540, REV. 1

Mean	10153.504	4728.900	4982.320	4781.498	4664.967	-2.380	0.213	-104.186
S.D.	65.280	20.559	7.660	28.938	42.064	2.406	0.123	43.206
% R.S.D.	0.643	0.435	0.154	0.605	0.902	101.082	57.734	41.470

Corrected Counts Statistics 2:02 PM July 14, 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	-0.173	0.008
2	0.041	0.013
3	5.005	0.042
5	0.023	0.012
7	-0.064	0.020
8	0.020	0.005
9	1.093	0.003
10	-0.021	0.041
11	0.009	0.010
12	0.207	0.007
14	0.020	0.015
15	0.801	0.016
16	-0.035	0.013
17	1.270	0.008
18	90.599	0.565
19	0.677	0.037
20	0.366	0.004
21	-0.013	0.005
22	15.188	0.083
24	1.710	0.017
25	2.022	0.015
26	-0.468	0.015
27	0.010	0.007
28	0.022	0.012
29	0.041	0.001
30	0.074	0.012
31	0.108	0.008
32	0.032	0.004
33	-0.019	0.012
34	16.416	0.089
35	3.050	0.017
36	-0.167	0.003
37	0.006	0.018

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K	39	-0.054	0.010
Mn	40	0.015	0.004
Sb	42	0.006	0.008
V	43	0.057	0.003
Be	44	-0.001	0.001

WHC-SD-WM-TI-540, REV. 1

Tl	45	-0.037	0.006
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Identity 1: SST2 Identity 2: Quality Control 2:02 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-81.940	1.577	5036.686	22.737	-12.274	-47.222	379.422	18.460
S.D.	3.416	0.477	42.225	9.458	4.739	3.837	1.009	12.045
% R.S.D.	4.169	30.250	0.838	41.599	38.613	8.124	0.266	65.249

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	1.051	34.614	4.284	64.847	-4.081	5226.909	4999.102	232.185
S.D.	2.532	1.499	1.440	1.536	2.981	34.207	31.140	12.798
% R.S.D.	240.926	4.330	33.607	2.369	73.055	0.654	0.623	5.512

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	35.697	-4.006	5168.723	5225.429	5294.025	4.963	18.277	9.837
S.D.	0.629	1.893	28.096	53.069	37.710	0.715	59.636	15.271
% R.S.D.	1.761	47.258	0.544	1.016	0.712	14.403	326.297	155.246

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	8.509	-44.848	38.559	13.202	90.402	4704.308	5423.270	-3.275
S.D.	0.124	15.721	4.386	1.327	46.164	25.237	30.775	0.330
% R.S.D.	1.456	35.054	11.374	10.051	51.066	0.536	0.567	10.066

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	3.320	10.768	51.055	1.578	191.156	25.597	0.569	153.212
S.D.	0.725	3.664	47.839	0.334	31.798	1.913	0.213	41.211
% R.S.D.	21.841	34.025	93.699	21.134	16.634	7.475	37.500	26.898

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Corrected Counts Statistics 2:04 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

Isotope Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	24.022	0.365
Sr	2	0.049	0.016
Bi	3	-1.518	0.007

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Sn	7	0.188	0.024
Si	8	12.392	0.120
Al	9	11.972	0.125
W	10	34.152	0.478
Co	11	-0.077	0.009

WHC-SD-WM-TI-540, REV. 1

Cu	12	0.080	0.011
Li	14	0.019	0.014
Zn	15	0.133	0.005
Ni	16	0.328	0.014
La	17	-0.004	0.001
Eu	18	-0.088	0.016
Fe	19	0.036	0.021
Ca	20	0.032	0.001
Er	21	0.040	0.007
Nd	22	0.007	0.082
Ce	24	0.059	0.028
Mo	25	-0.045	0.026
Ba	26	0.038	0.029
Sr	27	1.008	0.010
S	28	3.666	0.079
Hg	29	0.018	0.000
As	30	3.845	0.044
Na	31	0.152	0.041
4	32	29.113	0.413
Se	33	1.285	0.012
8	34	0.588	0.018
Pb	35	-0.085	0.005
10	36	37.167	0.571
10	37	-0.421	0.008
10	38	0.110	0.004
10	39	-0.037	0.014
10	40	-0.004	0.004
10	42	0.045	0.010
10	43	16.985	0.249
10	44	46.353	0.738
10	45	0.757	0.003
Tl			

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Identity 1: SST3 Identity 2: Quality Control 2:04 PM July 14, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	10558.068	1.907	-1575.663	10565.502	46.830	9574.718	4742.640	10129.828
S.D.	160.642	0.620	7.147	160.012	5.674	92.978	50.292	141.309
Z R.S.D.	1.522	32.517	0.454	1.514	12.117	0.971	1.060	1.395

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-19.888	7.351	4.156	1.550	81.538	-6.847	-1.691	11.913
S.D.	2.119	2.387	1.343	0.428	3.332	4.744	0.876	7.314
Z R.S.D.	10.655	32.475	32.308	27.585	4.087	69.283	51.799	61.396

Ca Cr Nd Ce Sn Ba P S

Mean	-14.874	16.957	3.624	135.636	-56.835	2.926	9165.742	4837.549
S.D.	0.175	2.813	27.751	85.007	67.994	1.596	89.023	104.182
Z R.S.D.	1.175	16.592	765.715	62.673	119.635	54.563	0.971	2.154

Mg As Na Mo Se Ag Pb Ti

WHC-SD-WM-TI-540, REV. 1

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	3.647	5135.470	63.079	10205.851	5067.288	199.057	-98.632	4887.878
S.D.	0.000	58.707	23.134	144.889	44.629	5.003	9.319	74.858
Z R.S.D.	0.000	1.143	36.675	1.420	0.881	2.514	9.449	1.532

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-14.194	19.650	137.979	-0.174	353.535	10101.938	9883.554	5305.501
S.D.	0.344	0.691	67.716	0.385	41.360	148.443	157.240	19.824
Z R.S.D.	2.422	3.516	49.077	220.704	11.699	1.469	1.591	0.374

Corrected Counts Statistics 2:06 PM July 14, 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	ZR.S.D. Kpulses
1	0.020	0.003	
2	0.031	0.003	
3	-0.298	0.022	
5	0.001	0.008	
7	0.083	0.005	
8	1.298	0.013	
9	2.393	0.012	
10	0.057	0.017	
11	4.046	0.017	
12	4.623	0.002	
14	-0.002	0.004	
15	10.630	0.022	
16	4.178	0.033	
17	-0.001	0.002	
18	-0.045	0.010	
19	2.864	0.032	
20	6.535	0.013	
21	2.524	0.017	
22	0.165	0.059	
24	0.032	0.009	
25	-0.046	0.005	
26	17.575	0.035	
27	0.012	0.006	
28	0.048	0.005	
29	4.548	0.013	
30	0.761	0.015	
31	1.768	0.014	
32	2.893	0.014	
33	0.345	0.009	
34	3.454	0.008	
35	0.557	0.022	

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Li	37	24.747	0.172
Cd	38	4.973	0.038
B	39	1.850	0.004
K	40	10.350	0.025
Mn	42	0.180	0.015

WHC-SD-WM-TI-540;REV.1

V	43	1.675	0.006
Be	44	4.366	0.014
Tl	45	0.095	0.009

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Identity 1: ICV Identity 2: Quality Control 2:06 PM July 14, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	3.226	1.221	-333.440	-9.816	22.047	946.729	900.693	37.366
S.D.	1.343	0.117	22.335	6.263	1.180	10.031	4.729	4.884
% R.S.D.	41.648	9.547	6.698	63.799	5.354	1.059	0.525	13.071

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	980.169	980.158	2.110	997.184	987.872	5.478	0.680	983.721
S.D.	4.037	0.446	0.337	2.081	7.748	6.275	0.544	11.061
% R.S.D.	0.412	0.045	15.963	0.209	0.784	114.562	79.991	1.124

	Ca	Cr	Nd	Ce	Sa	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	966.014	1012.231	50.258	53.427	-58.560	948.170	42.719	36.118
S.D.	1.886	6.999	19.939	27.401	13.694	1.851	52.119	6.882
% R.S.D.	0.195	0.691	39.673	51.287	23.384	0.195	122.004	19.054

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	975.292	1017.566	970.703	1016.064	1180.245	1014.925	1032.636	960.824
S.D.	2.832	19.983	7.801	4.907	32.250	2.301	39.157	3.145
% R.S.D.	0.290	1.964	0.804	0.483	2.732	0.227	3.792	0.327

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1017.318	907.186	9599.322	956.910	919.061	988.726	931.571	1005.438
S.D.	7.048	6.931	20.059	2.278	60.904	3.385	3.063	55.946
% R.S.D.	0.693	0.764	0.209	0.238	6.627	0.342	0.329	5.564

Corrected Counts Statistics 2:08 PM July 14, 1992
Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	% R.S.D. Kpulses
Zr	1	0.024	0.002

Bi	3.	-0.024	0.006
Ta	5	-0.014	0.007
Sn	7	0.007	0.020
Si	8	0.089	0.006
Al	9	0.138	0.014

WHC-SD-WM-TI-540-REV.1

W	10	0.019	0.010
Co	11	0.227	0.380
Cu	12	0.049	0.005
Li	14	-0.008	0.009
Zn	15	0.086	0.005
Ni	16	-0.047	0.021
La	17	-0.001	0.001
Eu	18	-0.050	0.003
Fe	19	-0.010	0.009
Ca	20	0.116	0.001
Cr	21	-0.005	0.009
Nd	22	0.035	0.012
Ce	24	0.027	0.005
Sr	25	-0.011	0.006
Ba	26	0.002	0.007
Pb	27	0.013	0.002
S	28	0.034	0.009
Hg	29	0.006	0.001
As	30	0.004	0.005
Na	31	0.047	0.005
K	32	0.004	0.007
Mg	33	-0.038	0.004
Ag	34	0.062	0.025
Pb	35	-0.016	0.009
Te	36	-0.138	0.002
Cd	37	-0.107	0.026
B	38	0.009	0.011
U	39	-0.048	0.012
Mn	40	0.006	0.001
Mo	42	0.002	0.009
V	43	0.025	0.000
Be	44	0.000	0.001
Tl	45	-0.046	0.002

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Identity 1: ICB Identity 2: Quality Control 2:08 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	4.692	0.661	-53.677	-20.490	4.378	6.442	-3.610	30.283
S.D.	0.915	0.180	6.250	5.113	4.628	4.557	5.475	3.080
% R.S.D.	19.512	27.264	11.644	24.952	105.705	70.744	151.671	10.170

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	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	54.005	0.857	1.567	-2.939	-6.827	5.478	0.404	-3.895
S.D.	92.139	1.078	0.819	0.435	4.865	4.744	0.159	2.936
% R.S.D.	170.612	125.763	52.311	14.789	71.257	86.601	39.364	75.388

	Ca (ppb)	Cr (ppb)	Md (ppb)	Le (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-2.165	-0.801	12.946	38.012	31.153	1.073	45.774	26.506
S.D.	0.086	3.407	4.103	16.019	15.812	0.383	19.080	11.573
% R.S.D.	3.963	425.252	31.690	42.142	50.756	35.719	41.681	45.661

WHC-SD-WM-TI-540, REV. 1

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1.073	7.857	4.118	3.505	14.257	49.432	22.890	0.524
S.D.	0.215	6.559	2.826	2.527	16.847	7.163	15.851	0.200
% R.S.D.	20.000	83.483	68.626	72.110	118.167	14.491	69.248	38.188

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-1.298	1.278	79.473	0.742	172.959	6.351	0.853	94.811
S.D.	1.048	2.032	58.769	0.053	38.489	0.000	0.246	13.508
% R.S.D.	80.788	159.079	73.948	7.194	22.253	0.000	28.867	14.247

Corrected Counts Statistics 2:10 PM July 14, 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	0.064	0.006
Ba	3	-0.054	0.010
Ta	5	-0.052	0.024
Sm	7	5.582	0.058
Si	8	0.580	0.004
Mn	9	604.660	4.745
W	10	-0.093	0.016
Cd	11	0.005	0.010
Cu	12	0.063	0.002
Li	14	0.014	0.010
In	15	0.196	0.003
Ni	16	-0.030	0.014
La	17	-0.017	0.001
Eu	18	0.070	0.006
Fe	19	275.993	1.379
Ca	20	1187.105	3.949
Cr	21	0.010	0.002
Md	22	3.905	0.023
Te	24	0.034	0.010
Sa	25	-9.023	0.008
Ba	26	0.056	0.008
P	27	0.016	0.002
S	28	1.876	0.024
Mg	29	870.502	2.897
As	30	0.293	0.015
Na	31	0.141	0.013
Mo	32	-0.011	0.007
Se	33	-0.021	0.003

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Pb	35	-0.123	0.014
Ti	36	-0.105	0.005
Cd	37	0.391	0.032
B	38	-0.511	0.008
K	39	-0.034	0.012

WHC-SD-WM-TI-540,REV.1

Mn	40	1.659	0.001
Sb	42	-0.028	0.011
V	43	0.018	0.003
Be	44	0.006	0.001
Tl	45	-0.065	0.006

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Identity 1: ICSA-1 Identity 2: ICSA 2:10 PM July 14, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	10.848	2.454	-83.823	-50.301	1311.866	388.053	242457.953	-2.880
S.D.	3.241	0.210	9.890	19.025	13.694	3.390	1902.962	4.623
% R.S.D.	29.880	8.561	11.798	37.822	1.044	0.874	0.785	160.519

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	0.000	3.854	3.645	7.463	-2.747	-62.991	7.022	94841.085
S.D.	2.477	0.327	0.970	0.239	3.179	2.372	0.355	473.715
% R.S.D.	13710767.982	8.485	26.621	3.199	115.749	3.765	5.049	0.499

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	179266.884	4.940	27.265	59.592	-23289.898	3.618	79.382	893.363
S.D.	596.383	0.834	10.461	31.288	20.541	0.431	14.001	33.781
% R.S.D.	0.333	16.878	38.367	52.503	0.088	11.916	17.637	3.781

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	186728.530	396.030	57.090	-1.636	77.549	8.824	-165.557	4.935
S.D.	621.441	20.199	7.300	2.535	9.820	2.765	24.212	0.659
% R.S.D.	0.333	5.100	12.787	155.023	12.663	31.331	14.625	13.363

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	19.085	-93.687	149.681	26.817	46.975	2.382	1.990	-30.644
S.D.	1.304	1.486	58.769	0.374	47.697	1.718	0.123	36.129
% R.S.D.	6.833	1.587	39.263	1.394	101.535	72.136	6.186	117.901

Corrected Counts Statistics 2:12 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

Analvte Channel Mean Ypulses S.D. Ypulses %R.S.D. Ypulses

Zr	1	0.027	0.005
Sr	2	0.048	0.006
Bi	3	-0.095	0.056
Ta	5	-0.022	0.025
Sn	7	5.711	0.051

WHC-SD-WM-TI-540, REV. 1

Si	8	0.574	0.017
Al	9	617.053	10.150
W	10	0.055	0.016
Co	11	1.891	0.034
Cu	12	2.302	0.034
Li	14	-0.013	0.016
Zn	15	10.393	0.144
Ni	16	3.943	0.070
La	17	-0.016	0.002
Eu	18	0.060	0.005
Fe	19	279.326	5.131
B	20	1198.461	15.750
Cr	21	1.273	0.043
Mg	22	3.955	0.074
Ca	24	0.016	0.012
Sr	25	-8.900	0.009
P	26	8.861	0.144
P	27	0.020	0.002
Mg	28	1.917	0.040
Mg	29	885.439	10.289
As	30	0.299	0.015
Na	31	0.102	0.013
Na	32	0.000	0.013
Ag	33	0.018	0.018
Ag	34	3.280	0.053
Ti	35	0.421	0.008
Ti	36	-0.114	0.010
Rb	37	23.606	0.277
Rb	38	-0.506	0.011
K	39	-0.044	0.010
Mn	40	6.664	0.104
Sb	42	0.023	0.008
V	43	0.832	0.014
Be	44	2.193	0.039
Tl	45	-0.061	0.013

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Identity 1: ICSAB Identity 2: Quality Control 2:12 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	6.157	1.857	-126.288	-26.955	1342.122	383.386	247428.541	38.982
S.D.	2.327	0.238	57.154	19.731	12.060	12.944	4070.806	4.680
1 R.S.D.	37.791	12.832	45.257	73.200	0.899	3.376	1.645	12.005
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	457.585	483.157	1.055	974.673	932.467	-58.883	6.433	95986.660

S.D.	8.263	7.317	1.377	13.727	13.727	10.657	4.051	1.837
Z R.S.D.	1.806	1.514	149.473	1.396	1.761	10.657	4.051	1.837
	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	180981.352	510.855	31.819	5.128	-22972.452	478.160	116.045	933.078

WHC-SD-WM-TI-540, REV. 1

S.D.	2378.746	17.342	16.539	35.731	22.010	7.756	14.001	32.270
Z R.S.D.	1.314	3.395	51.979	696.714	0.096	1.622	12.065	3.458

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	189932.693	402.816	35.190	2.220	77.659	965.397	791.940	3.712
S.D.	2207.024	19.950	7.169	4.654	62.618	14.971	14.344	1.250
Z R.S.D.	1.162	4.953	20.373	209.664	80.632	1.551	1.811	33.668

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	970.541	-92.775	101.204	488.599	261.147	486.923	468.344	-6.851
S.D.	11.341	2.010	48.361	8.055	31.705	8.255	8.227	86.412
Z R.S.D.	1.168	2.167	47.786	1.649	12.141	1.695	1.757	1261.373

Corrected Counts Statistics 2:14 PM July 14, 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	Z R.S.D. Kpulses
1	0.019	0.010	
2	0.010	0.009	
3	-0.001	0.014	
5	-0.005	0.012	
7	-0.029	0.016	
8	0.071	0.009	
9	0.250	0.053	
10	-0.079	0.021	
11	-0.003	0.011	
12	0.048	0.008	
14	-0.026	0.013	
15	0.089	0.004	
16	-0.054	0.009	
17	-0.002	0.001	
18	-0.062	0.010	
19	0.073	0.034	
20	0.465	0.072	
21	-0.001	0.009	
22	0.006	0.068	
24	0.015	0.015	
25	-0.026	0.013	
26	-0.016	0.014	
27	0.012	0.001	
28	0.016	0.006	
29	0.254	0.051	
30	-0.026	0.009	
31	0.042	0.018	

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Se	33	-0.052	0.008
Ag	34	-0.123	0.006
Pb	35	-0.017	0.011
Ti	36	-0.148	0.010
Cd	37	-0.126	0.012

WHC-SD-WM-TI-540, REV. 1

B	38	0.013	0.026
K	39	-0.058	0.006
Mn	40	0.010	0.002
Sb	42	-0.005	0.013
V	43	0.009	0.004
Be	44	-0.002	0.001
Tl	45	-0.071	0.007

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Identity 1: XXX Identity 2: Rinse 2:14 PM July 14, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	2.493	0.394	-30.904	-13.384	-4.144	-7.817	41.044	1.378
S.D.	4.405	0.333	14.573	9.524	3.641	6.913	21.232	6.097
% R.S.D.	176.700	84.551	47.156	71.156	87.872	88.433	51.730	442.441

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-1.779	0.500	-0.192	-2.686	-8.475	1.369	-0.294	24.627
S.D.	2.593	1.796	1.237	0.359	2.093	2.372	0.563	11.516
% R.S.D.	145.811	359.089	644.807	13.369	24.690	173.193	191.527	46.760

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	50.542	0.668	2.695	-0.010	-5.940	0.097	42.719	1.759
S.D.	10.848	3.422	23.312	47.393	33.775	0.735	10.584	8.236
% R.S.D.	21.463	512.630	864.979	494015.278	568.615	753.613	24.775	468.180

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	54.270	-31.634	1.311	5.608	-38.432	-3.321	21.128	-0.742
S.D.	10.961	12.179	10.190	4.378	30.185	1.585	20.003	1.310
% R.S.D.	20.197	38.501	777.440	78.062	78.541	47.724	94.675	176.471

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-2.076	2.068	29.324	1.136	142.163	-3.372	0.426	-71.741
S.D.	0.475	4.693	29.384	0.186	52.507	2.406	0.246	46.037
% R.S.D.	22.877	226.909	100.205	16.341	36.934	71.343	57.734	64.171

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Corrected Counts Statistics 2:16 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV. 1

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	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
gan	-0.439	0.114	-72.317	-30.973	-8.365	9.034	-21.525	22.709
S.D.	1.163	0.058	7.130	12.638	1.967	1.188	2.058	5.574
% R.S.D.	265.120	50.918	9.859	40.804	23.514	13.150	9.562	24.546
	Co	Cu	Li	Zn	Ni	La	Eu	Fe

Mean	97.095	50.386	-0.767	40.913	72.592	0.000	-0.349	2.176
S.D.	3.396	0.539	0.674	0.239	2.944	0.000	0.084	3.002
Z R.S.D.	3.497	1.069	87.796	0.583	4.055	0.000	24.120	137.951

Ca	Cr	Nd	Ce	Sa	Ba	P	S
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WHC-SD-WM-TI-540, REV. 1

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	6.469	18.560	4.717	-10.286	-18.879	-0.216	24.387	15.392
S.D.	0.798	1.407	16.397	12.459	9.798	0.082	5.292	14.019
Z R.S.D.	12.334	7.580	347.626	121.130	51.896	38.189	21.699	91.083

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	7.794	28.472	4.867	5.842	56.935	14.042	3.517	-1.703
S.D.	0.655	14.645	6.738	2.054	19.364	0.493	20.311	0.303
Z R.S.D.	8.408	51.436	138.447	35.156	34.010	3.511	577.581	17.765

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	10.834	0.669	9.265	29.287	13.380	98.219	10.234	-86.882
S.D.	1.523	2.051	33.390	0.142	12.598	1.819	0.326	9.912
Z R.S.D.	14.060	306.540	360.396	0.484	94.159	1.852	3.182	11.409

Corrected Counts Statistics 2:18 PM July 14, 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	ZR.S.D. Kpulses
Zr	1	0.016	0.005
Cr	2	0.010	0.001
Bi	3	-0.192	0.026
Ta	5	0.004	0.011
Sn	7	0.073	0.007
Si	8	0.688	0.010
Al	9	1.267	0.012
W	10	0.049	0.019
Co	11	2.010	0.021
Cu	12	2.302	0.017
Li	14	-0.019	0.010
Zn	15	5.286	0.040
Ni	16	2.017	0.025
La	17	-0.005	0.001
Eu	18	-0.054	0.003
Fe	19	1.365	0.026
Ca	20	3.329	0.025
Cr	21	1.240	0.009
Nd	22	0.109	0.035
Ce	24	0.026	0.007
Sa	25	-0.039	0.010
Ba	26	8.691	0.060
P	27	0.009	0.002
S	28	0.021	0.011
Hg	29	2.261	0.016

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Na	31	0.894	0.016
Mo	32	1.437	0.016
Se	33	0.159	0.006
Ag	34	1.574	0.009
Pb	35	0.273	0.006

WHC-SD-WM-TI-540, REV. 1

Ti	36	3.491	0.020
Cd	37	11.923	0.017
B	38	2.464	0.033
K	39	0.881	0.011
Mn	40	5.044	0.050
Sb	42	0.165	0.033
V	43	0.827	0.001
Be	44	2.131	0.019
Tl	45	0.009	0.007

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Identity 1: CCV Identity 2: Quality Control 2:18 PM July 14, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1.174	0.407	-225.035	-7.160	19.858	471.789	449.076	37.259
S.D.	1.983	0.038	26.427	8.831	1.526	7.673	4.879	5.545
%R.S.D.	168.967	9.375	11.744	123.339	7.685	1.626	1.087	14.883

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	486.285	483.157	0.512	490.309	479.025	-10.955	0.184	468.722
S.D.	4.984	3.563	1.001	3.819	5.788	2.372	0.177	9.029
%R.S.D.	1.025	0.738	195.761	0.779	1.208	21.651	96.430	1.926

	Ca	Cr	Hd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	482.539	497.770	34.603	34.929	-40.445	469.284	9.111	4.594
S.D.	3.772	3.560	12.093	21.580	24.687	3.216	14.001	13.924
%R.S.D.	0.782	0.715	34.949	61.782	61.038	0.685	153.672	303.122

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	484.714	511.840	479.924	505.871	619.365	479.710	531.872	475.958
S.D.	3.421	22.014	9.193	5.434	21.570	2.481	10.713	2.575
%R.S.D.	0.706	4.301	1.915	1.074	3.483	0.517	2.014	0.541

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	491.719	449.334	4739.936	466.477	857.469	483.550	455.125	451.707
S.D.	0.713	5.984	56.514	4.628	138.772	0.687	4.062	45.577
%R.S.D.	0.145	1.332	1.192	0.992	16.184	0.142	0.893	10.090

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Corrected Counts Statistics

2:20 PM July 14, 1992

Task name: ALL_SIM

On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel Mean Kpulses S.D. Kpulses ZR.S.D. Kpulses

Zr 1 0.038 0.006

WHC-SD-WM-TI-540,REV.1

Sr 2 0.031 0.007
Bi 3 -0.004 0.007
Ta 5 -0.002 0.012
Sn 7 -0.016 0.026
Si 8 0.099 0.005
Al 9 0.195 0.016
W 10 0.012 0.034
Co 11 0.009 0.001
Cu 12 0.064 0.007
Li 14 -0.002 0.015
Zn 15 0.100 0.006
Fe 16 -0.018 0.005
Mn 17 -0.002 0.001
Ni 18 -0.034 0.005
Ca 19 -0.001 0.007
20 0.135 0.001
21 -0.009 0.008
22 0.094 0.105
24 0.048 0.011
25 0.017 0.008
26 0.030 0.009
27 0.011 0.004
28 0.024 0.006
29 0.018 0.002
As 30 -0.003 0.002
31 0.075 0.020
32 0.024 0.005
33 -0.050 0.004
34 -0.102 0.002
Pb 35 -0.002 0.002
Ti 36 -0.118 0.004
Cd 37 -0.070 0.038
B 38 0.032 0.012
K 39 -0.035 0.005
Mn 40 0.005 0.005
Sb 42 -0.023 0.019
V 43 0.008 0.005
Be 44 0.000 0.001
Tl 45 -0.071 0.010

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Identity 1: CCB Identity 2: Quality Control 2:20 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

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On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	10.848	1.221	-33.265	-11.044	-1.173	13.960	18.984	28.318
S.D.	2.422	0.276	6.774	9.241	6.162	4.041	6.371	9.925
Z R.S.D.	22.326	22.607	20.364	83.667	525.474	28.949	33.560	35.048

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	1.132	4.068	2.142	-1.580	-0.078	-1.369	1.268	-0.802
S.D.	0.280	1.578	1.393	0.522	1.185	2.372	0.276	2.253
% R.S.D.	24.743	38.791	65.041	33.072	1513.724	173.217	21.739	281.034

WHC-SD-WM-TI-540, REV. 1

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	0.808	-2.670	33.227	102.752	104.476	2.543	27.443	12.792
S.D.	0.171	3.059	35.562	34.329	19.538	0.462	37.043	8.274
% R.S.D.	21.218	114.565	107.029	33.410	18.701	18.167	134.984	64.677

	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	3.718	-1.741	19.841	10.632	-28.519	2.562	46.959	3.188
S.D.	0.328	3.116	11.347	1.580	14.451	0.435	4.067	0.524
% R.S.D.	8.813	179.050	57.189	14.866	50.672	16.973	8.661	16.438

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	0.219	5.536	148.009	0.678	69.372	-3.570	0.782	-71.741
S.D.	1.563	2.162	23.699	0.424	79.272	2.996	0.213	66.281
% R.S.D.	714.577	39.054	16.012	62.556	114.270	83.913	27.273	92.390

Corrected Counts Statistics 2:22 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
1	4.639	0.008	
Sr	2	51.131	0.056
Bi	3	0.651	0.029
Ta	5	2.490	0.019
Sn	7	4.148	0.035
Si	8	6.078	0.024
Al	9	2.990	0.038
N	10	6.528	0.052
Co	11	8.158	0.029
Cu	12	4.621	0.010
Li	14	20.613	0.034
Zn	15	20.569	0.074
Ni	16	4.174	0.037
La	17	0.246	0.002
Eu	18	17.792	0.013
Fe	19	2.994	0.007
Ca	20	15.280	0.011
Cr	21	2.586	0.006
Nd	22	3.091	0.007
	24	0.393	0.008
Sm	25	0.302	0.013
Ba	26	35.883	0.032
P	27	0.216	0.007

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Ag	29	4.941	0.008
As	30	0.752	0.004
Na	31	4.508	0.025
Mo	32	5.743	0.006
Se	33	0.330	0.008

WHC-SD-WM-TI-540, REV. 1

Ag	34	3.000	0.012
Pb	35	0.534	0.020
Ti	36	7.212	0.013
Cd	37	47.004	0.271
B	38	6.166	0.017
K	39	0.150	0.006
Mn	40	10.325	0.025
Sb	42	0.203	0.016
V	43	3.315	0.007
Be	44	8.748	0.007
Tl	45	0.064	0.005

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Identity 1: R1776 Dig STD 10-50 Identity 2: 1B48A0,2B48AP,3B48AP

2:22 PM July 14, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	2034.452	1950.634	627.448	1940.467	975.612	4664.067	1140.137	1952.169
S.D.	3.688	2.135	29.581	14.888	8.313	18.289	15.241	15.441
Z R.S.D.	0.181	0.109	4.715	0.767	0.852	0.392	1.337	0.791

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1977.477	979.730	1979.430	1939.829	986.930	1017.447	984.259	1028.508
S.D.	7.059	2.035	3.227	7.002	8.711	8.552	0.691	2.236
Z R.S.D.	0.357	0.208	0.163	0.361	0.883	0.841	0.070	0.217

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	2286.775	1036.932	1036.166	1165.309	841.157	1940.507	1912.541	1104.963
S.D.	1.695	2.437	2.520	25.670	33.676	1.772	61.029	30.690
Z R.S.D.	0.074	0.235	0.243	2.203	4.003	0.091	3.191	2.777

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1059.593	977.214	2509.489	2014.837	1113.009	885.604	990.954	963.531
S.D.	1.638	5.629	13.804	2.253	28.564	3.356	35.282	1.685
Z R.S.D.	0.155	0.576	0.550	0.112	2.566	0.379	3.560	0.175

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1929.496	1124.917	1075.755	953.663	1017.048	1964.553	1865.985	806.441
S.D.	11.115	3.110	27.620	2.272	67.584	3.873	1.542	34.337
Z R.S.D.	0.576	0.276	2.567	0.238	6.645	0.197	0.083	4.258

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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 ZR.S.D. Kpulses

WHC-SD-WM-TI-540, REV. 1

Zr	1	0.041	0.005
Sr	2	0.059	0.009
Bi	3	-0.023	0.017
Ta	5	0.003	0.017
Sn	7	-0.016	0.018
Si	8	0.596	0.013
Al	9	0.371	0.017
W	10	0.041	0.019
Co	11	0.023	0.010
Cu	12	0.085	0.005
Li	14	0.024	0.004
Zn	15	0.189	0.009
Ni	16	-0.006	0.001
La	17	0.000	0.001
Pr	18	-0.036	0.002
Fe	19	0.116	0.003
Ca	20	2.758	0.029
Cr	21	-0.003	0.006
Mn	22	0.167	0.038
Se	24	0.066	0.009
S	25	0.001	0.009
Br	26	0.021	0.004
P	27	0.013	0.001
As	28	0.089	0.008
Hg	29	0.227	0.002
Hs	30	-0.009	0.006
Re	31	0.806	0.010
Mo	32	0.005	0.006
Os	33	-0.051	0.013
Ag	34	-0.110	0.002
Pb	35	-0.005	0.019
Ti	36	-0.105	0.005
Cd	37	-0.057	0.037
B	38	0.265	0.020
K	39	-0.019	0.001
Mn	40	0.012	0.004
Sb	42	0.002	0.010
V	43	0.012	0.004
Be	44	-0.002	0.001
Tl	45	-0.069	0.006

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Identity 1: R1777 Dig Blank Identity 2: Direct (Acid Dig)

2:25 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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	Zr	Sr	Bi	Ta	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	12.314	2.289	-53.014	-4.970	-1.095	400.237	89.708	36.790

Z R.S.D.	18.897	15.486	33.504	193.997	389.851	2.430	7.441	15.649
	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	4.527	8.493	4.668	6.862	2.747	8.216	1.176	39.518

WHC-SD-WM-TI-540, REV. 1

S.D.	2.524	0.981	0.388	0.829	0.272	4.108	0.084	0.992
Z R.S.D.	55.759	11.552	8.304	12.076	9.897	49.999	7.160	2.510

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	396.952	-0.134	55.074	159.271	62.207	2.130	45.774	95.417
S.D.	4.330	2.230	12.806	26.219	23.195	0.219	10.584	10.479
Z R.S.D.	1.091	1670.502	23.253	16.462	37.286	10.283	23.122	10.983

	Hg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	48.479	-9.130	430.696	3.855	-35.645	0.474	42.263	4.891
S.D.	0.372	7.672	5.736	2.189	48.445	0.657	32.996	0.655
Z R.S.D.	0.766	84.035	1.332	56.772	135.910	138.564	78.073	13.393

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	0.724	48.000	228.247	1.045	174.359	-1.189	0.284	-56.600
S.D.	1.515	3.650	2.895	0.334	41.431	2.478	0.246	39.471
Z R.S.D.	209.189	7.605	1.269	31.968	23.762	208.357	86.601	69.737

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Corrected Counts Statistics 2:29 PM July 14, 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	ZR.S.D. Kpulses
Zr	1 1.502	0.015	
Sr	2 398.461	4.617	
Bi	3 0.522	0.020	
Ta	5 -0.026	0.017	
Sn	7 0.776	0.100	
Si	8 5.613	0.072	
Al	9 1087.022	957.493	
W	10 1.918	0.073	
Co	11 2.096	0.010	
Cu	12 0.953	0.009	
Li	14 0.024	0.007	
Zn	15 7.056	0.053	
Ni	16 50.895	0.621	
La	17 0.021	0.002	
Eu	18 0.252	0.004	
Fe	19 149.500	1.632	
Ca	20 99.566	1.077	

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Nd	22.	1.134	0.066
Ce	24	0.208	0.011
Sm	25	-0.372	0.008
Ba	26	6.812	0.067
P	27	2.974	0.091

WHC-SD-WM-TI-540, REV. 1

S	28	65.718	1.193
Mg	29	5.975	0.068
As	30	0.243	0.008
Na	31	-23.018	0.000
Mo	32	0.621	0.008
Se	33	15.093	0.245
Ag	34	0.501	0.009
Pb	35	2.389	0.058
Ti	36	0.560	0.009
Cd	37	18.182	0.160
B	38	1.113	0.043
K	39	5.214	0.067
Ca	40	29.149	0.326
Fe	42	0.056	0.022
Al	43	0.254	0.005
Mn	44	0.065	0.001
Pb	45	-0.026	0.008

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Identity 1: R1778 Sam BY-104 Identity 2: .5503g in 50ml (AcDg
name: ALL_SIM

2:30 PM July 14, 1992

Sample Weight: 1.0000 Solution Volume: 1.00
On-Peak Integrations: 3 Off-Peak Integrations: 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	H (ppb)
Mean	654.649	15201.097	501.250	-28.030	184.584	4302.678	435923.955	66.080
S.D.	6.601	176.137	19.830	13.489	23.518	56.215	384031.539	16.826
R.S.D.	1.008	1.159	3.956	48.122	12.741	1.307	88.096	25.463

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	507.304	194.262	4.604	658.129	11986.459	93.118	17.039	51373.524
S.D.	2.393	1.989	0.680	5.066	146.179	9.487	0.199	560.797
R.S.D.	0.472	1.024	14.780	0.770	1.220	10.189	1.167	1.092

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	14846.344	131231.106	278.995	594.981	-902.207	368.563	27188.753	86900.594
S.D.	161.037	1228.290	21.167	34.375	19.538	3.658	837.706	1579.781
R.S.D.	1.085	0.936	7.587	5.778	2.166	0.992	3.081	1.818

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1281.465	268.191	-12947.441	219.639	18887.400	174.199	4259.127	92.012
S.D.	14.544	11.611	0.000	2.677	576.988	2.454	101.850	1.135
R.S.D.	1.135	4.329	0.000	1.219	3.055	1.409	2.391	1.233

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	748.254	202.705	26470.935	2686.001	401.129	142.863	14.711	222.428

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WHC-SD-WM-TI-540.REV.1

Corrected Counts Statistics 2:33 PM July 14, 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	ZR.S.D. Kpulses
Zr	1	2.298	0.006
Sr	2	598.319	3.241
Bi	3	0.789	0.043
Tl	5	-0.015	0.006
Sn	7	1.216	0.048
As	8	3.742	0.002
Al	9	-24.154	0.000
Mn	10	2.915	0.054
Co	11	3.075	0.019
Cu	12	1.473	0.003
Ai	14	0.087	0.003
Zn	15	10.582	0.026
Ag	16	74.937	0.320
La	17	0.030	0.002
Ca	18	0.442	0.007
Fe	19	242.328	0.396
Co	20	139.980	0.253
Cr	21	480.076	1.193
Nd	22	1.809	0.089
Pr	24	0.348	0.019
Sm	25	-0.461	0.017
Q	26	10.480	0.031
P	27	4.731	0.104
S	28	96.503	1.410
Mg	29	9.065	0.042
As	30	0.353	0.013
Na	31	-33.181	0.000
Mo	32	0.926	0.016
Se	33	22.100	0.197
Ag	34	0.476	0.006
Pb	35	3.692	0.033
Ti	36	1.614	0.006
Cd	37	26.838	0.105
B	38	1.411	0.034
K	39	7.800	0.041
Mn	40	44.479	0.086
Sb	42	0.157	0.025
V	43	0.382	0.001
Be	44	0.096	0.002
Tl	45	-0.017	0.013

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Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540, REV.1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	1004.987	22825.604	773.306	-18.909	287.782	2847.526	-9746.785	116.204
S.D.	2.539	123.650	43.446	4.880	11.351	1.619	0.000	17.492
% R.S.D.	0.253	0.542	5.618	25.809	3.944	0.057	0.000	15.053
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	744.747	305.595	10.647	992.568	17646.788	132.830	27.535	83272.515
S.D.	4.591	0.618	0.277	2.459	75.267	8.552	0.367	136.121
% R.S.D.	0.616	0.202	2.601	0.248	0.427	6.438	1.333	0.163
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	20870.280	192303.303	465.126	1028.636	-1133.390	566.469	43296.112	127625.005
S.D.	37.792	477.688	30.468	57.289	44.549	1.617	953.081	1867.444
% R.S.D.	0.181	0.248	6.551	5.569	3.931	0.286	2.201	1.463
	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1944.220	387.087	-18654.296	326.655	27537.011	167.272	6553.364	230.053
S.D.	8.964	17.321	0.000	5.564	894.949	1.568	57.664	0.842
% R.S.D.	0.461	4.475	0.000	1.703	3.250	0.937	0.880	0.366
	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	1103.030	257.154	39435.982	4099.799	825.273	218.659	21.321	278.667
S.D.	4.318	6.213	205.629	7.970	103.662	0.344	0.492	82.677
% R.S.D.	0.392	2.416	0.521	0.194	12.561	0.157	2.309	29.669

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Corrected Counts Statistics 2:39 PM July 14, 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 6.219	0.032	
Sr	2 601.826	3.829	
Bi	3 1.453	0.031	
Ta	5 0.146	0.008	
Sn	7 4.974	0.079	
	8 5.514	0.045	
Al	9 -26.529	0.000	
W	10 7.825	0.075	
Co	11 10.110	0.062	

701

Li	14	18.760	0.133
Zn	15	28.915	0.149
Ni	16	72.637	0.394
La	17	0.234	0.005
Eu	18	16.758	0.100

WHC-SD-WM-TI-540.REV.1

Fe	19	469.696	2.496
Ca	20	124.123	0.724
Cr	21	410.638	2.105
Nd	22	4.404	0.109
Ce	24	0.640	0.020
Sm	25	-0.040	0.021
Ba	26	43.025	0.264
P	27	4.643	0.042
S	28	88.535	0.337
Mg	29	12.085	0.068
As	30	1.010	0.004
V	31	-27.691	0.000
Mo	32	5.966	0.022
Ti	33	18.953	0.147
Ag	34	0.536	0.004
Pb	35	3.956	0.009
Li	36	7.623	0.042
Cd	37	67.711	0.366
P	38	4.607	0.066
K	39	7.160	0.030
Sb	40	50.855	0.294
Se	42	0.372	0.014
Br	43	3.380	0.022
Ra	44	8.124	0.055
TI	45	0.084	0.014

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Identity 1: R1778 Spk BY-104 Identity 2: .6391g in 50ml (AcDg)

2:40 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	2729.264	22959.394	1444.284	108.689	1169.343	4225.681	-10699.350	1680.353
S.D.	14.279	146.083	31.856	5.985	18.531	35.139	0.000	18.871
Z R.S.D.	0.523	0.636	2.206	5.507	1.585	0.832	0.000	1.123

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	2450.988	1202.752	1820.882	2731.505	17105.373	968.149	927.222	161405.009
S.D.	14.952	5.995	12.757	14.125	92.678	19.414	5.501	857.754
Z R.S.D.	0.610	0.498	0.701	0.517	0.542	2.005	0.593	0.531

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	18511.682	164488.919	1365.143	1926.775	-43.033	2325.161	42486.467	117091.310
S.D.	108.369	843.226	37.314	61.683	54.222	14.279	383.104	446.029
Z R.S.D.	0.585	0.513	2.733	3.201	126.002	0.614	0.902	0.381

Mg	As	Ita	Mo	Se	Aq	Pb	Ti
----	----	-----	----	----	----	----	----

Mean	2372.103	1232.820	-133/1.483	2073.227	23789.236	109.161	1116.317	1017.570
S.D.	14.648	4.881	0.000	7.617	411.799	1.078	15.654	5.531
% R.S.D.	0.565	0.390	0.000	0.364	1.733	0.585	0.227	0.544
	Cd	B	K	Mn	Sb	V	Ba	Ti

WHC-SD-WM-TI-540, REV. 1

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	2778.190	840.449	36228.153	4691.250	1726.754	2003.245	1732.944	934.058
S.D.	15.010	12.112	149.775	27.156	58.792	12.799	11.827	89.524
% R.S.D.	0.540	1.441	0.413	0.579	3.405	0.639	0.683	9.584

Corrected Counts Statistics 2:43 PM July 14, 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	0.266	0.003
	2	67.753	0.270
	3	0.083	0.025
Ta	5	0.028	0.005
Sn	7	0.116	0.032
Si	8	1.025	0.005
Al	9	281.632	1.433
Hf	10	0.376	0.043
Co	11	0.350	0.009
Mo	12	0.209	0.005
Li	14	0.003	0.011
Zn	15	1.284	0.006
Ni	16	8.635	0.028
La	17	0.001	0.001
Eu	18	0.002	0.003
Fe	19	25.339	0.111
Ca	20	17.055	0.069
Cr	21	55.169	0.231
Nd	22	0.198	0.025
Ce	24	0.064	0.008
Sr	25	-0.073	0.009
Ba	26	1.153	0.003
P	27	0.564	0.016
S	28	11.571	0.173
Hg	29	1.026	0.003
As	30	0.028	0.012
Na	31	460.701	4.411
Mn	32	0.122	0.003
Sr	33	2.459	0.018
K	34	-0.017	0.004
Pb	35	0.371	0.013
Ti	36	-0.019	0.001

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B	38	0.209	0.003
K	39	0.871	0.008
Mn	40	4.924	0.017
Sb	42	-0.000	0.012
V	43	0.055	0.002

WHC-SD-WM-TI-540.REV.1

Be	44	0.012	0.001
Ti	45	-0.062	0.008

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Identity 1: R1778 Sam BY-104 Identity 2: .5503g in 50ml-1ml-5

2:44 PM July 14, 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	Sn	Si	Al	M
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	111.259	2584.781	55.276	12.676	29.865	734.406	112898.072	47.201
S.D.	1.163	10.288	25.485	3.921	7.538	3.675	574.565	13.101
% R.S.D.	1.046	0.398	46.105	30.930	25.241	0.500	0.509	27.755

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	83.675	34.970	2.654	110.690	2037.113	10.955	3.253	8707.097
S.D.	2.254	0.965	1.007	0.592	6.698	2.372	0.165	38.040
% R.S.D.	2.693	2.761	37.966	0.535	0.329	21.650	5.085	0.437

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	2527.355	22099.773	50.027	151.050	-129.295	63.153	5096.128	15286.184
S.D.	10.269	92.591	8.495	23.139	22.010	0.124	147.034	228.608
% R.S.D.	0.406	0.419	16.980	15.318	17.023	0.196	2.885	1.496

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	219.870	29.746	258676.681	44.746	2996.510	26.946	705.055	16.114
S.D.	0.568	16.396	2476.978	1.071	42.704	1.078	22.918	0.151
% R.S.D.	0.258	55.121	0.958	2.393	1.425	3.999	3.251	0.939

	Cd	B	K	Mn	Sb	V	Be	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	125.112	37.779	4688.116	453.868	163.160	24.010	3.411	-9.014
S.D.	0.656	0.483	40.844	1.519	49.213	0.909	0.246	49.561
% R.S.D.	0.524	1.278	0.871	0.335	30.162	3.787	7.217	549.841

Corrected Counts Statistics 2:47 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

704

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.434	0.002
Sr	2	108.536	0.652

Ta	5	-0.012	0.002
Sn	7	0.171	0.013
Si	8	0.707	0.008
Al	9	461.392	3.361
W	10	0.618	0.060

WHC-SD-WM-TI-540, REV. 1

Co	11	0.561	0.011
Cu	12	0.312	0.004
Li	14	0.002	0.011
Zn	15	2.019	0.009
Ni	16	13.985	0.086
La	17	0.004	0.001
Eu	18	0.024	0.002
Fe	19	44.675	0.268
Ca	20	25.705	0.169
Cr	21	88.694	0.528
Nd	22	0.342	0.056
Mo	24	0.069	0.005
Sa	25	-0.117	0.004
Ta	26	1.843	0.009
P	27	0.857	0.017
S	28	17.454	0.174
Mg	29	1.681	0.010
As	30	0.066	0.001
Na	31	746.241	3.809
Mo	32	0.188	0.002
Se	33	3.954	0.029
Sn	34	-0.019	0.001
Ir	35	0.670	0.017
Cd	36	0.167	0.006
Co	37	5.005	0.038
K	38	0.265	0.013
Mn	39	1.341	0.016
Sh	40	8.163	0.066
V	42	0.008	0.003
Be	43	0.073	0.003
Be	44	0.016	0.001
Tl	45	-0.066	0.002

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Identity 1: R1778 Dup BY-104 Identity 2: .5958g in 50ml-1ml-5

2:48 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	185.138	4140.631	108.830	-18.722	42.765	487.085	184995.989	65.157
S.D.	0.880	24.883	20.026	1.252	3.067	6.334	1348.148	18.602
1 R.S.D.	0.475	0.601	18.401	6.688	7.172	1.300	0.729	28.550

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	135.012	57.094	2.526	180.373	3296.830	26.018	4.485	15351.680
S.D.	2.672	0.772	1.015	0.861	20.324	2.372	0.115	92.262
1 R.S.D.	1.979	1.352	40.189	0.477	0.616	9.116	2.559	0.601

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	3816.119	35529.023	89.774	167.492	-243.162	100.406	7784.762	23066.595
S.D.	25.186	211.592	19.193	16.313	10.459	0.485	158.756	229.805
Z R.S.D.	0.660	0.596	21.379	9.740	4.301	0.483	2.039	0.996

WHC-SD-WM-TI-540, REV. 1

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	360.300	74.250	419016.481	67.878	4723.455	26.187	1231.650	40.569
S.D.	2.116	0.829	2138.768	0.535	50.950	0.329	29.330	0.832
Z R.S.D.	0.587	1.116	0.510	0.789	1.079	1.255	2.381	2.051

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	208.215	47.939	7045.094	752.626	196.756	34.725	4.264	-37.133
S.D.	1.538	2.325	81.687	6.090	10.568	1.498	0.123	11.239
Z R.S.D.	0.739	4.851	1.159	0.809	5.371	4.314	2.887	30.268

Corrected Counts Statistics 2:52 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	ZR.S.D. Kpulses
-----------------	--------------	--------------	-----------------

Li	1	1.130	0.003
Br	2	106.123	0.346
Bi	3	0.189	0.019
Ja	5	-0.002	0.015
Sn	7	0.878	0.009
Si	8	1.001	0.002
Al	9	524.786	3.316
H	10	1.374	0.014
Co	11	1.843	0.015
Cu	12	1.038	0.004
Li	14	3.176	0.023
Zn	15	5.276	0.017
Mi	16	13.443	0.065
La	17	0.040	0.001
Eu	18	2.947	0.008
Fe	19	85.972	0.162
Ca	20	22.526	0.062
Cr	21	74.383	0.199
Nd	22	0.891	0.097
Ce	24	0.141	0.002
Sm	25	-0.016	0.004
Ba	26	7.449	0.018
P	27	0.737	0.001
S	28	14.737	0.052
Mg	29	2.174	0.007
As	30	0.169	0.006
Na	31	581.429	3.971
Mo	32	1.064	0.012
Se	33	3.537	0.008
Ag	34	0.002	0.001

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Ti	36	1.219	0.003
Cd	37	12.589	0.035
B	38	0.817	0.023
K	39	1.188	0.013
Mn	40	9.215	0.040

WHC-SD-WM-TI-540.REV.1

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Sb	42	0.022	0.019
V	43	0.614	0.003
Be	44	1.495	0.004
Tl	45	-0.024	0.002

Identity 1: R1778 Spk BY-104 Identity 2: .6391g in 50ml-1ml-5

2:52 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	491.060	4048.564	161.588	-10.748	208.663	715.222	210422.204	311.639
S.D.	1.343	13.187	19.189	11.412	2.102	1.188	1329.840	4.357
% R.S.D.	0.274	0.326	11.875	106.172	1.007	0.166	0.632	1.398

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	445.943	212.461	306.960	489.329	3169.147	173.911	165.670	29542.666
S.D.	3.641	0.865	2.198	1.646	15.415	4.744	0.414	55.754
% R.S.D.	0.816	0.407	0.716	0.336	0.486	2.728	0.250	0.189

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	3343.534	29796.253	280.128	389.458	19.076	403.382	6681.811	19472.696
S.D.	9.213	79.636	33.097	6.166	10.351	0.994	5.292	68.573
% R.S.D.	0.276	0.267	11.815	1.583	54.264	0.246	0.079	0.352

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	466.195	210.983	326469.001	375.139	4831.956	32.354	1330.276	178.391
S.D.	1.522	7.434	2229.580	4.181	14.634	0.329	36.194	0.330
% R.S.D.	0.326	3.524	0.683	1.115	0.303	1.016	2.721	0.185

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	519.042	148.744	6281.165	850.240	256.948	357.156	319.597	233.243
S.D.	1.418	4.146	63.499	3.689	79.789	1.913	0.888	13.508
% R.S.D.	0.273	2.787	1.011	0.434	31.053	0.536	0.278	5.791

Corrected Counts Statistics

2:56 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	% R.S.D. Kpulses
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Sr	2	0.011	0.004
Bi	3	-0.178	0.012
Ta	5	-0.003	0.011
Sn	7	0.002	0.028
Si	8	0.686	0.006

WHC-SD-WM-TI-540, REV.1

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Al	9	1.319	0.031
W	10	-0.006	0.016
Co	11	2.053	0.010
Cu	12	2.336	0.017
Li	14	-0.020	0.008
Zn	15	5.390	0.017
Ni	16	2.043	0.012
La	17	-0.003	0.002
Eu	18	-0.057	0.008
Fe	19	1.414	0.022
Ca	20	3.397	0.019
Na	21	1.257	0.006
Mo	22	0.070	0.101
P	24	0.028	0.012
Sb	25	-0.045	0.012
Mn	26	8.822	0.047
P	27	0.015	0.004
As	28	0.029	0.008
Se	29	2.305	0.012
As	30	0.382	0.009
Te	31	0.916	0.010
Mo	32	1.462	0.006
Ag	33	0.158	0.004
Cd	34	1.596	0.002
Co	35	0.258	0.012
Cd	36	3.565	0.011
Cd	37	12.357	0.095
K	38	2.479	0.021
K	39	0.893	0.009
Br	40	5.170	0.036
Sb	42	0.087	0.031
V	43	0.841	0.005
Re	44	2.198	0.011
Tl	45	0.004	0.010

Identity 1: CCV Identity 2: Quality Control 2:56 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	-2.051	0.445	-210.824	-12.334	3.049	470.752	469.799	20.858
S.D.	3.554	0.138	12.400	8.252	6.668	4.688	12.403	4.618
X R.S.D.	173.281	30.905	5.882	66.904	218.703	0.996	2.640	22.138

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	496.875	490.365	0.384	500.142	485.147	-2.739	-0.018	485.331
S.D.	2.441	3.623	0.804	1.567	2.719	9.552	0.449	7.570

Ag	34	-0.115	0.005
Pb	35	-0.004	0.006
Ti	36	-0.130	0.006
Cd	37	-0.055	0.007
B	38	0.028	0.015

WHC-SD-WM-TI-540.RFV.1

K	39	-0.047	0.011
Mn	40	0.007	0.004
Sb	42	-0.063	0.014
V	43	0.012	0.005
Be	44	-0.002	0.001
Tl	45	-0.070	0.005

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Identity 1: CCB Identity 2: Quality Control 2:58 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	H (ppb)
Mean	9.382	1.144	-54.364	5.322	-2.345	14.997	10.428	28.410
S.D.	2.078	0.117	5.220	9.505	4.340	1.957	3.242	7.130
% R.S.D.	22.150	10.184	9.603	178.578	185.021	13.051	31.088	25.097

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-2.021	2.712	3.069	-4.046	-4.865	6.847	0.588	-2.749
S.D.	3.760	0.214	0.745	0.219	4.356	4.744	0.209	0.715
% R.S.D.	186.034	7.893	24.273	5.414	89.531	69.281	35.492	26.021

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-6.041	-1.202	37.019	122.277	95.850	2.032	3.000	-5.692
S.D.	0.152	0.834	8.069	6.417	9.798	0.481	24.250	0.001
% R.S.D.	2.513	69.390	21.797	5.248	10.222	23.671	808.233	0.023

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1.216	-18.436	29.575	8.996	67.903	-1.044	43.437	1.659
S.D.	0.124	3.789	5.530	1.416	44.558	1.506	10.616	0.745
% R.S.D.	10.189	20.553	18.700	15.746	65.621	144.314	24.440	44.891

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	0.833	4.806	87.831	0.837	-101.405	-1.388	0.426	-60.926
S.D.	0.267	2.709	56.366	0.374	57.324	2.728	0.123	32.661
% R.S.D.	31.993	56.368	64.176	44.687	56.530	196.550	28.867	53.607

Corrected Counts Statistics

3:00 PM July 14, 1992

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Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	9 (ppb)
Mean	492.750	504.713	21.372	41.095	-55.972	476.390	70.214	15.542
S.D.	2.915	2.206	34.245	37.883	31.483	2.497	32.189	10.681

WHC-SD-WM-TI-540.REV.1

Z R.S.D.	0.592	0.437	160.231	92.183	56.247	0.524	45.843	68.722
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	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	494.296	512.942	492.090	514.633	614.754	485.877	505.454	485.740
S.D.	2.505	12.564	5.845	1.930	15.367	0.593	21.642	1.443
Z R.S.D.	0.507	2.449	1.188	0.375	2.500	0.122	4.282	0.297

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	509.533	452.133	4800.114	478.094	528.512	492.280	469.410	417.099
S.D.	3.888	3.856	43.718	3.360	129.594	2.813	2.403	67.747
Z R.S.D.	0.763	0.853	0.911	0.703	24.521	0.571	0.512	16.243

Corrected Counts Statistics 2:58 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	Z R.S.D. Kpulses
Ir	1	0.034	0.005
As	2	0.029	0.003
Bi	3	-0.024	0.005
Ga	5	0.019	0.012
Sn	7	-0.021	0.019
Si	8	0.100	0.003
Al	9	0.173	0.008
W	10	0.013	0.024
Co	11	-0.004	0.016
Cu	12	0.058	0.001
Li	14	0.008	0.008
Zn	15	0.074	0.002
Ni	16	-0.039	0.019
La	17	-0.000	0.001
Eu	18	-0.046	0.004
Fe	19	-0.007	0.002
Ca	20	0.090	0.001
Cr	21	-0.006	0.002
Nd	22	0.105	0.024
Ce	24	0.054	0.002
Sm	25	0.014	0.004
Ba	26	0.020	0.009
P	27	0.008	0.003
S	28	0.010	0.000
Hg	29	0.007	0.001
As	30	-0.016	0.003
Na	31	0.092	0.010
Mo	32	0.020	0.004

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Zr	1	0.826	0.010
Sr	2	160.717	1.207
Bi	3	0.175	0.018
Ta	5	-0.006	0.014

WHC-SD-WM-TI-540, REV. 1

Sn	7	0.478	0.027
Si	8	7.807	0.077
Al	9	503.666	13.544
W	10	1.411	0.036
Co	11	0.931	0.012
Cu	12	0.391	0.008
Li	14	0.043	0.010
Zn	15	9.250	0.115
Ni	16	22.292	0.210
La	17	0.012	0.001
Eu	18	0.065	0.013
Fe	19	62.424	0.467
Ca	20	47.797	0.387
Fr	21	98.520	0.813
Nd	22	0.687	0.069
Be	24	0.138	0.010
Sm	25	-0.149	0.017
Ba	26	3.407	0.026
P	27	2.675	0.046
S	28	145.895	1.497
Mg	29	6.181	0.043
S	30	0.068	0.005
Co	31	-36.847	0.000
Mo	32	0.600	0.006
Se	33	4.457	0.015
Ag	34	0.181	0.009
Pb	35	0.762	0.009
Bi	36	1.632	0.012
Cd	37	8.867	0.121
O	38	1.970	0.033
K	39	4.759	0.053
Mn	40	12.214	0.099
Sb	42	0.008	0.007
V	43	0.138	0.003
Be	44	0.012	0.001
Tl	45	-0.044	0.007

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Identity 1: R1779 Sam. BY-104 Identity 2: .5236g in 50ml

3:02 PM July 14, 1992

Task name: ALL_SIN

Sample Weight: 1.0000 Solution Volume: 1.00

On-Peak Integrations: 3 Off-Peak Integrations: 1

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	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	357.521	6131.043	148.017	-13.395	114.691	6008.780	201951.255	283.918
S.D.	4.398	46.039	17.939	10.573	6.386	60.098	5432.211	11.084
% R.S.D.	1.230	0.751	12.120	78.932	5.568	1.000	2.690	3.904
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)

Mean	221.007	19.080	0.470	335.11	3232.501	3.000	10.142	21430.680
S.D.	2.797	1.663	0.912	10.862	49.331	2.372	0.689	160.481
Z R.S.D.	1.245	2.245	14.046	1.254	0.939	4.028	10.221	0.748

Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
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WHC-SD-WM-TI-540.REV.1

Mean	7147.600	39464.720	182.956	380.209	-325.973	184.881	24445.124	193169.785
S.D.	58.056	325.474	23.556	29.409	43.406	1.415	421.261	1982.423
Z R.S.D.	0.812	0.825	12.875	7.735	13.316	0.766	1.723	1.026

Mean	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	1325.654	75.189	-20712.874	212.512	5478.834	83.209	1393.092	232.455
S.D.	9.269	6.854	0.000	2.142	63.597	2.432	16.142	1.588
Z R.S.D.	0.699	9.116	0.000	1.008	1.161	2.923	1.159	0.683

Mean	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	366.470	359.236	24187.508	1124.987	196.756	73.615	3.269	105.626
S.D.	4.947	6.024	263.315	9.103	30.955	1.575	0.246	42.551
Z R.S.D.	1.350	1.677	1.089	0.809	15.733	2.139	7.531	40.285

Corrected Counts Statistics 3:05 PM July 14, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

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Element Channel	Mean Kpulses	S.D. Kpulses	ZR.S.D. Kpulses
Zr	1	0.153	0.005
Sr	2	27.102	0.048
Bi	3	0.010	0.023
Ta	5	0.025	0.006
Sn	7	0.066	0.008
Si	8	1.392	0.001
Al	9	87.575	0.158
W	10	0.199	0.008
Co	11	0.156	0.007
Cu	12	0.098	0.003
Li	14	0.010	0.038
Zn	15	1.636	0.003
Ni	16	3.832	0.018
La	17	0.002	0.001
Eu	18	-0.044	0.009
Fe	19	10.735	0.056
Ca	20	8.206	0.012
Cr	21	16.927	0.005
Nd	22	0.193	0.079
Ce	24	0.038	0.009
Sm	25	-0.050	0.004

712

P	27	0.477	0.012
S	28	24.798	0.050
Hg	29	1.067	0.002
As	30	-0.003	0.001
Na	31	834.097	4.569

WHC-SD-WM-TI-540.REV.1

Mo	32	0.107	0.005
Se	33	0.726	0.018
Ag	34	-0.082	0.006
Pb	35	0.141	0.008
Ti	36	0.155	0.003
Cd	37	1.441	0.072
B	38	0.370	0.028
K	39	0.784	0.004
Mn	40	2.096	0.010
Sb	42	0.035	0.028
V	43	0.031	0.001
Be	44	0.002	0.001
Tl	45	-0.065	0.008

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Identity 1: R1779 Sam BY-104 Identity 2: .5236g in 50ml-1ml-5

3:06 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	61.567	1033.953	-19.782	9.854	18.138	1019.578	35065.643	56.349
S.D.	2.015	1.836	23.726	5.009	1.920	0.778	63.559	2.420
% R.S.D.	3.273	0.178	119.934	50.836	10.585	0.076	0.181	4.294

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	36.623	11.205	3.261	144.077	906.412	15.063	0.735	3688.495
S.D.	1.578	0.688	3.605	0.285	4.125	2.372	0.509	19.161
% R.S.D.	4.309	6.142	110.533	0.197	0.455	15.746	69.281	0.519

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	1210.851	6781.319	58.006	71.924	-68.911	31.217	4301.759	32817.275
S.D.	1.884	1.976	26.979	26.340	9.331	0.246	105.705	65.771
% R.S.D.	0.156	0.029	46.510	36.622	13.540	0.788	2.457	0.200

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	228.665	-5.133	468350.666	39.722	923.316	8.255	299.396	38.953
S.D.	0.429	0.806	2565.637	1.764	68.909	1.568	14.416	0.347
% R.S.D.	0.188	15.709	0.548	4.441	7.463	18.992	4.815	0.890

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	713 Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	62.119	67.102	4253.496	193.270	312.940	9.724	1.137	-28.481
S.D.	2.956	5.115	21.859	0.879	119.469	0.687	0.123	52.450
% R.S.D.	4.758	7.622	0.514	0.455	38.176	7.069	10.825	184.160

Corrected Counts Statistics 3:09 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

WHC-SD-WM-TI-540.REV.1

Analyte Channel	Mean Kpulses	S.D. Kpulses	ZR.S.D. Kpulses
Zr	1	1.011	0.001
Sr	2	219.773	1.532
Bi	3	0.298	0.037
Ta	5	-0.007	0.019
Sn	7	0.474	0.042
Si	8	11.545	0.044
Al	9	464.541	0.948
W	10	1.721	0.046
Cu	11	1.201	0.007
Cu	12	0.460	0.009
Zn	14	0.049	0.007
Hf	15	9.117	0.052
La	16	29.016	0.125
Eu	17	0.014	0.001
Eu	18	0.074	0.008
Ca	19	73.008	0.251
Ca	20	58.950	0.237
Hd	21	116.401	0.691
Hd	22	0.812	0.032
Sn	24	0.157	0.018
Sn	25	-0.198	0.018
Ba	26	4.321	0.020
P	27	5.514	0.045
S	28	163.162	2.033
As	29	6.235	0.040
As	30	0.095	0.004
Mo	31	-42.137	0.000
Mo	32	0.693	0.014
Se	33	5.291	0.045
Ag	34	0.202	0.008
Pb	35	0.967	0.006
Ti	36	1.360	0.004
Cd	37	11.062	0.127
B	38	3.670	0.017
K	39	5.573	0.012
Mn	40	15.489	0.053
Sb	42	0.056	0.011
V	43	0.191	0.002
Be	44	0.011	0.001
Tl	45	-0.051	0.012

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Identity 1: R1779 Dup BY-104 Identity 2: .5888g in 50ml

3:10 PM July 14, 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 Sr Si Al W

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	438.876	8384.254	273.598	-13.818	113.909	8915.972	186259.258	346.826
S.D.	0.440	58.431	38.047	14.897	9.773	33.874	380.128	14.584
% R.S.D.	0.100	0.697	13.906	107.806	8.580	0.380	0.204	4.205

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
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WHC-SD-WM-TI-540,REV.1

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	290.154	88.853	7.002	853.646	6835.604	65.730	7.242	25087.744
S.D.	1.749	1.821	0.707	4.885	29.413	4.108	0.418	86.312
% R.S.D.	0.603	2.049	10.097	0.572	0.430	6.250	5.765	0.344

	Ca	Cr	Nd	Ce	Sa	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	8822.569	46627.245	213.431	439.811	-451.054	234.178	50466.821	216027.775
S.D.	35.465	276.812	10.529	55.946	46.677	1.037	416.044	2692.894
% R.S.D.	0.402	0.594	4.933	12.721	10.349	0.443	0.824	1.247

	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	1337.165	107.946	-23683.381	244.874	6539.985	89.092	1753.547	196.864
S.D.	8.608	4.985	0.000	4.759	244.504	2.318	9.700	0.529
% R.S.D.	0.644	4.618	0.000	1.943	3.739	2.602	0.553	0.269

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	456.458	669.378	28267.921	1426.741	401.129	104.965	3.056	62.366
S.D.	5.187	3.067	59.829	4.849	44.509	0.909	0.123	75.767
% R.S.D.	1.136	0.458	0.212	0.340	11.096	0.866	4.028	121.489

Corrected Counts Statistics 3:14 PM July 14, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.189	0.001
Sr	2	37.827	0.081
Bi	3	0.073	0.018
Ta	5	-0.004	0.003
Sn	7	0.062	0.015
Si	8	2.037	0.008
Al	9	79.071	0.096
W	10	0.289	0.031
Co	11	0.231	0.012
Cu	12	0.113	0.003
Li	14	-0.017	0.010
	15	1.656	0.001
	16	5.077	0.028
La	17	0.002	0.001
Eu	18	-0.040	0.006

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Ca	20	10.335	0.021
Cr	21	20.455	0.026
Nd	22	0.099	0.032
Ce	24	0.030	0.004
Sm	25	-0.062	0.007

WHC-SD-WM-TI-540, REV. 1

Ba	26	0.724	0.007
P	27	0.898	0.026
S	28	27.416	0.334
Mg	29	1.097	0.003
As	30	0.009	0.001
Na	31	951.002	1.798
Mo	32	0.132	0.006
Se	33	0.891	0.018
Ag	34	-0.066	0.004
Pb	35	0.142	0.007
Ti	36	0.119	0.006
B	37	1.913	0.009
B	38	0.650	0.018
Mn	39	0.908	0.014
Mn	40	2.720	0.011
Si	42	0.005	0.009
U	43	0.044	0.003
Be	44	0.001	0.001
4	45	-0.055	0.005

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Identity 1: R1779 Dup BY-104 Identity 2: .5888g in 50ml-1ml-5 3:14 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	77.544	1443.094	44.718	-12.647	17.200	1521.479	31654.723	77.213
S.D.	0.508	3.098	18.394	1.916	3.518	5.837	38.343	9.101
% R.S.D.	0.655	0.215	41.134	15.150	20.455	0.384	0.121	11.786

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	54.894	14.417	0.735	146.006	1199.603	16.433	0.937	4395.129
S.D.	2.941	0.539	0.946	0.055	6.483	4.108	0.344	31.240
% R.S.D.	5.357	3.737	128.686	0.038	0.540	25.000	36.735	0.711

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	1530.496	8194.651	23.812	48.288	-99.966	40.063	8160.559	36282.263
S.D.	3.099	10.415	10.922	12.835	17.929	0.350	240.242	442.289
% R.S.D.	0.202	0.127	45.866	26.580	17.935	0.874	2.944	1.219

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	235.100	10.238	533996.248	48.251	1131.810	12.904	301.157	34.281
S.D.	0.568	1.550	1009.708	2.226	66.554	1.026	12.202	0.722
% R.S.D.	0.241	15.143	0.189	4.613	5.880	7.953	4.052	2.105

Cd	R	K	Mn	Sb	V	Be	TJ
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Mean	81.477	118.204	4877.009	250.764	186.957	17.859	0.924	32.084
S.D.	0.376	3.215	69.185	1.022	39.019	1.498	0.246	29.972
Z R.S.D.	0.461	2.720	1.419	0.408	20.871	8.388	26.647	93.417

WHC-SD-WM-TI-540, REV. 1

Corrected Counts Statistics 3:18 PM July 14, 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	ZR.S.D. Kpulses
Zr	1	0.024	0.002
Sr	2	0.022	0.006
B	3	-0.120	0.025
Ta	5	-0.018	0.011
Si	7	0.069	0.030
Al	8	0.698	0.006
Co	9	1.364	0.008
Ni	10	-0.011	0.014
Fe	11	2.055	0.009
Cr	12	2.342	0.008
Mn	14	-0.006	0.005
Cu	15	5.374	0.020
Zn	16	2.077	0.008
As	17	-0.003	0.001
Se	18	-0.050	0.003
Br	19	1.384	0.007
K	20	3.395	0.009
Ca	21	1.263	0.006
Sc	22	0.179	0.010
Ti	24	0.031	0.007
V	25	-0.020	0.000
Cr	26	8.834	0.016
Mn	27	0.011	0.003
Fe	28	0.038	0.008
Ni	29	2.295	0.004
Cu	30	0.387	0.008
Zn	31	1.015	0.002
As	32	1.447	0.002
Se	33	0.176	0.017
Ag	34	1.605	0.002
Pb	35	0.275	0.011
Ti	36	3.573	0.012
Cd	37	12.359	0.008
B	38	2.478	0.002
K	39	0.910	0.004
Mn	40	5.158	0.006
Sb	42	0.101	0.010
V	43	0.847	0.004
Be	44	2.181	0.011
Tl	45	0.021	0.002

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Task name : ALL_SIM
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

Zr Sr Bi Ta Sn Si Al W

WHC-SD-WM-TI-540, REV. 1

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	4.692	0.852	-152.080	-23.639	18.920	479.567	488.115	19.469
S.D.	0.915	0.233	25.595	8.300	7.038	4.283	3.063	4.022
Z R.S.D.	19.512	27.359	16.830	35.111	37.197	0.893	0.628	20.660

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	497.360	491.792	1.790	498.624	493.308	-4.108	0.368	475.022
S.D.	2.174	1.731	0.473	1.895	1.829	4.108	0.139	2.288
Z R.S.D.	0.437	0.352	26.426	0.380	0.371	100.002	37.748	0.482

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	492.394	506.983	58.350	50.344	8.725	477.029	30.498	26.584
S.D.	1.425	2.230	3.410	22.231	0.000	0.876	24.250	10.536
Z R.S.D.	0.289	0.440	5.844	44.158	0.000	0.184	79.515	40.011

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	492.008	519.209	547.682	509.376	681.626	488.629	534.807	486.788
S.D.	0.893	10.126	0.858	0.809	65.692	0.435	19.400	1.563
Z R.S.D.	0.182	1.950	0.157	0.159	9.638	0.089	3.627	0.321

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	509.602	451.950	4885.367	476.953	590.104	495.653	465.715	525.250
S.D.	0.328	0.380	18.081	0.541	40.353	2.146	2.377	14.986
Z R.S.D.	0.064	0.084	0.370	0.113	6.838	0.433	0.510	2.853

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Corrected Counts Statistics 3:19 PM July 14, 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	ZR.S.D. Kpulses
Zr	1	0.025	0.006
Sr	2	0.011	0.008
Bi	3	-0.001	0.014
Ta	5	-0.004	0.020
Sn	7	-0.004	0.019
Si	8	0.082	0.004
Al	9	0.108	0.014
W	10	-0.012	0.018

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Cu	12	0.039	0.005
Li	14	-0.013	0.003
Zn	15	0.058	0.002
Ni	16	-0.037	0.004
La	17	-0.002	0.001

WHC-SD-WM-TT-540, REV. 1

Eu	18	-0.058	0.008
Fe	19	0.016	0.006
Ca	20	0.078	0.001
Cr	21	0.010	0.003
Nd	22	0.028	0.056
Ce	24	0.023	0.006
Sn	25	-0.020	0.006
Ba	26	-0.010	0.006
P	27	0.017	0.002
S	28	0.031	0.006
Mg	29	0.005	0.001
As	30	-0.008	0.008
Na	31	0.094	0.005
Se	32	0.010	0.008
Hg	33	-0.028	0.004
Pb	34	-0.128	0.006
Pi	35	-0.011	0.007
Fi	36	-0.149	0.002
Fi	37	-0.059	0.032
B	38	0.005	0.013
4	39	-0.055	0.006
6	40	-0.002	0.005
0	42	-0.008	0.014
0	43	0.014	0.003
0	44	-0.000	0.001
0	45	-0.050	0.009

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Identity 1: CCB Identity 2: Quality Control 3:20 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	N (ppb)
Mean	5.278	0.458	-30.209	-12.339	1.798	0.998	-15.776	21.086
S.D.	2.448	0.308	14.617	15.500	4.365	2.944	5.615	5.238
% R.S.D.	46.390	67.358	48.386	125.616	242.743	295.176	35.593	24.840
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-3.315	-1.284	1.087	-5.563	-4.551	-1.369	-0.055	5.155
S.D.	2.532	1.078	0.254	0.145	0.980	2.372	0.416	2.100
% R.S.D.	76.393	83.917	23.345	2.604	21.535	173.217	755.145	40.734
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-7.811	5.074	10.832	25.681	7.862	0.370	82.437	22.140
S.D.	0.089	1.202	18.977	19.252	14.253	0.351	14.001	7.374
% R.S.D.	1.134	23.684	175.193	74.968	181.285	95.096	16.984	33.308

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	0.787	-8.419	30.510	5.725	53.294	-4.649	32.283	-0.917
S.D.	0.124	10.076	2.654	2.677	16.177	1.739	11.737	0.200
% R.S.D.	15.746	119.688	8.698	46.761	30.354	37.409	36.325	21.822

WHC-SD-WM-TI-540, REV. 1

	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	0.656	0.608	47.712	0.067	132.364	-0.396	0.711	64.529
S.D.	1.291	2.311	30.228	0.475	58.992	1.498	0.123	60.293
% R.S.D.	196.906	379.868	63.355	706.484	44.568	378.529	17.320	93.436

Corrected Counts Statistics 3:21 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
-----------------	--------------	--------------	-----------------

Zr	1	0.033	0.004
Sr	2	0.051	0.005
Rb	3	-0.067	0.026
Ta	5	-0.008	0.009
W	7	5.635	0.073
Si	8	0.587	0.003
As	9	634.241	1.281
H	10	-0.057	0.020
Co	11	-0.021	0.008
Ca	12	0.072	0.002
Li	14	-0.012	0.002
Q	15	0.197	0.003
Ni	16	-0.034	0.018
La	17	-0.015	0.001
Eu	18	0.061	0.009
Fe	19	278.823	0.575
Ca	20	1190.668	1.566
Cr	21	0.055	0.009
Nd	22	3.783	0.041
Ce	24	0.023	0.011
Sm	25	-8.925	0.002
Ba	26	0.043	0.007
P	27	0.025	0.008
S	28	1.897	0.033
Mg	29	879.618	1.219
As	30	0.300	0.003
Na	31	0.171	0.020
Mo	32	-0.008	0.006
Se	33	-0.028	0.021
Ag	34	-0.113	0.001
Pb	35	-0.109	0.015
Ti	36	-0.110	0.002
Cd	37	0.397	0.066
B	38	-0.504	0.009
K	39	-0.051	0.009
Mn	40	1.687	0.005

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V	45	0.014	0.003
Be	44	0.006	0.001
Tl	45	-0.074	0.008

WHC-SD-WM-TI-540, REV. 1

Identity 1: ICSA-F Identity 2: ICSA 3:21 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	8.649	1.984	-97.114	-16.181	1324.375	393.756	254322.308	7.699
S.D.	1.544	0.192	26.619	7.104	17.004	2.500	513.813	5.789
% R.S.D.	17.855	9.679	27.410	43.902	1.284	0.635	0.202	75.193

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-6.225	5.781	1.151	7.589	-3.688	-54.775	6.507	95813.695
S.D.	1.831	0.327	0.200	0.329	4.214	4.744	0.481	197.587
% R.S.D.	29.415	5.657	17.347	4.329	114.248	8.660	7.388	0.206

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	179804.924	23.099	-18.385	24.653	-23037.149	2.945	158.819	917.344
S.D.	236.455	3.422	15.491	33.958	5.976	0.414	71.587	42.044
% R.S.D.	0.132	14.816	84.264	137.743	0.026	14.064	45.075	4.583

	Mg (ppb)	As (ppb)	Na (ppb)	Mn (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	188684.048	404.247	73.748	-0.818	45.391	-0.474	-141.488	4.280
S.D.	261.487	3.255	11.009	2.054	79.912	0.285	26.496	0.303
% R.S.D.	0.139	0.805	14.927	251.137	176.051	60.000	18.727	7.070

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	19.331	-92.349	66.100	29.026	170.159	-0.197	2.132	-91.208
S.D.	2.688	1.591	42.847	0.354	42.064	1.786	0.246	52.450
% R.S.D.	13.903	1.723	64.821	1.220	24.721	904.960	11.547	57.506

Corrected Counts Statistics 3:23 PM July 14, 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	0.013
Sr	2	0.045	0.014
Bi	3	-0.136	0.011
Ta	5	-0.087	0.013
Sn	7	5.568	0.089
Si	8	0.560	0.010

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W	10	0.047	0.034
Co	11	1.868	0.005
Cu	12	2.271	0.007
Li	14	-0.005	0.017
Zn	15	10.191	0.025

WHC-SD-WM-TI-540,REV.1

Ni	16	3.839	0.021
La	17	-0.017	0.002
Eu	18	0.054	0.014
Fe	19	275.231	1.400
Ca	20	1178.209	3.557
Cr	21	1.215	0.013
Nd	22	3.863	0.049
Ce	24	0.019	0.023
Sr	25	-8.870	0.024
Ba	26	8.682	0.038
P	27	0.016	0.003
O	28	1.879	0.002
Hg	29	864.822	2.161
As	30	0.315	0.012
Na	31	0.153	0.029
Mn	32	-0.008	0.013
Se	33	0.025	0.006
Ag	34	3.206	0.010
4	35	0.415	0.012
Ti	36	-0.123	0.012
8	37	23.051	0.047
B	38	-0.507	0.015
0	39	-0.045	0.013
0	40	6.513	0.012
0	42	-0.015	0.008
0	43	0.823	0.005
Be	44	2.143	0.013
0	45	-0.058	0.017

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Identity 1: ICSAB Identity 2: Quality Control 3:23 PM July 14, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	4.985	1.755	-167.361	-77.658	1308.660	372.757	251738.014	36.510
S.D.	5.498	0.540	11.183	10.392	20.797	7.473	1505.355	10.170
Z R.S.D.	110.304	30.769	6.682	13.381	1.589	2.005	0.598	27.854

	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	452.006	476.591	1.886	955.482	907.982	-60.252	6.139	94579.233
S.D.	1.196	1.519	1.617	2.385	4.827	6.275	0.765	480.978
Z R.S.D.	0.265	0.319	85.741	0.250	0.532	10.415	12.457	0.509

	Ca	Cr	Nd	Ce	Sm	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	177922.706	487.756	22.628	14.377	-22894.816	468.523	79.382	909.567
S.D.	537.269	5.114	16.376	70.457	61.748	2.007	23.067	6.977

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	185510.202	424.670	63.828	-0.701	111.284	944.145	782.547	2.489
S.D.	463.513	16.409	16.362	4.475	19.874	2.921	21.159	1.617

WHC-SD-WM-TI-540, REV. 1

% R.S.D.	0.250	3.864	25.634	638.408	17.859	0.309	2.704	64.960
	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	947.808	-92.896	97.861	476.796	101.568	481.367	457.684	14.779
S.D.	1.931	2.725	66.592	0.818	33.332	3.093	2.788	108.388
% R.S.D.	0.204	2.934	68.048	0.172	32.817	0.643	0.609	733.370

Corrected Counts Statistics 3:24 PM July 14, 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	0.032	0.008
Sr	2	0.016	0.003
Ba	3	-0.039	0.029
La	5	0.013	0.015
Si	7	-0.029	0.021
Ca	8	0.090	0.007
Sc	9	0.397	0.078
W	10	-0.025	0.027
Co	11	0.006	0.010
Ge	12	0.055	0.001
Li	14	0.010	0.003
Al	15	0.060	0.008
Ni	16	-0.055	0.011
La	17	-0.003	0.002
Eu	18	-0.047	0.006
Fe	19	0.088	0.044
Ca	20	0.652	0.155
Cr	21	-0.001	0.005
Nd	22	0.066	0.073
Ce	24	0.043	0.008
Sm	25	-0.013	0.010
Ba	26	0.004	0.008
P	27	0.012	0.001
S	28	0.035	0.002
Mg	29	0.411	0.111
As	30	-0.004	0.003
Na	31	0.090	0.009
Mo	32	0.016	0.010
Se	33	-0.017	0.005
Ag	34	-0.122	0.006
Pb	35	-0.008	0.005
	36	-0.127	0.009
Cd	37	-0.042	0.021
B	38	0.020	0.011

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Mn	40	0.000	0.000
Sb	42	-0.063	0.007
V	43	0.016	0.002
Be	44	-0.000	0.002
Tl	45	-0.037	0.005

WHC-SD-WM-TI-540, REV. 1

Identity 1: XXX Identity 2: Rinse 3:25 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	8.356	0.649	-69.577	0.585	-4.065	7.219	100.003	17.356
S.D.	3.600	0.110	29.842	11.768	4.888	5.733	31.105	8.116
% R.S.D.	43.076	16.981	42.891	2009.858	120.234	79.408	31.104	46.761

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	0.243	1.999	3.261	-5.437	-8.632	-4.108	0.533	29.897
S.D.	2.331	0.124	0.293	0.712	2.583	8.216	0.337	15.141
% R.S.D.	960.831	6.184	8.985	13.094	29.918	200.005	63.207	50.644

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	78.784	0.801	23.019	87.338	25.977	1.145	39.664	26.237
S.D.	23.423	2.016	25.083	24.469	26.433	0.407	9.166	2.888
% R.S.D.	29.731	251.657	108.967	28.017	101.756	35.564	23.109	11.007

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	87.948	-2.555	28.264	7.711	94.072	-2.941	36.392	1.965
S.D.	23.912	4.825	5.218	3.380	19.426	1.668	9.038	1.114
% R.S.D.	27.189	188.817	18.460	43.834	20.650	56.705	24.834	56.699

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	1.366	3.346	94.517	0.160	-100.005	0.993	0.711	151.049
S.D.	0.864	2.051	40.844	0.017	30.283	1.031	0.326	32.445
% R.S.D.	63.231	61.308	43.213	10.354	30.281	103.809	45.825	21.480

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Corrected Counts Statistics 3:26 PM July 14, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.033	0.002
Sr	2	0.016	0.002
Bi	3	-0.017	0.013
Ta	5	0.014	0.017

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Si	8	0.127	0.024
Al	9	0.185	0.020
W	10	0.039	0.010
Co	11	0.405	0.014
Cu	12	0.285	0.004

WHC-SD-WM-TI-540, REV. 1

Li	14	-0.009	0.005
Zn	15	0.537	0.007
Ni	16	0.287	0.019
La	17	-0.002	0.001
Eu	18	-0.038	0.001
Fe	19	0.026	0.013
Ca	20	0.222	0.011
Cr	21	0.036	0.007
Nd	22	0.235	0.018
Ce	24	0.039	0.003
Sr	25	0.000	0.003
Ba	26	0.008	0.005
Pb	27	0.016	0.001
Hg	28	0.030	0.007
Na	29	0.071	0.007
K	30	0.003	0.003
Ag	31	0.098	0.006
Se	32	0.008	0.007
As	33	-0.030	0.009
Bi	34	-0.044	0.002
I	35	0.007	0.010
Br	36	-0.136	0.002
Mn	37	0.147	0.032
Sb	38	0.010	0.020
Y	39	-0.037	0.007
Be	40	0.321	0.003
	42	0.049	0.012
	43	0.182	0.000
	44	0.041	0.001
	45	-0.066	0.006

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Identity 1: CRI-F Identity 2: CRI 3:26 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	8.943	0.649	-46.522	1.173	-2.893	35.477	15.107	36.136
S.D.	0.915	0.058	13.446	13.292	6.935	18.427	7.890	2.860
% R.S.D.	10.237	8.985	28.902	1133.254	239.748	51.939	52.227	7.915
	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	97.095	51.314	1.471	39.838	71.885	1.369	1.029	8.476
S.D.	3.421	0.933	0.480	0.664	4.356	2.372	0.032	4.467
% R.S.D.	3.524	1.819	32.609	1.667	725.60	173.193	3.093	52.703
	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sr (ppb)	Ba (ppb)	P (ppb)	S (ppb)

	1.664	2.898	6.202	9.418	6.847	0.267	10.584	8.834
S.D.	1.664	2.898	6.202	9.418	6.847	0.267	10.584	8.834
% R.S.D.	12.035	18.872	7.657	12.387	11.320	19.196	13.333	41.933

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
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WHC-SD-WM-TI-540, REV. 1

Mean	14.944	6.185	32.757	5.024	42.594	19.071	62.810	0.786
S.D.	1.507	3.352	3.193	2.535	35.311	0.593	17.641	0.200
% R.S.D.	10.082	54.192	9.748	50.470	82.902	3.107	28.087	25.459

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	9.085	1.460	136.308	29.929	370.333	99.806	9.452	-37.133
S.D.	1.317	3.664	32.885	0.282	52.451	0.000	0.246	40.524
% R.S.D.	14.494	250.936	24.125	0.942	14.163	0.000	2.605	109.133

Corrected Counts Statistics 3:28 PM July 14, 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
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1	0.024	0.003
Sr 2	0.025	0.005
3	-0.105	0.012
Ta 5	-0.020	0.006
7	0.072	0.032
8	0.687	0.003
9	1.342	0.015
10	0.056	0.042
11	2.011	0.016
12	2.317	0.008
Li 14	-0.000	0.004
Zn 15	5.314	0.025
Ni 16	2.013	0.011
La 17	-0.003	0.001
Eu 18	-0.059	0.008
Fe 19	1.434	0.038
Ca 20	3.364	0.012
Cr 21	1.246	0.008
Nd 22	0.080	0.031
Ce 24	0.036	0.014
Sm 25	-0.026	0.011
Ba 26	8.769	0.027
P 27	0.014	0.002
S 28	0.023	0.011
Mg 29	2.272	0.007
As 30	0.375	0.011
Na 31	0.956	0.013
Mo 32	1.427	0.007
Se 33	0.147	0.009
Ag 34	1.587	0.009
Pb 35	0.258	0.013
Ti 36	3.533	0.018

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B	38	2.448	0.009
K	39	0.911	0.003
Mn	40	5.067	0.006
Sb	42	0.111	0.011
V	43	0.827	0.005

WHC-SD-WM-TI-540, REV. 1

Be	44	2.146	0.007
Tl	45	0.026	0.010

Identity 1: CCV Identity 2: Quality Control 3:28 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	4.838	0.966	-136.114	-25.158	19.623	471.271	479.291	39.221
S.D.	1.163	0.188	11.717	4.424	7.403	2.058	6.127	12.400
% R.S.D.	24.048	19.472	8.608	17.585	37.727	0.437	1.278	31.615

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	486.689	486.297	2.334	492.902	478.241	-5.477	-0.110	492.204
S.D.	3.951	1.635	0.384	2.366	2.495	2.372	0.416	13.132
% R.S.D.	0.812	0.336	16.438	0.480	0.522	43.302	377.532	2.668

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	487.822	500.307	24.924	66.786	-6.802	473.518	61.050	7.196
S.D.	1.816	3.335	10.477	43.852	27.265	1.444	19.080	13.947
% R.S.D.	0.372	0.667	42.036	65.660	400.810	0.305	31.253	193.806

	Hg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	487.217	502.786	514.551	502.249	575.280	483.315	506.041	481.547
S.D.	1.522	14.908	7.220	2.527	33.514	2.454	22.301	2.348
% R.S.D.	0.312	2.965	1.403	0.503	5.826	0.508	4.407	0.488

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	493.331	446.475	4890.382	468.570	632.098	483.550	458.323	557.695
S.D.	4.720	1.656	13.268	0.554	46.257	2.749	1.398	61.674
% R.S.D.	0.957	0.371	0.271	0.118	7.318	0.569	0.305	11.059

Corrected Counts Statistics 3:30 PM July 14, 1992
 Task name : ALL_SIM
 Sample Weight : 1.0000 Solution Volume : 1.00
 On-Peak Integrations : 3 Off-Peak Integrations : 1

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Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
Zr	1	0.041	0.002
Sr	2	0.028	0.003

727

Ta	5	0.016	0.019
Sn	7	0.015	0.034
Si	8	0.096	0.007
Al	9	0.208	0.010
W	10	0.016	0.009

WHC-SD-WM-TI-540, REV. 1

Co	11	0.016	0.004
Cu	12	0.061	0.002
Li	14	0.009	0.005
Zn	15	0.096	0.006
Ni	16	-0.007	0.017
La	17	-0.002	0.000
Eu	18	-0.028	0.005
Fe	19	0.026	0.007
Ca	20	0.117	0.000
Cr	21	-0.006	0.006
Nd	22	0.128	0.030
Ca	24	0.059	0.007
Sb	25	0.017	0.004
P	26	0.023	0.002
P	27	0.012	0.004
Si	28	0.064	0.008
Mo	29	0.015	0.001
As	30	-0.009	0.008
4	31	0.118	0.003
Mo	32	0.008	0.006
3	33	-0.038	0.004
Ag	34	-0.115	0.003
3	35	-0.014	0.003
Ti	36	-0.121	0.001
CO	37	-0.080	0.024
3	38	0.013	0.002
3	39	-0.033	0.005
3	40	0.009	0.000
Sb	42	-0.020	0.028
3	43	0.012	0.002
Be	44	0.002	0.002
Tl	45	-0.055	0.003

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Identity 1: CCB Identity 2: Quality Control 3:30 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	12.167	1.106	-5.432	2.855	6.254	11.367	24.199	29.496
S.D.	1.016	0.123	9.464	14.824	8.065	5.178	3.896	2.735
% R.S.D.	8.347	11.085	174.217	519.285	128.944	45.555	16.098	9.272

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	728 (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	2.830	3.283	3.229	-1.959	2.668	0.000	1.581	8.591
S.D.	0.918	0.494	0.482	0.572	3.885	0.000	0.283	2.288
% R.S.D.	32.451	15.059	15.242	29.186	145.600	0.000	17.901	26.633

	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	-1.963	-1.335	44.589	135.636	103.613	2.156	42.719	65.800
S.D.	0.003	2.230	10.266	21.653	10.459	0.082	38.180	10.345
% R.S.D.	0.148	167.035	23.024	15.964	10.094	3.819	89.329	15.722

WHC-SD-WM-TI-540, REV. 1

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	3.003	-9.344	44.174	4.907	15.690	-1.044	26.999	2.795
S.D.	0.215	10.079	1.945	2.189	13.125	0.753	5.661	0.131
% R.S.D.	7.143	107.863	4.403	44.607	83.655	72.157	20.969	4.687

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-0.191	2.068	154.695	1.050	81.971	-1.388	1.137	34.247
S.D.	0.972	0.380	25.734	0.000	117.759	1.031	0.326	17.168
% R.S.D.	508.528	18.368	16.635	0.000	143.660	74.289	28.641	50.132

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3

Corrected Counts Statistics 3:31 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

4-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
1	0.101	0.193	
2	245.832	8.463	
3	0.146	0.268	
5	0.103	0.229	
7	21.460	0.802	
8	0.231	0.199	
9	0.276	0.730	
10	0.785	0.286	
11	41.075	1.013	
12	22.215	0.659	
14	94.947	5.420	
15	105.354	2.171	
16	21.179	0.531	
17	0.004	0.012	
18	0.106	0.219	
19	14.284	0.345	
20	61.220	2.191	
21	12.852	0.335	
22	0.963	0.818	
24	0.339	0.331	
25	-0.147	0.333	
26	172.883	6.282	
27	0.017	0.006	
28	0.198	0.053	
29	22.600	0.573	
30	0.065	0.049	
31	16.996	0.208	
32	0.054	0.070	
33	0.645	0.067	
34	-0.012	0.157	

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Ti	36	-0.010	0.208
Cd	37	247.887	7.928
B	38	25.329	0.787
K	39	0.999	0.125
Mn	40	51.098	1.298

WHC-SD-WM-TI-540, REV. 1

Sb	42	1.076	0.031
V	43	0.080	0.102
Be	44	0.006	0.012
Tl	45	0.073	0.219

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Identity 1: SST1 Identity 2: Quality Control 3:31 PM July 14, 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	Sn	Si	Al	W
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	38.699	9378.404	119.363	71.267	5035.908	116.362	51.606	236.285
S.D.	84.750	322.854	272.960	180.152	188.215	154.622	292.804	84.427
Z R.S.D.	218.995	3.443	228.681	252.785	3.737	132.880	567.388	35.731
	Co	Cu	Li	Zn	Ni	La	Eu	Fe
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9961.034	4746.492	9109.206	9981.564	4990.447	24.649	9.007	4907.951
S.D.	245.679	141.136	519.833	205.938	124.985	47.377	12.092	118.389
Z R.S.D.	2.466	2.973	5.707	2.063	2.504	192.209	134.251	2.412
	Ca	Cr	Md	Ce	Sn	Ba	P	S
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	9219.650	5149.012	261.812	999.863	-319.935	9318.452	88.548	162.424
S.D.	330.832	134.065	280.408	1020.900	861.808	338.296	56.004	71.535
Z R.S.D.	3.588	2.604	107.103	102.104	269.370	3.630	63.247	44.042
	Mg	As	Na	Mo	Se	Ag	Pb	Ti
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	4847.573	86.974	9521.907	20.912	1097.204	28.369	128.561	17.381
S.D.	122.956	64.214	116.910	24.647	251.162	44.648	174.784	27.309
Z R.S.D.	2.536	73.831	1.228	117.860	22.891	157.382	135.954	157.125
	Cd	B	K	Mn	Sb	V	Be	Tl
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Mean	10162.588	4622.437	5330.016	4720.303	4683.165	38.891	2.132	867.005
S.D.	324.935	143.626	627.484	119.921	132.199	60.755	2.544	1419.783
Z R.S.D.	3.197	3.107	11.773	2.541	2.823	156.218	119.303	163.757

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Corrected Counts Statistics
Task name : ALL_SIM

3:33 PM July 14, 1992

On-Peak Integrations : 3 Off-Peak Integrations : 1

Analyte Channel Mean Kpulses S.D. Kpulses %R.S.D. Kpulses

Zr 1 -0.153 0.008

WHC-SD-WM-TI-540,REV.1

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Sr 2 0.088 0.007
Bi 3 4.922 0.097
Ta 5 0.018 0.015
Sn 7 -0.020 0.013
Si 8 0.030 0.008
Al 9 1.162 0.018
W 10 0.022 0.017
Co 11 -0.003 0.014
Cu 12 0.230 0.001
Li 14 0.055 0.004
Zn 15 0.539 0.012
9 16 -0.017 0.011
La 17 1.237 0.021
Ba 18 88.519 1.220
Fe 19 0.625 0.017
Ca 20 0.312 0.008
Cr 21 0.008 0.011
Mo 22 15.036 0.280
4 24 1.686 0.031
Sm 25 2.005 0.019
26 -0.416 0.006
27 0.013 0.002
6 28 0.041 0.012
Hg 29 0.037 0.001
As 30 0.059 0.006
31 0.261 0.048
Ho 32 0.025 0.008
33 -0.033 0.004
Ag 34 17.107 0.301
35 2.925 0.031
Ti 36 -0.147 0.011
Cd 37 0.052 0.071
B 38 0.041 0.009
K 39 -0.022 0.013
Mn 40 0.036 0.003
Sb 42 0.014 0.007
V 43 0.051 0.003
Be 44 -0.003 0.001
Tl 45 -0.050 0.009

Identity 1: SST2 Identity 2: Quality Control 3:33 PM July 14, 1992

Task name : ALL SIM

Sample Weight : 1.0000 Solution Volume : 1.00

.731

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppb)	Sr (ppb)	Bi (ppb)	Ta (ppb)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
ean	-72.852	3.395	4953.314	19.848	-1.955	-39.963	406.963	31.051
S.D.	3.582	0.268	98.500	11.763	3.061	5.286	7.297	5.025
% R.S.D.	4.916	7.892	1.989	62.409	156.612	15.730	1.793	16.181

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-1.779	39.609	7.641	40.059	0.236	5098.602	4984.422	214.430
S.D.	3.509	0.124	0.399	1.991	2.674	84.625	67.258	5.915
% R.S.D.	197.298	0.312	5.226	2.724	1134.843	1.663	1.377	2.759

WHC-SD-WM-TI-540, REV. 1

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sm (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	27.430	4.406	5117.063	5151.440	5249.168	6.991	51.885	35.077
S.D.	1.156	4.467	95.181	95.377	49.913	0.221	19.080	15.270
% R.S.D.	4.213	101.368	1.860	1.871	0.951	3.162	36.774	43.533

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	7.794	-61.450	124.661	10.865	34.376	4900.899	5202.535	-0.655
S.D.	0.248	7.148	27.084	2.782	14.646	85.707	55.021	1.490
% R.S.D.	3.178	11.633	21.726	25.604	42.605	1.749	1.058	227.450

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	5.192	7.057	211.530	3.557	223.352	22.026	0.213	64.529
S.D.	2.893	1.696	66.340	0.266	27.538	1.718	0.123	58.880
% R.S.D.	55.735	24.030	31.362	7.489	12.329	7.802	57.734	91.246

Corrected Counts Statistics 3:35 PM July 14, 1992

Task name : ALL_SIM

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

BEST AVAILABLE COPY

Analyte Channel	Mean Kpulses	S.D. Kpulses	%R.S.D. Kpulses
1	23.543	0.314	
Sr	2	0.058	0.004
Bi	3	-1.536	0.026
Ta	5	13.430	0.208
Sn	7	0.175	0.020
Si	8	12.186	0.107
Al	9	12.231	0.146
W	10	33.843	0.485
Co	11	-0.098	0.012
Cu	12	0.082	0.006
Li	14	0.002	0.008
Zn	15	0.151	0.004
Ni	16	0.284	0.015
La	17	-0.003	0.002
Eu	18	-0.090	0.003
Fe	19	0.045	0.009
Ca	20	0.038	0.002
Cr	21	0.031	0.004
Nd	22	0.005	0.066
Ce	24	0.057	0.014
Sm	25	-0.047	0.015
Ba	26	0.039	0.012
P	27	1.059	0.039

732

Mg	29	0.019	0.001
As	30	3.786	0.059
Na	31	0.206	0.009
Mo	32	28.856	0.402
Se	33	1.296	0.016

WHC-SD-WM-TI-540, REV. 1

BEST AVAILABLE COPY

Ag	34	0.359	0.026
Pb	35	-0.086	0.008
Ti	36	36.747	0.503
Cd	37	-0.364	0.022
B	38	0.076	0.005
K	39	-0.039	0.010
Mn	40	0.000	0.002
Sb	42	0.018	0.012
V	43	16.739	0.237
Be	44	45.805	0.647
Tl	45	0.766	0.004

Identity 1: SST3 Identity 2: Quality Control 3:35 PM July 14, 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)	Sn (ppb)	Si (ppb)	Al (ppb)	W (ppb)
Mean	10347.573	2.238	-1594.013	10491.397	43.625	9414.503	4846.654	10038.313
S.D.	137.905	0.153	25.990	162.645	4.791	83.175	58.445	143.646
% R.S.D.	1.333	6.818	1.630	1.550	10.983	0.883	1.206	1.431

	Co (ppb)	Cu (ppb)	Li (ppb)	Zn (ppb)	Ni (ppb)	La (ppb)	Eu (ppb)	Fe (ppb)
Mean	-24.819	7.851	2.558	3.226	71.101	-4.108	-1.901	15.120
S.D.	2.934	1.192	0.733	0.342	3.484	7.115	0.168	3.080
% R.S.D.	11.821	15.184	28.641	10.600	4.900	173.209	9.352	20.370

	Ca (ppb)	Cr (ppb)	Nd (ppb)	Ce (ppb)	Sa (ppb)	Ba (ppb)	P (ppb)	S (ppb)
Mean	-13.964	13.486	2.937	131.526	-62.010	3.013	9639.308	4897.589
S.D.	0.232	1.444	22.290	41.628	37.532	0.691	353.131	133.837
% R.S.D.	1.664	10.710	758.929	31.650	60.525	22.919	3.663	2.733

	Mg (ppb)	As (ppb)	Na (ppb)	Mo (ppb)	Se (ppb)	Ag (ppb)	Pb (ppb)	Ti (ppb)
Mean	3.933	5056.630	93.776	10115.893	5119.376	133.780	-100.980	4832.897
S.D.	0.124	79.141	5.095	140.916	61.878	7.270	13.680	65.928
% R.S.D.	3.149	1.565	5.433	1.393	1.211	5.434	13.547	1.364

	Cd (ppb)	B (ppb)	K (ppb)	Mn (ppb)	Sb (ppb)	V (ppb)	Be (ppb)	Tl (ppb)
Mean	-11.831	13.566	124.606	0.226	238.750	9955.504	9766.645	5361.739
S.D.	0.907	0.862	51.223	0.160	49.673	141.006	138.006	28.285
% R.S.D.	7.663	6.358	41.108	71.050	20.386	1.416	1.413	0.528

733

WHC-SD-WM-TI-540, REV. 1

ANALYTICAL CARDS

WHC-SD-WM-TI-540, REV. 1

16

Serial No. R 1710.-6550	Sample Point RY-104	Date 6-17-92	Time Issued 11:42	Priority 25
Determination ICP	Method/Standard LA-505-151	Result Units % RECOVERY	Charge Code M233L	Reruns 0
Sample Size Direct			Customer ID 1048AP SID 2048AQ 3048AQ	
<p>Remarks, Calculations, Results</p> <p>1st SID digested</p> <ul style="list-style-type: none"> • Ni 4.99 = 99.80% • Fe 4.94 = 98.80% • Se 4.59 = 91.80% • Zr 10.14 = 101.40% • Ca 9.94 = 99.40% • Pb 5.10 = 102.0% • Sr 9.72 = 97.20% • Cr 5.18 = 103.60% • Cd 10.10 = 101.00% • Si 9.50 = 95.00% • Ba 9.71 = 97.10% • K 4.81 = 96.20% • Mn 4.80 = 96.00% • Al 4.67 = 93.40% LRCS • P 10.12 = 101.20% • Li 9.44 = 94.40% • Co 9.91 = 99.10% • S 4.89 = 97.8% • Ag 5.08 = 101.60% • Cu 4.90 = 98.00% • Mg 4.94 = 98.80% • Zn 10.02 = 100.20% • Na 9.51 = 95.10% 				
Analyst - 1 M. Garcia	Analyst - 2	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 7-22-92	Hrs	Hrs J. L. Figue
Date 7-15-92	Time Completed 17:00	Lab Unit Mgr Brian Wells		

54-6800-107 (R-10-83)

1B48AP

• Sr 9.74 = 97.4%
 • Co 9.95 = 99.5%
 • Cu 4.90 = 98.0%
 • Li 9.56 = 95.6%
 • Zn 10.05 = 100.5%
 • Ni 4.99 = 99.8%
 • Fe 4.93 = 98.6%
 • Ca 9.94 = 99.4%
 • Cr 5.17 = 103.4%
 • Mg 4.96 = 99.2%
 • Na 9.61 = 96.1%
 • Cd 10.11 = 101.1%
 • Br 9.72 = 97.2%
 • K 4.86 = 97.2%
 • Mn 4.80 = 96.0%
 O

2B48AQ

• Ag 5.03 = 100.6%
 • Pb 5.21 = 104.2%

WHC-SD-WM-TI-540, REV. 1

3B48AQ

• Zr 10.43 = 104.3%
 • Si 9.58 = 95.8%
 • Al 4.72 = 94.4%

Ending STD

listed on R1714

R1710-6550

7-8

WHC-SD-WM-TI-540, REV. 1

Serial No R 1713.-6820	Sample Point BY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination IB	Method/Standard LA-508-101	Result Units uCi/g fec	Charge Code N2331	Reruns 0
Sample Size 200-10-100			Customer ID PSA#418	
Remarks, Calculations, Results: COUNT AS uCi/L USE 13, 14, 15 OR 16 $\frac{5.83 \times 10^2 \text{ uCi/L}}{1.9716 \text{ g/L}} = 2.93 \times 10^2 \text{ uCi/g fec}$				
Analyst - 1	Analyst - 2 <i>W Raymond</i>	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 7-14-92	Hrs	Hrs	Hrs
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr JUL 15 1992 <i>SAC</i>		

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

3-4

Serial No R 1713.-6720	Sample Point BY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination IB	Method/Standard LA-508-101	Result Units uCi/g fec	Charge Code N2331	Reruns 0
Sample Size 200-10-100			Customer ID PSA#418	
Remarks, Calculations, Results: COUNT AS uCi/L USE 13, 14, 15 OR 16 $\frac{5.75 \times 10^2 \text{ uCi/L}}{2.0312 \text{ g/L}} = 2.83 \times 10^2 \text{ uCi/g fec}$				
Analyst - 1	Analyst - 2 <i>W Raymond</i>	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 7-14-92	Hrs	Hrs	Hrs
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr JUL 15 1992 <i>SAC</i>		

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

142" 7.14.92R

WHC-SD-WM-TI-540, REV.1

$\frac{4123}{10} - 17$

$\frac{4079}{10} -$

0 0 7 4 0 9 4 2 0

Beta Calculation by DM on 07-15-1992 at 05:52:40
Det #14 2 -inch mount Beta eff. : .3076
Sample size : .1 mL Dilution : 101

Mount # 1

4123

10

- 17.0 = 5.8467E+02 uCi/L beta.

Mount # 2

5.82745×10^2

4097

10

- 17.0 = 5.8082E+02 uCi/L beta

R1713-6820

142" 7.14.92R

$\frac{4088}{10} - 17$

$\frac{4031}{10} -$

0 0 7 4 0 9 4 2 0

Beta Calculation by DM on 07-15-1992 at 05:51:21
Det #14 2 -inch mount Beta eff. : .3076
Sample size : .1 mL Dilution : 101

Mount # 1

4088

10

- 17.0 = 5.7949E+02 uCi/L beta

Mount # 2

5.75275×10^2

4031

10

- 17.0 = 5.7106E+02 uCi/L beta

R1713-6720

5-6 WHC-SD-WM-TI-540, REV. 1

Serial No. R 1712.-6820	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination 33	Method/Standard LA-508-101	Result Units uCi/g rec	Charge Code H2331A	Reruns 0
Sample Size 100-10-100			Customer ID RSA#418	
Remarks, Calculations, Results: COUNT AS uCi/l. USE 13, 14, 15 OR 16 $\frac{1.27 \times 10^3 \text{ uCi/l}}{2.026 \text{ g/l}} = 6.26 \times 10^2 \text{ uCi/g net}$ <i>Patricia J. McLean</i>				
Analyst - 1	Analyst - 2 <i>W. Raymond</i>	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 7-14-92	Hrs	Hrs	Hrs
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr. JUL 15 1992 <i>SAC Cate</i>		

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

1-2

Serial No. R 1712.-6720	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination TB	Method/Standard LA-508-101	Result Units uCi/g rec	Charge Code H2331	Reruns 0
Sample Size 100-10-100			Customer ID RSA#418	
Remarks, Calculations, Results: COUNT AS uCi/l. USE 13, 14, 15 OR 16 $\frac{1.21 \times 10^3 \text{ uCi/l}}{2.0052 \text{ g/l}} = 6.01 \times 10^2 \text{ uCi/g net}$ <i>Patricia J. McLean</i>				
Analyst - 1	Analyst - 2 <i>W. Raymond</i>	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 7-14-92	Hrs	Hrs	Hrs
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr. JUL 15 1992 <i>SAC Cate</i>		

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

14 2" 7-14-92 R

WHC-SD-WM-TI-540, REV. 1

8809 - 17
10

88692 -
10

0 0 7 4 0 9 4 2 0 5

Beta Calculation by DM on 07-15-1992 at 05:52:03
Det #14 2-inch mount Beta eff. : .3076
Sample size : .1 mL Dilution : 101

Mount # 1

8809

10

- 17.0 = 1.2777E+03 uCi/L beta,

Mount # 2

1.26905 x 10³

8692

10

- 17.0 = 1.2604E+03 uCi/L beta

R1712-6820

#14 2" 7-14-92 R

8446 - 17
10

8195
10

0 0 7 4 0 9 4 2 0 5

Beta Calculation by DM on 07-15-1992 at 05:50:42
Det #14 2-inch mount Beta eff. : .3076
Sample size : .1 mL Dilution : 101

Mount # 1

8446

10

- 17.0 = 1.2241E+03 uCi/L beta

Mount # 2

1.2055 x 10³

8195

10

- 17.0 = 1.1869E+03 uCi/L beta

R1712-6720

740

WHC-SD-WM-TI-540, REV. 1

Serial No R 1710.-6520	Sample Point BY-104	Date 6-17-92	Time Issued 11:42	Priority 25
Determination 7	Method/Standard LA-508-101	Result Units % RECOVERY	Charge Code H233L	Reruns 0
Sample Size 10.ML			Customer ID S10	
Remarks, Calculations, Results. S515 EV-CRO STD# 109849 RESULT 1.489' STD VAL 1.48685-1 REC 100-1				
Analyst - 1 <i>Patrick J. McCann</i>	Analyst - 2 <i>PH Milicia</i>	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr <i>SAC Catto</i>	JUL 15 1992 <i>C. King</i>	

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

9-10

Serial No R 1711.-6620	Sample Point BY-104	Date 6-17-92	Time Issued 11:45	Priority 25
Determination 7B	Method/Standard LA-508-101	Result Units HCT-1	Charge Code H233L	Reruns 0
Sample Size 100-10-100			Customer ID BLK	
Remarks, Calculations, Results: COUNT AS HCT/L USE 13, 14, 15 OR 16 $1.14 \times 10^4 \text{ u C/L}$				
Analyst - 1 <i>Patrick J. McCann</i>	Analyst - 2 <i>W. H. H. H.</i>	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 7.1492	Hrs	Hrs	Hrs
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr <i>SAC Catto</i>	JUL 15 1992 <i>C. King</i>	

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

14/2

WHC-SD-WM-TI-540, REV. 1

 $\frac{10513}{10} - 17$

8

 $\frac{10160}{10}$

10

0

0

0

0

0

0

0

0

0

Beta Calculation by DM on 07-15-1992 at 05:54:53

Det #14 2 -inch mount Beta eff. : .3076

Sample size : 10 mL Dilution : 1

Mount # 1

10513

----- - 17.0 = 1.5146E-01 uCi/L beta

10

Mount # 2

1.48875 x 10⁻¹

10160

----- - 17.0 = 1.4629E-01 uCi/L beta

10

R1710-6520

14 2" 7.14-22 R

 $\frac{247}{10} - 17$

10

177

10

0

0

0

0

0

0

0

0

0

0

0

Beta Calculation by DM on 07-15-1992 at 05:53:19

Det #14 2 -inch mount Beta eff. : .3076

Sample size : .1 mL Dilution : 101

Mount # 1

247

----- - 17.0 = 1.1389E+01 uCi/L beta

10

Mount # 2

177

----- - 17.0 = 5.5813E+00 uCi/L beta

10

R1711-6620

742

WHC-SD-WM-TI-540, REV. 1

Serial No R 1711.-6650	Sample Point BY-104	Date 6-17-92	Time Issued 11:45	Priority 25
Determination ICP	Method/Standard LA-505-151	Result Units ppm	Charge Code H231	Reruns 0
Sample Size 250.2			Customer ID BLK	
Remarks, Calculations, Results REAGENT BLANK Li < 4.0E+0 P 1.30E+2 K 8.72E+6 Zn < 8.0E+0 S < 2.7E+1 Mn < 2.0E+0 Sr 3.6E+0 Ni < 1.7E+1 Mg < 3.0E+0 Si 1.02E+3 Fe < 1.0E+1 Na 5.25E+3 Al 1.15E+2 Ca 1.66E+2 Se < 7.6E+1 Cu < 8.0E+0 Cr < 9.0E+0 Ag 6.95E+0 Cu 1.15E+1 Ba < 3.0E+0 Pb < 6.2E+1 Cd < 4.0E+0				
Analyst - 1 <i>Daniel M. [Signature]</i>	Analyst - 2 <i>[Signature]</i>	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
		7-22-92		
Date 7-15-92	Time Completed 17:00	Lab Unit Mgr <i>Brian Wells</i>	<i>[Signature]</i>	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1712.-6755	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination TSP-SOL	Method/Standard LA-505-151	Result Units ug/g rec	Charge Code H233L	Reruns 0
Sample Size 2.0052 g/l (.5013g in 250.0)			Customer ID R50418	
Remarks, Calculations, Results: $*Zr (178.05)(.25)/.5013 = 3.89E+1$ $*Sr (3301)(.25)/.5013 = 1.45E+3$ $* Sample/dup > 200\% dev.$ $6i (1679.8)(.25)/.5013 = 8.38E+2$ $Al (150398)(.25)/.5013 = 7.50E+4$ $Co (131.3)(.25)/.5013 = 6.55E+1$ $Cu (83.26)(.25)/.5013 = 4.15E+1$ $*Zn (198.1)(.25)/.5013 = 9.88E+1$				
Analyst - 1 <i>Donald K. Garland</i>	Analyst - 2 <i>Garland</i>	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
		7-22-92		
Date 7-15-92	Time Completed 17:00	Lab Unit Mgr <i>Brian Wells</i>	<i>James L. Frazier</i>	

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

Serial No R 1712.-6855	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination TSP-SOL	Method/Standard LA-505-151	Result Units ug/g rec	Charge Code H233L	Reruns 0
Sample Size 2.0264 g/l (.5066g in 250.0)			Customer ID R50418	
Remarks, Calculations, Results: DUPLICATE SAMPLE $Zr (107.0)(.25)/.5066 = 5.28E+1$ $Sr (3653.2)(.25)/.5066 = 1.80E+3$ $6i (1988)(.25)/.5066 = 9.81E+2$ $Al (175071.2)(.25)/.5066 = 8.64E+4$ $Co (140.5)(.25)/.5066 = 6.93E+1$ $Cu (98.38)(.25)/.5066 = 4.86E+1$				
Analyst - 1 <i>Donald K. Garland</i>	Analyst - 2 <i>Garland</i>	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
		7-22-92		
Date 7-15-92	Time Completed 17:00	Lab Unit Mgr <i>Brian Wells</i>	<i>James L. Frazier</i>	

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

$\ast \text{Ni} (6928)(.25) / .5013 = 3.46\text{E}+3$
 $\ast \text{Fe} (12047)(.25) / .5013 = 6.01\text{E}+3$
 $\text{Ca} (2859)(.25) / .5013 = 1.43\text{E}+3$
 $\text{Cr} (32918)(.25) / .5013 = 1.64\text{E}+4$
 $\text{Ba} (81.38)(.25) / .5013 = 4.06\text{E}+1$
 $\ast \text{Cd} (9772)(.25) / .5013 = 4.87\text{E}+3$
 $\text{S} (21932)(.25) / .5013 = 1.09\text{E}+4$
 $\text{Mg} (282.8)(.25) / .5013 = 1.41\text{E}+2$
 $\text{Na} (345864)(.25) / .5013 = 1.72\text{E}+5$
 $\text{Se} (3930)(.25) / .5013 = 1.96\text{E}+3$
 $\text{Ag} (67.31)(.25) / .5013 = 3.36\text{E}+1$
 $\ast \text{Pb} (659.2)(.25) / .5013 = 3.29\text{E}+2$
 $\text{Pd} (184.5)(.25) / .5013 = 9.20\text{E}+1$
 $\ast \text{K} (7797429)(.25) / .5013 = 3.89\text{E}+6$
 $\text{Mn} (690.8)(.25) / .5013 = 3.44\text{E}+2$
 O

R1712-6755

$\text{Zn} (279.2)(.25) / .5066 = 1.38\text{E}+2$
 $\text{Ni} (10805)(.25) / .5066 = 5.33\text{E}+3$
 $\text{Fe} (16507)(.25) / .5066 = 8.15\text{E}+3$
 $\text{Ca} (3004)(.25) / .5066 = 1.48\text{E}+3$
 $\text{Cr} (34919)(.25) / .5066 = 1.72\text{E}+4$
 $\text{Ba} (89.71)(.25) / .5066 = 4.43\text{E}+1$
 $\text{Cd} (6752)(.25) / .5066 = 3.33\text{E}+3$
 $\text{S} (20294)(.25) / .5066 = 1.00\text{E}+4$
 $\text{Mg} (319.0)(.25) / .5066 = 1.57\text{E}+2$
 $\text{Na} (309809)(.25) / .5066 = 1.53\text{E}+5$
 $\text{Se} (4456)(.25) / .5066 = 2.20\text{E}+3$
 $\text{Ag} (55.8)(.25) / .5066 = 2.72\text{E}+1$
 $\text{Pb} (937.4)(.25) / .5066 = 4.63\text{E}+2$
 $\text{Cu} (210.7)(.25) / .5066 = 1.04\text{E}+2$
 $\ast \text{K} (5846023)(.25) / .5066 = 2.88\text{E}+6$
 $\text{Mn} (788.4)(.25) / .5066 = 3.89\text{E}+2$

R1712-6855

WHC-SD-WM-TI-540, REV. 1

Serial No R 1712.-6950	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination bcp	Method/Standard LA-SOS-151	Result Units % RECOVERY	Charge Code 11253L	Reruns 0
Sample Size 2 me 2 me - 10 me	3 ml 2c. 1B48AP 2B48AQ 3B48AQ	Customer ID RSH418		
<p>Si, Cr, Mn No Spike Recovery</p> <p>Al, Ni, Fe, Na, K</p> <p>Sample > 4 X spike added</p>				
<p>Ca 93.8%</p> <p>Ba 93.6%</p> <p>P 94.4%</p> <p>Mg 97.3%</p> <p>Se 16.6%</p> <p>Ag 102.5%</p> <p>Pb 106.5%</p> <p>Cd 102.6%</p> <p>5 96.6% BW 7-22-92</p>				
Analyst - 1 Andrew M. Garland	Analyst - 2	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
		7-22-92		
Date 7-15-92	Time Completed 12:00	Lab Unit Mgr Brian Wells	Teresa L. Trayer	

54-6800-064 (R-10-83)

WHC-SD-WM-TI-540, REV. 1

Serial No R 1713.-6755	Sample Point BY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination ICP-SOL	Method/Standard LA-505-151	Result Units ug/g rec	Charge Code H233L	Reruns 0
Sample Size (2 ml - 10 ml K) 52.0312 g/l (5078 g in 250 ml)			Customer ID RSA#418	
Remarks, Calculations, Results: $Sr (1213)(.25)/.5078 = 5.97E+2$ $Zr (68.76)(.25)/.5078 = 3.39E+1$ $Si (3141)(.25)/.5078 = 1.55E+3$ $Al (27477)(.25)/.5078 = 1.35E+4$ $Cu (1679)(.25)/.5078 = 8.27E+2$ $Pi (4)(.25)/.5078 = 4.19E+0$				
Analyst - 1 Darius M. Garland	Analyst - 2	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 7-22-92	Hrs	Hrs
Date 7-15-92	Time Completed 17:00	Lab Unit Mgr Brian Wells		

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

Serial No. R 1713.-6855	Sample Point BY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination ICP-SOL	Method/Standard LA-505-151	Result Units ug/g rec	Charge Code H233L	Reruns 0
Sample Size (2 ml - 10 ml K) 21.9916 g/l (4979 g in 250 ml)			Customer ID RSA#418	
Remarks, Calculations, Results: DUPLICATE SAMPLE $Zr (179.10)(.25)/.4979 = 3.97E+1$ $Sr (1258)(.25)/.4979 = 6.32E+2$ $Si (5186)(.25)/.4979 = 2.60E+3$ $Al (25224)(.25)/.4979 = 1.27E+4$ $Cu (42.77)(.25)/.4979 = 3.15E+1$ $Pi (100.7)(.25)/.4979 = 5.06E+1$				
Analyst - 1 Darius M. Garland	Analyst - 2	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 7-22-92	Hrs	Hrs
Date 7-15-92	Time Completed 17:00	Lab Unit Mgr Brian Wells		

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

$Zn (1232)(.25)/.5078 = 6.06E+2$
 $Ni (10039)(.25)/.5078 = 4.94E+3$
 $Fe (5375)(.25)/.5078 = 2.65E+3$
 $Ca (1504)(.25)/.5078 = 7.40E+2$
 $Cr (8580)(.25)/.5078 = 4.22E+3$
 $Ba (39.66)(.25)/.5078 = 1.95E+1$
 $P (17263)(.25)/.5078 = 8.50E+3$
 $Sr (35078)(.25)/.5078 = 1.73E+4$
 $Mg (222.7)(.25)/.5078 = 1.10E+2$
 $Na (485553)(.25)/.5078 = 2.39E+5$
 $Se (1087)(.25)/.5078 = 5.35E+2$
 $Ti (58.71)(.25)/.5078 = 2.89E+1$
 $Cd (81.93)(.25)/.5078 = 4.03E+1$
 $Mn (290.0)(.25)/.5078 = 1.43E+2$
 $K (1884465)(.25)(.6)/.5078 = 5.57E+6$

R1713-6755

$Zn (227.4)(.25)/.4979 = 1.14E+2$
 $Ni (10163)(.25)/.4979 = 5.10E+3$
 $Fe (4682)(.25)/.4979 = 2.35E+3$
 $Ca (1619)(.25)/.4979 = 8.13E+2$
 $Cr (8479)(.25)/.4979 = 4.26E+3$
 $Ba (40.66)(.25)/.4979 = 2.04E+1$
 $P (8523)(.25)/.4979 = 4.28E+3$
 $Sr (38426)(.25)/.4979 = 1.93E+4$
 $Mg (291.6)(.25)/.4979 = 1.46E+2$
 $Na (511070)(.25)/.4979 = 2.57E+5$
 $Se (1015)(.25)/.4979 = 5.10E+2$
 $Ti (238.4)(.25)/.4979 = 1.20E+2$
 $Cd (83.51)(.25)/.4979 = 4.19E+1$
 $Mn (277.1)(.25)/.4979 = 1.39E+2$
 $K (6)(2235042)(.25)/.4979 = 6.73E+6$

R1713-6855

KS 10-25-94

~~R1730~~

WHC-SD-WM-TI-540, REV. 1

Serial No R 1714.-6550	Sample Point BY-104	Date 5-17-92	Time Issued 11:55	Priority 25
Determination ICP	Method/Standard LA-505-151	Result Units % RECOVERY	Charge Code N2331	Reruns 0
Sample Size C Direct			Customer ID 1848AP SID 21348AP 3048AP	
<p>Remarks, Calculations, Results</p> <p>1st SID Digested</p> <p> $\text{Ni } 4.89 = 97.8\%$ $\text{Fe } 4.81 = 96.2\%$ $\text{Zr } 10.43 = 104.3\%$ $\text{Sr } 9.32 = 93.2\%$ $\text{Si } 9.66 = 96.6\%$ $\text{Al } 4.64 = 92.8\%$ $\text{Co } 9.95 = 97.5\%$ $\text{Cu } 4.71 = 94.2\%$ $\text{Zn } 9.93 = 99.3\%$ </p> <p> $\text{Ag } 5.19 = 103.8\%$ $\text{Pb } 5.50 = 110.0\%$ $\text{Cd } 9.96 = 99.6\%$ $\text{K } 5.17 = 103.4\%$ $\text{Mn } 4.69 = 93.8\%$ $\text{Li } 9.02 = 90.2\%$ </p> <p> $\text{Cr } 5.07 = 101.4\%$ $\text{Ba } 9.26 = 92.6\%$ $\text{P } 9.98 = 99.8\%$ $\text{S } 4.82 = 96.4\%$ $\text{Mg } 4.86 = 97.2\%$ $\text{Na } 9.17 = 91.7\%$ $\text{Se } 4.81 = 96.2\%$ </p>				
Analyst - 1 D. K. McFarland	Analyst - 2 K. M. McFarland	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-15-92	Time Completed 17:00	Lab Unit Mgr Brian Wells	<p>7-22-92</p> <p><i>Teresa L. Higgins</i></p>	

54-6800-091 (A-10-83)

WHC-SD-WM-TI-540, REV. 1

Serial No R 1713.-6786	Sample Point BY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination SR90	Method/Standard LA-220-101	Result Units UCI/g rec	Charge Code H233L	Reruns 0
Sample Size 2ml + 1ml Sr Carrier			Customer ID PSA#418	
Remarks, Calculations, Results: COUNT AS UCI/L $\frac{1.19 \times 10^2 \text{ c/L}}{1.991 \text{ g/L}} = 59.7 \text{ uCi/gmc}$ $W_1 = 7.6926$ $W_2 = 7.7835$ $\quad \quad .0909$				
Analyst - 1 Hrs 1930	Analyst - 2 Hrs 7-14-92	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-14-92	Time Completed 19:30	Lab Unit Mgr JUL 15 1992 SACate		

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

Serial No R 1713.-6886	Sample Point BY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination SR90	Method/Standard LA-220-101	Result Units UCI/g rec	Charge Code H233L	Reruns 0
Sample Size 2ml + 1ml Sr Carrier			Customer ID PSA#418	
Remarks, Calculations, Results: DUPLICATE SAMPLE COUNT AS UCI/L $\frac{1.26 \times 10^2 \text{ c/L}}{2.0312 \text{ g/L}} = 62.0 \text{ uCi/gmc}$ $W_1 = 7.6824$ $W_2 = 7.7676$ $\quad \quad .0872$				
Analyst - 1 Hrs 1930	Analyst - 2 Hrs 7-14-92	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-14-92	Time Completed 19:30	Lab Unit Mgr JUL 15 1992 SACate		

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

11 2" 7-14-92 R 2222

AT 4.62

992658 - 30
5

WHC-SD-WM-TI-540, REV.1

Sr Calculation by VR on 07-14-1992 at 22:32:54
Det #11 2-inch mount Sr eff : .3919 Y eff : .4443

Sample size : 2 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 4.62 hrs

992658

5

$$- 30.0 = \frac{1.0810E+02 \text{ uCi/L strontium}}{.809}$$

118.922

R1713-6786

12 2" 7-14-92 R 2222

AT 4.62

1019560 - 3
5

Sr Calculation by VR on 07-14-1992 at 22:34:57
Det #12 2-inch mount Sr eff : .3962 Y eff : .4448

Sample size : 2 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 4.62 hrs

1019560

5

$$- 3.0 = \frac{1.0990E+02 \text{ uCi/L strontium}}{.822}$$

126.0321

R1713-6886

WHC-SD-WM-TI-540, REV. 1

Serial No. R 1712--6886	Sample Point RY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination SR90	Method/Standard IA-220-101	Result Units uCi/g fec	Charge Code H2331	Reruns 0
Sample Size 2 ml + 1 ml Sr Carrier			Customer ID RSAB418	
Remarks, Calculations, Results DUPLICATE SAMPLE COUNT AS uCi/L $\frac{3.10 \times 10^2 \text{ uCi/L}}{2.02649 \text{ g/L}} = 1.53 \times 10^2 \text{ uCi/g fec}$ $W_1 = 7.6865$ $W_2 = 7.7768$ 0.0903				
Analyst - 1 Hrs 1930	Analyst - 2 Hrs 7-14-92	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-14-92	Time Completed 19:30	Lab Unit Mgr JUL 15 1992 SAC Catter		

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

Serial No. R 1712--6786	Sample Point RY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination SR90	Method/Standard IA-220-101	Result Units uCi/g fec	Charge Code H2331	Reruns 0
Sample Size 2 ml + 1 ml Sr Carrier			Customer ID RSAB418	
Remarks, Calculations, Results COUNT AS uCi/L $\frac{2.68 \times 10^2 \text{ uCi/L}}{2.00529 \text{ g/L}} = 1.33 \times 10^2 \text{ uCi/g fec}$ $W_1 = 7.6849$ $W_2 = 7.7744$ 0.0895				
Analyst - 1 Hrs 1930	Analyst - 2 Hrs 7-14-92	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-14-92	Time Completed 19:30	Lab Unit Mgr JUL 15 1992 SAC Catter		

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

AT 4.25

WMC-SD-WM-TI-540, REV.1

12 2" 7-14-92 R 2200

2587868
5

Sr Calculation by VR on 07-14-1992 at 22:33:23
Det #12 2-inch mount Sr eff : .3962 Y eff : .4448

Sample size : 2 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 4.25 hrs

2587868

5 3.0 = $2.8609E+02$ uCi/L strontium
 .903

310.177

R1712-6886

0 0 7 4 0 9 4 2 0 3 7

AT 4.25

11 2" 7-14-92 R 2200

2189352
5

Sr Calculation by VR on 07-14-1992 at 22:33:18
Det #11 2-inch mount Sr eff : .3919 Y eff : .4443

Sample size : 2 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 4.25 hrs

2189352

5 30.0 = $2.3943E+02$ uCi/L strontium
 .895

267.51955

753 R1712-6786

0 0 7 4 0 9 4 2 0 3 5

WIC-SU-WM-TI-540, REV. 1

Serial No R 1710--6586	Sample Point BY-104	Date 6-17-92	Time Issued 11:42	Priority 25
Determination SR90	Method/Standard LA-220-101	Result Units 2 RECOVERY	Charge Code M2331	Retuns 0
Sample Size 1.36 x 10 ⁻² g	Customer ID SID			
<p>1.36 x 10⁻² g Carrier</p> <p>SEP. TIME: 1745</p> <p>DATE: 7-14-92</p> <p>W₁ = 7.6947</p> <p>W₂ = 7.7840</p> <p>0.0893</p>				
<p>ANALYST - 1: [Signature]</p> <p>ANALYST - 2: [Signature]</p> <p>ANALYST - 3: [Signature]</p> <p>ANALYST - 4: [Signature]</p> <p>ANALYST - 5: [Signature]</p>				
<p>REMARKS: CALCULATIONS, RESULTS:</p> <p>COUNT ON DETECTOR#11</p> <p>5376 ITS</p> <p>WTD#85849</p> <p>RESULT: 1.292</p> <p>STD VAL: 1.2092</p> <p>REC: 106.8</p>				
<p>Lab Unit Mgr JUL 15 1992</p>				

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

Serial No R 1711--6586	Sample Point BY-104	Date 6-13-92	Time Issued 11:45	Priority 25
Determination SR90	Method/Standard LA-220-101	Result Units 100%	Charge Code M2331	Retuns 0
Sample Size 1.36 x 10 ⁻² g	Customer ID MJK			
<p>1.36 x 10⁻² g Carrier</p> <p>SEP. TIME: 1745</p> <p>DATE: 7-14-92</p> <p>W₁ = 8.0103</p> <p>W₂ = 8.0980</p> <p>0.0878</p>				
<p>ANALYST - 1: [Signature]</p> <p>ANALYST - 2: [Signature]</p> <p>ANALYST - 3: [Signature]</p> <p>ANALYST - 4: [Signature]</p> <p>ANALYST - 5: [Signature]</p>				
<p>REMARKS: CALCULATIONS, RESULTS:</p> <p>REAGENT BLANK</p> <p>COUNT AS 100%</p>				
<p>Lab Unit Mgr JUL 15 1992</p>				

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

11 2" 7-14-92 R 2140

AT 3.92

WHC-SD-WM-TI-540, REV. 1

10809 - 30
10

Sr Calculation by VR on 07-14-1992 at 22:34:12
Det #11 2 -inch mount Sr eff : .3919 Y eff : .4443

Sample size : 1 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 3.92 hrs

$$\frac{10809}{10} - 30.0 = \frac{1.1536E+00 \text{ uCi/L strontium}}{.893}$$

1.2918

R1710-6586

12 2" 7-14-92 R 2140

AT 3.92

250 - 3
10

Sr Calculation by VR on 07-14-1992 at 22:35:54
Det #12 2 -inch mount Sr eff : .3962 Y eff : .4448

Sample size : 2 mL Dilution : 1 Method : 1

Mount # 1 Decay time = 3.92 hrs

$$\frac{250}{10} - 3.0 = \frac{1.1949E-02 \text{ uCi/L strontium}}{.878}$$

1.3609E-2

755

R1711-6686

256

WMC-SD-WM-TI-540, REV. 1

Serial No.	Sample Point		Date	Time Issued	Priority
R 1749, -5702	GY-104	6-18-92	11:2	25	
Determination	Method/Standard	Result Units	Charge Code	Returns	
LI-000			H2331	0	
Sample Size	Customer ID	IC6AM428			
Remarks, Calculations, Results:					
Dispersant: H ₂ O frequent fixed agglomerates see attached (5) sheets					
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5	
8/28/96 S. S. K. m. g.				8/31/96 S. S. K. m. g.	
Hrs	Hrs	Hrs	Hrs	Hrs	
Time Completed		Lab Unit Mgr		Date	
				8/31/96	

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

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1751-5515	BY-104	6-18-92	10:10	1
Determination	Method/Standard	Result Units	Charge Code	Returns
LA	LA-212-103	% RECOVERY	NOTED	0
Sample Size	Customer ID			
5 ml	STD			
Remarks, Calculations, Results:				
EDP S348 PH-SID				
STD # 72C11-P RESULT 10.07				
STD VAL 10.00 % REC 100.7				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
<i>[Signature]</i>	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
8-30-92	1030	Keith Tull	<i>[Signature]</i>	

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

Serial No.	Sample Point	Date	Time Issued	Priority
R 1753-5715	BY-104	6-18-92	10:22	1
Determination	Method/Standard	Result Units	Charge Code	Returns
LA	LA-212-103	GH 8-1542	NOTED	0
Sample Size	Customer ID			
3.4617g / 3.4617 ml	ESG4429			
Remarks, Calculations, Results:				
13.16				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
<i>[Signature]</i>	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
8-30-92	1030	Keith Tull	<i>[Signature]</i>	

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

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1753.-5815	RY-104	6-18-92	13:22	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
LA-212-103	8-15-92		N233L	0
Sample Size			Customer ID	
3.4597g / 3.4597ml			RSAH429	
Remarks, Calculations, Results				
DUPLICATE SAMPLE				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Date	Time Completed	Lab Unit Mgr	54-6800-061 (R-10-83)	
6-30-92	1030	Keith Fuller		

Serial No	Sample Point	Date	Time Issued	Priority
R 1754.-5715	RY-104	6-18-92	13:23	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
LA-212-103	8-15-92		N233L	0
Sample Size			Customer ID	
3.8844g / 3.8844ml			RSAH429	
Remarks, Calculations, Results				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Date	Time Completed	Lab Unit Mgr	54-6800-061 (R-10-83)	
6-30-92	1030	Keith Fuller		

WHC-SD-WM-TI-540.REV.1

Serial No	Sample Point	Date	Time Issued	Priority
R 1754.-5815	BY-104	6-18-92	13:23	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
FH	LA-212-103		N233L	0
Sample Size	Customer ID			
3.6873g / 3.6873 ml				
Remarks, Calculations, Results				
DUPLICATE SAMPLE				
11.87				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
6-30-92	1030	Keith Tulla		

54-6800-061 (R-30-83)

WHC-SD-WM-TI-540, REV. 1

Serial No.	Sample Point	Date	Time Issued	Priority
R 1749.-5702	BY-104	6-18-92	11: 2	24
Determination	Method/Standard	Result Units	Charge Code	Reruns
PORTSIZE	LI-000-200	NONE	HEX3	0
Sample Size	Customer ID			
24	R5A#428			
Remarks, Calculations, Results:				
<p>0 2 4 1</p> <p>Duplicate Analysis</p> <p>Dispersant: H₂O</p> <p>fused agglomerates present</p> <p>see attached (6) sheets</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
9-3-92 J.B. Kunkler Hrs				9/8/92 Hrs
Date	Time Completed	Lab Unit Mgr		
0				

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1750.-5702	BY-104	6-18-92	11: 2	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
PORTSIZE	LI-000		HEX3L	0
Sample Size	Customer ID			
2	R5A#428			
Remarks, Calculations, Results:				
<p>0 2 4 1</p> <p>dispersant: H₂O</p> <p>few fused agglomerates</p> <p>see attached (5) sheets</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
8/31/92 J.B. Kunkler Hrs				8/31/92 Hrs
Date	Time Completed	Lab Unit Mgr		
0				

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

9576 AB WHC-SD-WM-TI-540,REV.1

Serial No	Sample Point	Date	Time Issued	Priority
R 1713-6725	BY-104	6-12-92	11:55	25
Determination	Method/Standard	Result Units	Charge Code	Retuns
A1	LA-508-101	UCI/g fec	14233L	1
Sample Size	Customer ID			
100-10-500	RSH418			

RERUN

Remarks, Calculations, Results:
COUNT AS UCI/L
USE 13,14,15 OR 16

$$2.22 \times 10^{-4} \text{ g/L} \div 1.12 \times 10^{-1} \text{ g/mc} = 2.03129 \text{ g/L}$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Lani	269549			
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit	JUL 22 1992	
7-21-92	15:10	SAC		

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

1A2 CD

Serial No.	Sample Point	Date	Time Issued	Priority
R 1713-6825	BY-104	6-12-92	11:55	25
Determination	Method/Standard	Result Units	Charge Code	Retuns
A1	LA-508-101	UCI/g fec	14233L	1
Sample Size	Customer ID			
100-10-500	RSH418			

RERUN

Remarks, Calculations, Results:
COUNT AS UCI/L
USE 13,14,15 OR 16

$$3.33 \times 10^{-4} \text{ g/L} \div 1.9916 \text{ g/L} = 1.67 \times 10^{-1} \text{ g/mc}$$

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Lani	269549			
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit	JUL 22 1992	
7-21-92	15:10	SAC		

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

761

14/
2

WHC-SD-WM-TI-540, REV.1

DF101
.500 ml

Ac

22
30

Alpha Calculation by ALJ on 07-21-1992 at 22:55:52
Det #14 2 -inch mount Alpha eff. : .2274
Sample size : .5 mL Dilution : 101

B

Mount # 1

24
30

22

30 - 0.2 = 2.1341E-01 uCi/L alpha

Mount # 2

2.26745E-1

24

30 - 0.2 = 2.4008E-01 uCi/L alpha

R1713-6725

14/
2

DF101
.500 ml

41
30

Alpha Calculation by ALJ on 07-21-1992 at 23:11:32
Det #14 2 -inch mount Alpha eff. : .2274
Sample size : .5 mL Dilution : 101

Mount # 1

41

30 - 0.2 = 4.6683E-01 uCi/L alpha

Mount # 2

3.3345E-01 uCi/L

21

30 - 0.2 = 2.0007E-01 uCi/L alpha

762

R1713-6825

788

CP

WHC-SD-WM-TI-540, REV. 1

Serial No. R 1712.-6725	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination AT	Method/Standard LA-508-101	Result Units UCI/g rec	Charge Code H233L	Reruns 1
Sample Size 100-10-500			Customer ID R56H418	
Remarks, Calculations, Results: COUNT AS UCI/L USE 13, 14, 15 OR 16 <div style="text-align: right; font-weight: bold; font-size: 1.2em;">RERUN</div> $\frac{5.94 \times 10^{-1} \mu\text{C/g}}{2.0052 \text{ g/L}} = 2.96 \times 10^{-1} \mu\text{C/g ne}$				
Analyst - 1 <i>Sw. Lai</i> Hrs	Analyst - 2 <i>26549</i> <i>Adhane</i> Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-21-92	Time Completed 15:10	Lab Unit Mgr JUL 22 1992 <i>McKath</i>		

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

586

AB

Serial No. R 1712.-6825	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination AT	Method/Standard LA-508-101	Result Units UCI/g rec	Charge Code H233L	Reruns 1
Sample Size 100-10-500			Customer ID R56H418	
Remarks, Calculations, Results: COUNT AS UCI/L USE 13, 14, 15 OR 16 <div style="text-align: right; font-weight: bold; font-size: 1.2em;">RERUN</div> $\frac{3.87 \times 10^{-1} \mu\text{C/g}}{2.0264 \text{ g/L}} = 1.91 \times 10^{-1} \mu\text{C/g ne}$				
Analyst - 1 <i>Sw. Lai</i> Hrs	Analyst - 2 <i>26549</i> <i>Adhane</i> Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-21-92	Time Completed 15:10	Lab Unit Mgr JUL 22 1992 <i>McKath</i>		

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

763

WHC-SD-WM-TI-540, REV. 1

DF 101

1.500 uP

14/2
A

48 - .6
30

000

B:

Mount # 1

53 - .6
30

00

40

70

00

70

Alpha Calculation by ALJ on 07-21-1992 at 22:55:32
Det #14 2 -inch mount Alpha eff. : .2274
Sample size : .5 ml Dilution : 101

48
----- 0.2 = 5.6019E-01 uCi/L alpha
30

Mount # 2

5.93535 x 10⁻¹

53
----- 0.2 = 6.2688E-01 uCi/L alpha
30

R1712-6725

14/2
A

37 - .2
30

00

B:

Mount # 1

433 - .2
30

00

40

70

00

70

Alpha Calculation by ALJ on 07-21-1992 at 22:55:05
Det #14 2 -inch mount Alpha eff. : .2274
Sample size : .5 ml Dilution : 101

37
----- 0.2 = 4.1347E-01 uCi/L alpha
30

Mount # 2

3.86795 x 10⁻¹

33
----- 0.2 = 3.6012E-01 uCi/L alpha
30

764

R1712-6825

152

WHC-SD-WM-TI-540, REV. 1

Serial No. R 1710.-6525	Sample Point BY-104	Date 6-17-92	Time Issued 11:42	Priority 25
Determination AT	Method/Standard LA-508-101	Result Units % RECOVERY	Charge Code H2331	Reruns 1
Sample Size 2 10ml			Customer ID	
Remarks, Calculations, Results: 5510 EV-CRB 109B49 STD VAL 1.297740 ⁻² WREC 102.0 RERUN				
Analyst - 1 Sue Lai	Analyst - 2 269549 A. Blum	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-21-92	Time Completed 15:10	Lab Unit Mgr JUL 22 1992 SAC [Signature]		

54-6800-061 (6-10-83)

384

Serial No. R 1711.-6625	Sample Point BY-104	Date 6-17-92	Time Issued 11:45	Priority 25
Determination AT	Method/Standard LA-508-101	Result Units UCI/L	Charge Code H2331	Reruns 1
Sample Size 100-10-500			Customer ID 19 K	
Remarks, Calculations, Results: COUNT AS UCI/L USE 13, 14, 15 OR 16 $1.25 \times 10^{-1} \mu\text{C/L}$ RERUN				
Analyst - 1 Sue Lai	Analyst - 2 269549 A. Blum	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-21-92	Time Completed 15:10	Lab Unit Mgr JUL 22 1992 SAC [Signature]		

54-6800-061 (6-10-83)

WHC-SD-WM-TI-540, REV. 1

10 ml

14/2
 (A) 2043 - .2
 30

(B) 1985 - .2
 30

0 0 7 4 0 9

Alpha Calculation by ALJ on 07-21-1992 at 22:53:26
 Det #14 2-inch mount Alpha eff. : .2274
 Sample size : 10 ml Dilution : 1

Mount # 1

2013

30

- 0.2 = 1.3252E-02 uCi/L alpha

Mount # 2

1985

30

- 0.2 = 1.3067E-02 uCi/L alpha

1.3160 E-2

R1710-6525

14/2
 (A) 12 - .2
 30

(B) 9 - .2
 30

0 0 7 4 0 9

Alpha Calculation by ALJ on 07-21-1992 at 22:54:43
 Det #14 2-inch mount Alpha eff. : .2274
 Sample size : .5 ml Dilution : 101

Mount # 1

12

30

- 0.2 = 8.0027E-02 uCi/L alpha

Mount # 2

9

30

- 0.2 = 1.2525E-01 uCi/L alpha

766

R1711-6625

DF 101

.500 ml

WHC-SD-WM-TI-540, REV. 1

Serial No. R 1710.-6525	Sample Point BY-104	Date 6-17-92	Time Issued 11:42	Priority 25
Determination E	Method/Standard LA-508-101	Result Units % RECOVERY	Charge Code H233L	Reruns 0
Sample Size 210 mL			Customer ID SID	
Remarks, Calculations, Results 2510 EV-CRB STD 109849 RESULT 1.30910 ⁻² STD VAL 1.28862 %REC 101.5 <i>Patrick L. McGowan</i>				
Analyst - 1 7	Analyst - 2 DH Milicia	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr SACatt	JUL 15 1992 <i>Curley</i>	

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

Serial No. R 1711.-6625	Sample Point BY-104	Date 6-17-92	Time Issued 11:45	Priority 25
Determination A1	Method/Standard LA-508-101	Result Units UCI/L	Charge Code H233L	Reruns 0
Sample Size 2100-10-100			Customer ID BLK	
Remarks, Calculations, Results COUNT AS UCI/L USE 13, 14, 15 OR 16 4 < 1.40 uCi/L <i>Patrick L. McGowan</i>				
Analyst - 1	Analyst - 2 W Raymond	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 7:14-92	Hrs	Hrs	Hrs
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr SACatt	JUL 15 1992 767	

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

14/2

WHC-SD-WM-TI-540, REV. 1

$$\frac{688}{20} - 0.9$$

$$\frac{652}{10}$$

10

4

9

0

4

7

0

0

Alpha Calculation by DM on 07-15-1992 at 05:54:55
 Det #14 2 -inch mount Alpha eff. : .2274
 Sample size : 10 mL Dilution : 1

Mount # 1

688

10

$$- 0.9 = 1.3450E-02 \text{ uCi/L alpha}$$

Mount # 2

652

10

$$- 0.9 = 1.2737E-02 \text{ uCi/L alpha}$$

1.30955 E-2

R1710-6525

14 2" 7.14.92 R

$$\frac{251}{10} - 0.9$$

$$\frac{28}{10} -$$

0

2

4

9

0

4

7

0

0

Alpha Calculation by DM on 07-15-1992 at 05:53:21
 Det #14 2 -inch mount Alpha eff. : .2274
 Sample size : .1 mL Dilution : 101

Mount # 1

251

10

$$- 0.9 = 4.8416E+01 \text{ uCi/L alpha}$$

Mount # 2

3)

10

$$- 0.9 (1.3985E+00 \text{ uCi/L alpha}$$

768

R1711-6625

WHC-SD-WM-TI-540, REV. 1

Serial No. R 1712.-6725	Sample Point RY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination 0	Method/Standard LA-508-101	Result Units uCi/g rec	Charge Code N233L	Reruns 0
Sample Size 100-10-100			Customer ID RSAN418	
Remarks, Calculations, Results COUNT AS uCi/L USE 13, 14, 15 OR 16 $\frac{1.40 \times 10^{-6} \text{ g/L}}{2.0552 \text{ g/L}} = 26.98 \times 10^{-6} \text{ g/g}$ <i>Richard L. McLean</i>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
	7:14:92			
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr JUL 15 1992 SAC Cat		

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

Serial No. R 1712.-6825	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination 2	Method/Standard LA-508-101	Result Units uCi/g rec	Charge Code N233L	Reruns 0
Sample Size 100-10-100			Customer ID RSAN418	
Remarks, Calculations, Results COUNT AS uCi/L USE 13, 14, 15 OR 16 $\frac{1.62 \times 10^{-6} \text{ g/L}}{2.6264 \text{ g/L}} = 2.85 \times 10^{-6} \text{ g/g}$ <i>Richard L. McLean</i>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
	7:14:92			
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr JUL 15 1992 SAC Cat		

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

14 2" 7.14.92K

WHC-SD-WM-TI-540, REV.1

16
10
3
20

0
0
7
4
0
9
4
0

Alpha Calculation by DM on 07-15-1992 at 05:50:44
Det #14 2-inch mount Alpha eff. : .2274
Sample size : .1 mL Dilution : 101

Mount # 1

16
----- - 0.9 = 1.4003E+00 uCi/L alpha
10

Mount # 2

3
----- - 0.9 (1.3985E+00 uCi/L alpha
10

R1712-6725

14 2" 7.14.92K

6
10
90
30

0
0
7
4
0
9
4
0
2
2

Alpha Calculation by DM on 07-15-1992 at 05:52:05
Det #14 2-inch mount Alpha eff. : .2274
Sample size : .1 mL Dilution : 101

Mount # 1

6
----- - 0.9 (1.3985E+00 uCi/L alpha
10

Mount # 2

90
----- - 0.9 = 1.6206E+01 uCi/L alpha
16

770

R1712-6825

WHC-SD-WM-TI-540, REV. 1

Serial No R 1713. 6725	Sample Point RY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination Mg	Method/Standard LA-508-101	Result Units uCi/g rec	Charge Code H2331	Reruns 0
Sample Size C100-10-100			Customer ID PSAB418	
Remarks, Calculations, Results COUNT AS UCT/1 USE 13, 14, 15 OF 16 $\frac{1.40 \text{ uCi}}{2.032 \text{ g/L}} = 6.89 \times 10^{-1} \text{ uCi/g ne}$				
Analyst - 1 <i>Peterson, M. Brown</i>	Analyst - 2 <i>W. Raymond</i>	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 7-14-92	Hrs	Hrs	Hrs
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr JUL 15 1992 <i>SA Cate</i>		

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

Serial No R 1713. -6825	Sample Point RY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination Mg	Method/Standard LA-508-101	Result Units uCi/g rec	Charge Code H2331	Reruns 0
Sample Size C100-10-100			Customer ID PSAB418	
Remarks, Calculations, Results COUNT AS UCT/1 USE 13, 14, 15 OF 16 $\frac{1.40 \times 10^0}{1.9916 \text{ g/L}} = 7.03 \times 10^{-1} \text{ uCi/g ne}$				
Analyst - 1 <i>Peterson, M. Brown</i>	Analyst - 2 <i>W. Raymond</i>	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 7-14-92	Hrs	Hrs	Hrs
Date 7/14/92	Time Completed 19:20	Lab Unit Mgr JUL 15 1992 <i>SA Cate</i>		

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

WHC-SD-WM-TI-540, REV. 1

$$\begin{array}{r} 7 \\ \hline 10 \\ 14 \\ \hline 20 \end{array} \quad \begin{array}{r} .9 \\ - \\ - \end{array}$$

Alpha Calculation by DM on 07-15-1992 at 05:51:23

Det #14 2 -inch abunt Alpha eff. : .2274

Sample size : .1 ml Dilution : 101

Mount # 1

7
----- 0.9 (1.3985E+00 uCi/L alpha'
10

ਸੰਯੁਕਤ # 2

----- 0.9 (1.3985E+00 uCi/L alpha

R1713-6725

14 2" 7.14.92 R

$$\begin{array}{r} 4 \\ \hline 10 \\ \hline 1 \\ \hline \end{array} - .9$$

Alpha Calculation by DM on 07-15-1992 at 05:52:43

Det #14 2 -inch mount Alpha eff. : .2274

Sample size : .1 ml Dilution : 101

Mount # 1

----- 0.9 (1.3985E+00 uCi/L alpha
10 %

Mount # 2

$$\frac{1}{10} = 0.9 \text{ (} 1.3985\text{E}+00 \text{ uCi/L alpha}$$

772

R1713-6825

!

54-6800-061 (R-88-83)

54-6800-061 (R 10-63)

WHC-SD-WM-TI-540, REV. 1

Serial No R 1712-6830	Sample Point (Y-104)	Date 6-17-92	Time Issued 11:59	Priority 25
Determination II	Method/Standard LA-925-106	Result Units ug/g rec	Charge Code H2331	Reruns 0
Sample Size 100-10-500			Customer ID PSAN418	
Remarks, Calculations, Results DUPLICATE SAMPLE $\frac{.18 (6.25 \times 10^{-4}) (.11) (202)}{.61 (.47) - .18} = \frac{7.63 \times 10^{-3} \text{ g/L}}{2.026 \text{ g/L}} = 3.77 \times 10^{-3} \text{ g/L}$				
Analyst - 1 <i>[Signature]</i> Hrs	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 07-14-92	Time Completed 1900	Lab Unit Mgr SACate	JUL 15 1992 <i>[Signature]</i>	

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

Serial No R 1713-6740	Sample Point (Y-104)	Date 6-17-92	Time Issued 11:53	Priority 25
Determination I	Method/Standard LA-925-106	Result Units ug/g rec	Charge Code H2331	Reruns 0
Sample Size 100-10-500 ml			Customer ID PSAN418	
Remarks, Calculations, Results $\frac{0.08 (6.25 \times 10^{-4}) (.11) (202)}{.61 (.38) - .08} = \frac{3.30 \times 10^{-3} \text{ g/L}}{2.032 \text{ g/L}} = 1.62 \times 10^{-3} \text{ g/L}$				
Analyst - 1 <i>[Signature]</i> Hrs	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 07-14-92	Time Completed 2000	Lab Unit Mgr SACate	JUL 15 1992 <i>[Signature]</i>	

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

774

WHC-SD-WM-TI-540, REV. 1

Serial No R 1712--6740	Sample Point RY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination II	Method/Standard LA-925-106	Result Units ug/g	Charge Code 11233	Reruns 0
Sample Size 100-10 - 500nt, 4.5 ml H ₂ O			Customer ID RSCM418	
Remarks, Calculations, Results $\frac{.18(6.25 \times 10^{-4})(.1)(202)}{6.0(.48) - .18} = 7.38 \times 10^{-3} \text{ g/L} = 7.38 \times 10^{-3} \text{ ug/g}$ $3.68 \times 10^{-3} \text{ ug/g}$				
Analyst - 1 <i>[Signature]</i> Hrs	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 87-14-92	Time Completed 1900	Lab Unit Mgr SACat	JUL 15 1992 <i>[Signature]</i>	

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

Serial No R 1713--6840	Sample Point RY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination II	Method/Standard LA-925-106	Result Units ug/g	Charge Code 11233	Reruns 0
Sample Size 100-10 - 500			Customer ID RSCM418	
Remarks, Calculations, Results DUPLICATE SAMPLE $\frac{.08(6.25 \times 10^{-4})(.1)(202)}{6.0(.38) - .08} = 3.30 \times 10^{-3} \text{ g/L} = 3.30 \times 10^{-3} \text{ ug/g}$ $1.66 \times 10^{-3} \text{ ug/g}$				
Analyst - 1 <i>[Signature]</i> Hrs	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 87-14-92	Time Completed 2000	Lab Unit Mgr SACat	JUL 15 1992 <i>[Signature]</i>	

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

WHC-SD-WM-TI-540, REV. 1

3.4 4739

Serial No R 1710 6582	Sample Point R-104	Date 6-17-92	Time Issued 11:42	Priority 25
Determination AN243	Method/Standard IA-503-156	Result Units % RECOVERY	Charge Code H23.41	Reruns 0
Sample Size .100-10-1.001			Customer ID SID	
<p>Remarks, Calculations, Results</p> <p>EQP R201 HROO1</p> <p>STD# 50343 RESULT 25.82</p> <p>STD VAL 26.42 SPEC 97.7</p> <p>AN243 (18B43) .10001</p> <p>$1627 (2274 \times 10^{-4}) (.1) (100/101) = 25.82$</p> <p>Dilution in 800 HNO₃ 1447</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7/21/92	Time Completed 13:00	Lab Unit Mgr JUL 27 1992 SATCath		

54-6500-061 (R-10-83)

#2 7-23-92

WHC-SD-WM-TI-540, REV. 1.

8447-8
830

0374094315

R1710-6582

777

312 2023

WHC-SD-WM-TI-540, REV. 1

Serial No R 1710.-6581	Sample Point BY-104	Date 6-17-92	Time Issued 11:42	Priority 25
Determination PH239/40	Method/Standard LA-503-156	Result Units % RECOVER	Charge Code H2531	Reruns 0
Sample Size ? .100-10-.100 ml			Customer ID SID	
Remarks, Calculations, Results LDP R231 6R001 SID# 50843 RESU 1 83.1 SID VAL 83.5 %REC 99.5 P236 (54843) .05021 Calculation in 30 min $.3723 (282.78)(1000)(100) = 83.1$ $.5841 (2.22 \times 10^4)$				
Analyst - 1	Analyst - 2 L9549	Analyst - 3	Analyst - 4	Analyst - 5
Hrs 7/4	Hrs	Hrs	Hrs	Hrs
Date 6/20/92	Time Completed 13:00	Lab Unit Mgr JUL 23 1992 S. Alata	C. Kury	

"AEA" - 480MIN
ATTACH PRINTOUT

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

#1 7-21-92 AG

7612 - 9

WHC-SD-WM-TI-540, REV. 1

430

6

1

2

4

9

0

4

7

0

0

R1710-6581

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1776--8500	BY-104	7-7-92	14:14	1
Determination	Method/Standard	Result Units	Charge Code	Refers
ASD DSGT	LA-505-159	% RECOVERY	N2331	0
Sample Size	Customer ID			
1848A0 3 B48AP 10ml ea. into 50ml	810			
Remarks, Calculations, Results				
LACS CHECK SAMPLE LACS ID 1848A0 2B48AP 3B48AP 40				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
7-7-92	7-10-92 1000	Lab Unit Mgr JUL 15 1992 SAC Catto

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1777--8600	BY-104	7-7-92	14:14	1
Determination	Method/Standard	Result Units	Charge Code	Refers
ACD-DSGT	LA-505-159	G/L	N2331	0
Sample Size	Customer ID			
50ml	BLK			
Remarks, Calculations, Results				
REAGENT BLANK complete 0				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
7-7-92	7-10-92 1000	Lab Unit Mgr JUL 15 1992 SAC Catto

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

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1778-8700 BY-104		6-24-92	14:16	2
Determination	Method/Standard	Result Units	Charge Code	Reruns
ICD DOST	LA-505-159	G/L	NECBI	0
Sample Size	Customer ID			
0.5503g into 50ml	RSA#443			
Remarks, Calculations, Results				
<p>JAR IDH GRAMS SAMPLE 0.5503g</p> <p>VOLUME ON COMPLETION 50ml</p> <p>0.5503g = 11.0060 g/l</p> <p>0.0501g 8-19-92</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
KRISBY				
Date	Time Completed	Lab Unit	MOR JUL 15 1992	
7-7-92	7-10-92 1000	SACatlas	RW	

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

1778
SAMPLE
QH 8-19-92

Serial No	Sample Point	Date	Time Issued	Priority
R 1778-8800 BY-104		6-24-92	14:16	2
Determination	Method/Standard	Result Units	Charge Code	Reruns
ICD DOST	LA-505-159	G/L	NECBI	0
Sample Size	Customer ID			
0.5958g into 50ml	RSA#443			
Remarks, Calculations, Results				
<p>DUPLICATE SAMPLE</p> <p>JAR IDH</p> <p>GRAMS SAMPLE 0.5958g</p> <p>VOLUME ON COMPLETION 50ml</p> <p>0.5958g = 11.9160 g/l</p> <p>0.0502g 8-19-92</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
KRISBY				
Date	Time Completed	Lab Unit	MOR JUL 15 1992	
7-7-92	7-10-92 1000	SACatlas	RW	

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

1778
DUPLICATE
QH 8-19-92

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1778--8900	RY-104	6-24-92	14:16	25
Determination	Method/Standard	Result Units	Charge Code	Refuns
ACD-DGST	LA-505-159	G/G	N2331	0
Sample Size (B49A0 2648AP 639g, 3848AP } 10ml ea. 50ml			Customer ID ESA#443	
Remarks, Calculations, Results				
SPIKE SAMPLE 1849A0 SPIKE ID 2648AP SPIKE VOLUME 10ml ea. 50 (OF 5) $\frac{63912}{0.050L} = 12,782.0 \text{ g/L}$ 10534 8-19-92 1778 SPIKE 8-19-92				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
KFRISBY				
Date	Time Completed	Lab Unit Mgr		
7-7-92	7-10-92 1000	SA Cath	RW	

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1779--8700	RY-104	6-24-92	14:18	25
Determination	Method/Standard	Result Units	Charge Code	Refuns
ACD-DGST	LA-505-159	G/G	N2331	0
Sample Size 5236g into 50ml			Customer ID ESA#443	
Remarks, Calculations, Results				
JAR ID# GRAMS SAMPLE 5236g VOLUME ON COMPLETION 50ml $\frac{5236g}{0.050L} = 10,472.0 \text{ g/L}$ 1779 SAMPLE				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
KFRISBY				
Date	Time Completed	Lab Unit Mgr		
7-7-92	7-10-92 1000	SA Cath	RW	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1779.-8800	Sample Point BY-104	Date 6-24-92	Time Issued 14:13	Priority 25
Determination ACD DGS1	Method/Standard LA-505-159	Result Units G/L	Charge Code N233L	Regruns 0
Sample Size 2.5888g into 50ml			Customer ID RSA#443	
Remarks, Calculations, Results <p>DUPLICATE SAMPLE JAR ID# GRAMS SAMPLE 5888g VOLUME ON COMPLETION 50ml $2.5888g \div 0.50L = (11.7760g/L)$</p> <p>1779 DUPLICATE</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs KPRISBY	Hrs	Hrs	Hrs	Hrs
Date 4-7-92	Time 7:00 PM	Lab Unit Mgr JUL 15 1992 SAC	Signature [Signature]	

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

WMC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1749, -4606	NY-104	6-18-92	10:41	25
Determination	Method/Standard	Result Units	Charge Code	Retuns
XRAY	LA-507-151	M	N2331	0
Sample Size	Customer ID			
0	RSM4128			
Remarks, Calculations, Results				
AL(OH) ₃ ALUMINUM HYDROXIDE				
C O A				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	John H. W. [Signature]			
Hrs	Hrs	Hrs	Hrs	Hrs
4				
Date	Time Completed	Lab Unit Mgr		
7-9-92		[Signature]		

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1750, -4606	NY-104	6-18-92	11:12	25
Determination	Method/Standard	Result Units	Charge Code	Retuns
XRAY	LA-507-151	M	N2331	0
Sample Size	Customer ID			
0	RSM4128			
Remarks, Calculations, Results				
AL(OH) ₃ ALUMINUM HYDROXIDE				
C O A				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	John H. W. [Signature]			
Hrs	Hrs	Hrs	Hrs	Hrs
4				
Date	Time Completed	Lab Unit Mgr		
7-9-92		[Signature]		

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

4297

WHC-SD-WM-TI-540, REV. 1

Serial No R 1210.-6530	Sample Point BY-104	Date 6-17-92	Time Issued 11:42	Priority 25
Determination DEA	Method/Standard LA-548-121	Result Units % RECOVERY	Charge Code N2631	Reruns 0
Sample Size 2 100 λ			Customer ID SID	
Remarks, Calculations, Results: COI X SID# 90849 R901 100.46/L SID VAL 98.4 μ G/L RESULT 1 % REC 102% 102.59% R905 SID VAL 82.5 μ G/L RESULT 1 82.7 μ G/L % REC 100% 101.25% C F				
Analyst - 1 Sue Lin	Analyst - 2 Fuller	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 10:30	Lab Unit Mgr A.F. Danks	08/03/92 James K. McFarland	

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

4298

Serial No. R 1711.-6630	Sample Point BY-104	Date 6-17-92	Time Issued 11:45	Priority 25
Determination DEA	Method/Standard LA-548-121	Result Units % RECOVERY	Charge Code N2631	Reruns 0
Sample Size 2 100 λ			Customer ID WLR	
Remarks, Calculations, Results: COUNT AS ACTUAL LASER PRITHOM A-241 $\rightarrow$ $5.82 \times 10^{-1} \mu$ G/L CS-137 $\rightarrow$ 1.44×10^{-1} Eu-155 $\rightarrow$ 2.57×10^{-1} Eu-154 $\rightarrow$ 3.19×10^{-1} Co-60 $\rightarrow$ 1.35×10^{-1} A F O F				
Analyst - 1 Sue Lin	Analyst - 2 Fuller	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 10:30	Lab Unit Mgr A.F. Danks	08/03/92 James K. McFarland	

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

4300 4307 WHC-SD-WM-TI-540, REV. 1

Serial No R 1712-6230	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination DEA	Method/Standard LA-548-121	Result Units nct: g per	Charge Code H2331	Reruns 0
Sample Size 100 λ			Customer ID R564418	
Remarks, Calculations, Results COUNT AS OCT. 1 LASER PRINTECH color: yellow $\text{Am-241} \rightarrow 1.45 \mu\text{Ci/g} \times \frac{1}{2.005 \times 10^{-1}} = 7.2 \times 10^{-1} \mu\text{Ci/g}$ $\text{Cs-137} \rightarrow \frac{2.33 \times 10^{-2}}{2.33 \times 10^{-2}} \times \dots = 116.2 \text{ ''}$ $\text{Eu-155} \rightarrow 6.17 \times 10^{-1} \times \dots = 3.1 \times 10^{-1}$ $\text{Eu-154} \rightarrow 3.98 \times 10^{-1} \times \dots = 1.9 \times 10^{-1}$ $\text{Co-60} \rightarrow 1.35 \times 10^{-1} \times \dots = 6.7 \times 10^{-2}$				
Analyst - 1 Sue Li	Analyst - 2 P. Miller	Analyst - 3 D. Miller	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 10:30	Lab Unit Mgr A.K. Dahl	08/03/92 [Signature]	

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

4301

Serial No R 1712-6830	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination DEA	Method/Standard LA-548-121	Result Units nct: g per	Charge Code H2331	Reruns 0
Sample Size 100 λ			Customer ID R564418	
Remarks, Calculations, Results COUNT AS OCT. 1 LASER PRINTECH color: light yellow Duplicate Sample $\text{Am-241} \rightarrow 1.46 \mu\text{Ci/g} \times \frac{1}{2.026 \times 10^{-1}} = 7.2 \times 10^{-1} \mu\text{Ci/g}$ $\text{Cs-137} \rightarrow 2.33 \times 10^{-2} \times \dots = 115. \text{ ''}$ $\text{Eu-155} \rightarrow 6.34 \times 10^{-1} \times \dots = 3.1 \times 10^{-1}$ $\text{Eu-154} \rightarrow 4.16 \times 10^{-1} \times \dots = 2.1 \times 10^{-1}$ $\text{Co-60} \rightarrow 1.43 \times 10^{-1} \times \dots = 7.1 \times 10^{-2}$				
Analyst - 1 Sue Li	Analyst - 2 P. Miller	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 10:30	Lab Unit Mgr A.K. Dahl	08/04/92 [Signature]	

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

787

Serial No		R 1713--6730		Sample Point		BY-104		Date		6-17-92		Time Issued		11:53		Priority		25	
Determination		LA-548-121		Result Units		HITS		Charge Code		F2331		Returns		0		Customer ID		P508118	
Sample Size		100%		Remarks, Calculations, Results		<p>4-241 → $4.21 \times 10^{-1} \times \frac{1}{2.51 \times 10^{-1}} = 1.68 \times 10^{-1}$</p> <p>4-137 → $1.37 \times 10^{-1} \times \frac{1}{1.50 \times 10^{-1}} = 9.1 \times 10^{-1}$</p> <p>4-155 → $1.55 \times 10^{-1} \times \frac{1}{4.45 \times 10^{-1}} = 3.4 \times 10^{-1}$</p> <p>4-154 → $1.54 \times 10^{-1} \times \frac{1}{3.51 \times 10^{-1}} = 4.4 \times 10^{-1}$</p> <p>4-60 → $6.0 \times 10^{-1} \times \frac{1}{1.37 \times 10^{-1}} = 4.4 \times 10^{-1}$</p> <p>Color: yellow</p> <p>COUNT AS COUNT LASER PRINTOUT</p>													
Analyst - 1		Analyst - 61453		Analyst - 3		Analyst - 4		Analyst - 5											
Hrs		Hrs		Hrs		Hrs		Hrs											
Time Completed		10:30		Lab Unit		L-104		Hrs											
Date		7-31-92		<p>54-6800-061 (R-10-83)</p> <p>Lab Unit: L-104</p> <p>Analyst: 61453</p>															

WMC-SD-WM-TI-540, REV. 1

4302

4198 WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
Determination	Method/Standard	Result Units	Charge Code	Reruns
CEA 8817	LA-506-121	10/1/92	10/3/92	1
Sample Size			Customer ID	
100 λ			10/3/92	
Remarks, Calculations, Results:				
<p>Sample Size: 100 λ</p> <p>NO spike is needed. Count it in det # 4</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Lai	Franklin			
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
7-16-92		A.K. Dalk 07/27/92		

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

4199

Serial No	Sample Point	Date	Time Issued	Priority
Determination	Method/Standard	Result Units	Charge Code	Reruns
CEA 8817	LA-506-121	10/1/92	10/3/92	1
Sample Size			Customer ID	
100 λ			10/3/92	
Remarks, Calculations, Results:				
<p>Sample Size: 100 λ</p> <p>NO spike is needed. Count it in det # 4</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Sue Lai	Franklin			
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
7-16-92		A.K. Dalk 07/27/92		

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

WHC-SD-WM-TI-540.REV.1

4303

Serial No R 1713-6830	Sample Point (BY 103)	Date 08/04/92	Time Issued 11:55	Priority 25
Confirmation GEA	Method/Standard LA-548-121	Result Units HCl/d rec	Charge Code H233L	Reruns 0
Sample Size 2: 100% Aug 08/04/92			Customer ID RSA4418	
<p>Remarks, Calculations, Results</p> <p>COUNT AS HCl/L LASER PRINTOUT</p> <p>color: light yellow</p> <p>Duplicate sample</p> <p> $Am-241 \rightarrow 1.19 \mu\text{Ci/g} \times \frac{1}{1.9916\text{g}} = 5.9 \times 10^{-1} \mu\text{Ci/g}$ $Cs-137 \rightarrow 1.55 \times 10^{-1} \mu\text{Ci/g} \times 1 = 78 \mu\text{Ci/g}$ $Eu-155 \rightarrow 5.15 \times 10^{-1} \mu\text{Ci/g} \times 1 = 2.6 \times 10^{-1} \mu\text{Ci/g}$ $Eu-154 \rightarrow 3.24 \times 10^{-1} \mu\text{Ci/g} \times 1 = 1.6 \times 10^{-1} \mu\text{Ci/g}$ $Gd-60 \rightarrow 1.52 \times 10^{-1} \mu\text{Ci/g} \times 1 = 7.6 \times 10^{-2} \mu\text{Ci/g}$ </p>				
Analyst - 1 Sue Lai	Analyst - 2 D.H. Melicia	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 10:30	Lab Unit Mgr A.K. Dancer	<p>08/04/92</p> <p>54-6800-061 (R-10-83)</p>	

WHC-SD-WM-TI-540, REV. 1

Serial No R 1711-6660	Sample Point BY-104	Date 8-17-92	Time Issued 11:45	Priority 25
Determination FUSION	Method/Standard LA-549-141	Result Units g/L	Charge Code M2331	Reruns 0
Sample Size 2.250 ml			Customer ID W K	
Remarks, Calculations, Results <i>Completed</i>				
Analyst - 1 <i>Mary Tracy</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Hrs	Hrs	Hrs	Hrs
Date 7-8-92	Time Completed 1300	Lab Unit Mgr <i>Keith Fuller</i>	7-9-92 <i>E. Perry</i>	

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

Serial No R 1712-6700	Sample Point BY-104	Date 8-17-92	Time Issued 11:49	Priority 25
Determination FUSION	Method/Standard LA-549-141	Result Units g/L	Charge Code M2331	Reruns 0
Sample Size			Customer ID RS44418	
Remarks, Calculations, Results GROSS FOR GROSS SAMPLE 0.5013g VOLUME ON COMPLETION 250 ml $\frac{0.5013g}{0.250L} = 2.0052 g/L$				
Analyst - 1 <i>Mary Tracy</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Hrs	Hrs	Hrs	Hrs
Date 7-8-92	Time Completed 1300	Lab Unit Mgr <i>Keith Fuller</i>	7-9-92 <i>E. Perry</i>	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1712-6800	Sample Point RY 104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination FUSION	Method/Standard LA-549-141	Result Units G/L	Charge Code H233L	Reruns 0
Sample Size ?			Customer ID R5A8418	
Remarks, Calculations, Results DUPLICATE SAMPLE JAR ID# GRAMS SAMPLE 0.5066g VOLUME ON COMPLETION 0.250L $\frac{0.5066g}{0.250L} = 2.0264g/L$				
Analyst - 1 <i>Mary Tracy</i>	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-8-92	Time Completed 1300	Lab Unit Mgr 7-9-92 <i>Keith Fuller</i>	<i>Eunkey</i>	

54-6800-061 (Rev. 83)

Serial No R 1713-6700	Sample Point RY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination FUSION	Method/Standard LA-549-141	Result Units G/L	Charge Code H233L	Reruns 0
Sample Size ?			Customer ID R5A8418	
Remarks, Calculations, Results JAR ID# GRAMS SAMPLE 0.5078g VOLUME ON COMPLETION 0.250ml $\frac{0.5078g}{0.250L} = 2.0312g/L$				
Analyst - 1 <i>Mary Tracy</i>	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-8-92	Time Completed 1300	Lab Unit Mgr 7-9-92 <i>Keith Fuller</i>	<i>Eunkey</i>	

54-6800-061 (Rev. 83)

WHC-SD-WM-TI-540.REV.1

Serial No R 1713-6800	Sample Point B7-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination FUSION	Method/Standard LA-549-141	Result Units G/L	Charge Code H2531	Reruns 0
Sample Size ?			Customer ID R504418	
<p>Remarks, Calculations, Results</p> <p>DUPLICATE SAMPLE JAR FOR GRAMS SAMPLE 0.4979g VOLUME ON COMPLETION 250 ml</p> <p>$\frac{0.4979g}{250ml} = 1.9916g/L$</p>				
Analyst - 1 <i>Kimmy Friday</i>	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-8-92	Time Completed 1300	Lab Unit Mgr 7-9-92 <i>Leith Fuller</i>		

54-0800-061 (R-10-83)

WHC-SD-WM-TI-540,REV.1

Serial No R 1751.-7527	Sample Point BY-104	Date 6-18-92	Time Issued 13:19	Priority 26
Determination TIC	Method/Standard LA-622-102	Result Units % RECOVERY	Charge Code N233L	Retuns 0
Sample Size 2.050 ml.			Customer ID STD	
Remarks, Calculations, Results 6223 C03 STDH 69 CII-N RESULT 0.207 M $\frac{0.207 M}{0.200 M} \times 100\% =$ STD VAL 0.200M REC 103.5 103.5% Recovery Jeff Solback				
Analyst - 1 7	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 10-02-92	Time Completed 19:11:08	Lab Unit Mgr J. S. Lachut	10/5/92 C. L. Lachut	

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

Serial No R 1754.-7727	Sample Point BY-104	Date 6-18-92	Time Issued 13:23	Priority 23
Determination TIC	Method/Standard LA-622-102	Result Units uG/G Rec	Charge Code N233L	Retuns 0
Sample Size 2.200 ml.			Customer ID RSA#429	
Remarks, Calculations, Results 2 4 $\frac{0.4749/L \times 1,000,000 \mu g}{10.0089/L} = \frac{474,000 \mu g}{10.0089/L} = 4.74 \times 10^4 \mu g$ Jeff Solback				
Analyst - 1 7	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 10-2-92	Time Completed 22:29:03	Lab Unit Mgr J. S. Lachut	10/5/92 C. L. Lachut	

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

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Date		9-20-92		Time Completed		15:43		Lab Unit Mgr		J. S. Jack	
Hrs				Hrs				Hrs			
Analyst - 1		Analyst - 2		Analyst - 3		Analyst - 4		Analyst - 5			
<p>Remarks, Calculations, Results</p> <p>STD# 69211N RESULT 0.194M</p> <p>STD VAL 0.200M % REC 97.0</p> <p>0.194M / 0.200M x 100% = 97.0% RECOVERY</p>											
Serial No		R 1751--7527		Sample Point		BY-104		Date		6-18-92	
Determination		LA-622-102		Method/Standard		Result Units		Charge Code		N233L	
TIC								Returns		0	
Sample Size		0.050 ml		Customer ID		STD		Priority		23	

Date		10-2-92		Time Completed		22:38:00		Lab Unit Mgr		J. S. Jack	
Hrs				Hrs				Hrs			
Analyst - 1		Analyst - 2		Analyst - 3		Analyst - 4		Analyst - 5			
<p>Remarks, Calculations, Results</p> <p>DUPLICATE SAMPLE</p> <p>0.492 g/L x 1,000,000 ug/g = 492,000 ug/g</p> <p>492,000 ug/g / 10,010 g/L = 4.92 x 10⁴ ug/g</p>											
Serial No		R 1754--7827		Sample Point		BY-104		Date		6-18-92	
Determination		LA-622-102		Method/Standard		Result Units		Charge Code		N233L	
TIC								Returns		0	
Sample Size		0.200 ml		Customer ID		RSA4429		Priority		23	

MHC-SD-WM-TI-540, REV. 1

WHC-SD-WM-TI-540, REV. 1

Serial No R 1752.-7627	Sample Point BY-104	Date 6-18-92	Time Issued 13:20	Priority 23
Determination TIC	Method/Standard LA-622-102	Result Units uG Carbon	Charge Code N233L	Reruns 0
Sample Size 200 mL			Customer ID BLK	
Remarks, Calculations, Results REAGENT BLANK 4.20 ug C				
Analyst - 1 Hrs	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 9-20-92	Time Completed 15:21	Lab Unit Mgr J. S. Lachut	9/21/92 C. Perry	

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

Serial No R 1753.-7727	Sample Point BY-104	Date 6-18-92	Time Issued 13:22	Priority 23
Determination TIC	Method/Standard LA-622-102	Result Units uG/G Rec	Charge Code N233L	Reruns 0
Sample Size 200 mL			Customer ID RSA#429	
Remarks, Calculations, Results $\frac{216,000 \text{ ug} \times 9/21/92}{0.216} = \frac{2,160,000 \text{ ug}}{10.006 \text{ g/L}} = \frac{215,870 \text{ ug C}}{21,587 \text{ g}}$				
Analyst - 1 Hrs	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 9-20-92	Time Completed 17:56	Lab Unit Mgr J. S. Lachut	9/21/92 C. Perry	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1753.-7827	Sample Point BY-104	Date 6-18-92	Time Issued 13:22	Priority 23
Determination TIC	Method/Standard LA-622-102	Result Units uG/G Rec	Charge Code N233L	Reprints 0
Sample Size 2.200 mL			Customer ID RSA#429	
Remarks, Calculations, Results DUPLICATE SAMPLE $0.193 \text{ g/L C} \times 1,000,000 \text{ ug/g} = 193,000 \text{ ug/L}$ $\frac{193,000 \text{ ug/L}}{10.006 \text{ g/L}} = \boxed{19,288 \frac{\text{ug C}}{\text{g}}}$				
Analyst - 1 <i>Janice Lee</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 9-20-92	Time Completed 18:07	Lab Unit Mgr <i>J. S. Lachut</i>	9/21/92 <i>[Signature]</i>	

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

Serial No R 1753.-7927	Sample Point BY-104	Date 6-18-92	Time Issued 13:22	Priority 23
Determination TIC	Method/Standard LA-622-102	Result Units % RECOVERY	Charge Code N233L	Reprints 0
Sample Size 2.200 mL		SHOT .200 ML / RSA#429		
Remarks, Calculations, Results SAMPLE SPIKED ID SPIKE ID 69C114N = .2n SPIKE VOLUME .200 mL $(260.8 \text{ ug} - 4.2 \text{ ug}) \left(\frac{.2 \text{ mL} \cdot 2 \text{ mL}}{.2 \text{ mL}} \right) - (47.6 \text{ ug} - 4.2 \text{ ug}) \left(\frac{.2 \text{ mL}}{.2 \text{ mL}} \right) \left(\frac{.2 \text{ mL}}{.2 \text{ mL}} \right) \times 100\% = \boxed{97.9\% \text{ RECOVERY}}$ 480 ug SPIKE $.2n(12\% \text{ spike}) =$ $2.4\% \cdot 2400 \text{ ug} =$ $2400 \text{ ug} \cdot (.2 \text{ mL}) =$ 480 ug				
Analyst - 1 <i>Janice Lee</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 9-20-92	Time Completed 18:36	Lab Unit Mgr <i>J. S. Lachut</i>	9/21/92 <i>[Signature]</i>	

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

WHC-SD-WM-TI-540, REV. 1

Serial No. R 1751.-7526	Sample Point BY-104	Date 6-18-92	Time Issued 13:19	Priority 25
Determination TOC	Method/Standard LA-344-105	Result Units % RECOVERY	Charge Code N233L	Reruns 0
Sample Size 2 ml - 0.200 ml - 0.200 ml			Customer ID SID	
Remarks, Calculations, Results 0.200 ml - 2 ml - 0.200 ml 3356 CO310C SIDH 70C11-M STD VAL 3.00% RESULT 2.92% $\frac{2.92\%}{3.00\%} \times 100\% = 97.3\%$ RECOVERY 2REC 97.3				
Analyst - 1 J. Dig Hrs	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-26-92	Time Completed 0645	Lab Unit Mgr J. S. Lachut	7/27/92 54-6800-061 (R-10-83)	

Serial No. R 1752.-7626	Sample Point BY-104	Date 6-18-92	Time Issued 13:19	Priority 25
Determination TOC	Method/Standard LA-344-105	Result Units ug Carbon	Charge Code N233L	Reruns 0
Sample Size 0.200 ml			Customer ID GK	
Remarks, Calculations, Results REAGENT BLANK 3.10 ug C				
Analyst - 1 J. Dig Hrs	Analyst - 2 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7-26-92	Time Completed 0645	Lab Unit Mgr J. S. Lachut	7/27/92 54-6800-061 (R-10-83)	

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Date		7-26-92		Time Completed		7/27/92		Lab Unit Mgr		J. S. Schmitt	
Hrs				Hrs				Hrs			
Analyst - 1		J. S.		Analyst - 2				Analyst - 3			
Analyst - 4				Analyst - 5				Analyst - 6			
<p>0.127 % C (1,000,000 ug) = $\frac{10.014\%}{127,000 \text{ ug}} \times 10.014\% = 12,682 \text{ ug/g C}$</p> <p>REMARKS: Calculations, Results</p> <p>Sample Size: 4.26 g</p> <p>Customer ID: RSNM429</p> <p>Charge Code: H2531</p> <p>Result Units: ug/g C</p> <p>Method/Standard: LA-344-105</p> <p>Serial No: R 1753--7726</p> <p>Sample Point: BY-104</p> <p>Date: 6-18-92</p> <p>Time Issued: 13:20</p> <p>Priority: 25</p>											

Date		7-26-92		Time Completed		7/27/92		Lab Unit Mgr		J. S. Schmitt	
Hrs				Hrs				Hrs			
Analyst - 1		J. S.		Analyst - 2				Analyst - 3			
Analyst - 4				Analyst - 5				Analyst - 6			
<p>0.092 % C (1,000,000 ug) = $\frac{10.004\%}{92,000 \text{ ug}} \times 10.004\% = 9196 \text{ ug/g C}$</p> <p>REMARKS: Calculations, Results</p> <p>Sample Size: 4.26 g</p> <p>Customer ID: RSNM429</p> <p>Charge Code: H2531</p> <p>Result Units: ug/g C</p> <p>Method/Standard: LA-344-105</p> <p>Serial No: R 1753--7726</p> <p>Sample Point: BY-104</p> <p>Date: 6-18-92</p> <p>Time Issued: 13:20</p> <p>Priority: 25</p>											

WMC-SD-WM-TI-540, REV. 1

WHC-SD-WM-TI-540, REV. 1

Serial No. R 1754.-7726	Sample Point BY-104	Date 6-18-92	Time Issued 13:22	Priority 25
Determination UOC	Method/Standard LA-344-105	Result Units ug/g rec	Charge Code H2331	Reruns 0
Sample Size 2 ml - 0.200 ml - 0.200 ml			Customer ID R5AN429	
Remarks, Calculations, Results $\frac{0.182 \text{ } \mu\text{L C (1,000,000 } \mu\text{g/g)}}{10.048 \text{ } \mu\text{L}} = \frac{182,000 \text{ } \mu\text{g/L C}}{10.048 \text{ } \mu\text{L}} = 18,113 \text{ } \mu\text{g/g C}$				
Analyst - 1 J. Dig	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-26-92	Time Completed 0645	Lab Unit Mgr J. S. Lachut	7/27/92 [Signature]	

54-6800-061 (R-10-85)

Serial No. R 1754.-7826	Sample Point BY-104	Date 6-18-92	Time Issued 13:22	Priority 25
Determination UOC	Method/Standard LA-344-105	Result Units ug/g rec	Charge Code H2331	Reruns 0
Sample Size 0.200 ml - 2 ml - 0.200 ml 2 ml - 0.200 ml - 0.200 ml			Customer ID R5AN429	
Remarks, Calculations, Results DUPLICATE SAMPLE $\frac{0.250 \text{ } \mu\text{L C (1,000,000 } \mu\text{g/g)}}{10.030 \text{ } \mu\text{L}} = \frac{250,000 \text{ } \mu\text{g/L C}}{10.030 \text{ } \mu\text{L}} = 24,925 \text{ } \mu\text{g/g C}$				
Analyst - 1 J. Dig	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-26-92	Time Completed 0645	Lab Unit Mgr J. S. Lachut	7/27/92 [Signature]	

54-6800-061 (R-10-85)

WHC-SD-WM-TI-540, REV. 1

Serial No R 1751.-7526	Sample Point BY-104	Date 6-18-92	Time Issued 13:17	Priority 25
Determination TOC	Method/Standard LA-344-105	Result Units % RECOVERY	Charge Code H233L	Reruns 1
Sample Size 2.200 mL - 2 mL - .200 mL			Customer ID STD	
Remarks, Calculations, Results 5356 CUSTOC STD# 70C11-M RESULT 2.92 g/L STD VAL 5.00 g/L %REC 97.33% $\frac{2.92 \text{ g/L}}{3.00 \text{ g/L}} \times 100 = 97.33\%$				
Analyst - 1 <i>Ed Cobb</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 1400	Lab Unit Mgr Keith Fuller	8/3/92 <i>Ed Cobb</i>	

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

Serial No R 1752.-7526	Sample Point BY-104	Date 6-18-92	Time Issued 13:19	Priority 25
Determination TOC	Method/Standard LA-344-105	Result Units ug Carbon	Charge Code H233L	Reruns 1
Sample Size 2.200 mL			Customer ID GLK	
Remarks, Calculations, Results REAGENT BLANK 5.3 ug Carbon RERUN				
Analyst - 1 <i>Ed Cobb</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 1400	Lab Unit Mgr Keith Fuller	8/3/92 <i>Ed Cobb</i>	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1753.-7726	Sample Point BY-104	Date 6-18-92	Time Issued 13:20	Priority 25
Determination TOC	Method/Standard LA-344-105	Result Units ug/g rec	Charge Code N233L	Reruns 1
Sample Size 1 mL + 100 mL 5M H ₂ SO ₄ - 200 mL			Customer ID RSAH429	
Remarks, Calculations, Results <p style="text-align: center;">RERUN</p> <p style="text-align: center;">$5.99 \times 10^{-2} \text{ g/L Carbon}$</p> <p> $5.99 \times 10^{-2} \frac{\text{g Carbon}}{\text{L}} \times \frac{1}{10.004 \text{ g}} \times \frac{10^6 \mu\text{g}}{\text{g}} = 5.987 \mu\text{g/g}$ $5.987 \times 10^3 \frac{\mu\text{g}}{\text{g}}$ </p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs Ed Col	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 1400	Lab Unit Mgr 8/3/92 RK Fuller

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

Serial No. R 1753.-7826	Sample Point BY-104	Date 6-18-92	Time Issued 13:20	Priority 25
Determination TOC	Method/Standard LA-344-105	Result Units ug/g rec	Charge Code N233L	Reruns 1
Sample Size 1 mL + 100 mL 5M H ₂ SO ₄ - 200 mL			Customer ID RSAH429	
Remarks, Calculations, Results <p style="text-align: center;">RERUN</p> <p style="text-align: center;">DUPLICATE SAMPLE</p> <p style="text-align: center;">$6.16 \times 10^{-2} \text{ g/L CARBON}$</p> <p> $6.16 \times 10^{-2} \frac{\text{g CARBON}}{\text{L}} \times \frac{1}{10.014 \text{ g}} \times \frac{10^6 \mu\text{g}}{\text{g}} = 6.15 \times 10^3 \frac{\mu\text{g}}{\text{g}}$ $6.15 \times 10^3 \frac{\mu\text{g}}{\text{g}}$ </p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs Ed Col	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 1400	Lab Unit Mgr 8/3/92 Keith Fuller

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1753.-7926	Sample Point BY-104	Date 8-18-92	Time Issued 13:22	Priority 25
Determination TOC	Method/Standard LA-344-105	Result Units % RECOVERY	Charge Code N233L	Reruns 0
Sample Size 200ml + 200ml + 100ml 5mH ₂ SO ₄ - 200ml			Customer ID RSAH429	
Remarks, Calculations, Results SAMPLE SPIKED TO SPIKE ID 80CL1111 SPIKE VOLUME .200 ml $\frac{0.729 \text{ g/l}}{0.750 \text{ g/l}} \times 100 = 97.2\%$ $\left(\frac{0.789 \text{ g/l}}{2.5} - \frac{0.0599 \text{ g/l}}{2.5} \right) 2.5 = 0.729 \text{ g/l}$ spike recovery				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs Ed Ch	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 1400	Lab Unit Mgr 8/3/92 Keith Fulla		

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

Serial No R 1754.-7726	Sample Point BY-104	Date 6-18-92	Time Issued 13:22	Priority 25
Determination TOC	Method/Standard LA-344-105	Result Units ug/g rec	Charge Code N233L	Reruns 1
Sample Size 1ml + 100ml 5mH ₂ SO ₄ - 200ml			Customer ID RSAH429	
Remarks, Calculations, Results RERUN $1.08 \times 10^{-1} \text{ g/l carbon} \times \frac{10 \text{ g}}{10.048 \text{ g}} \times \frac{10^6 \text{ ug}}{\text{g}} = 1.074 \times 10^4 \frac{\text{ug}}{\text{g}}$				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs Ed Ch	Hrs	Hrs	Hrs	Hrs
Date 7-31-92	Time Completed 1400	Lab Unit Mgr 8/3/92 Keith Fulla		

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

803

Serial No		R 1754 - 7826		Sample Point		BY-104		Date		6-18-92		Time Issued		13:22		Priority		25	
Determination		LA-344-105		Result Units		ug/g rec		Charge Code		H233L		Returns		1		Customer ID		RSMH429	
Sample Size		Limit, 100 mL, 5 mL H ₂ SO ₄ - 2.00 mL																	
Remarks, Calculations, Results																			
<p> $1.08 \times 10^{-4} \text{ g cadmium} \times \frac{18}{10.030 \text{ g}} \times \frac{10^6 \text{ ug}}{1 \text{ g}} = 1.96 \times 10^{-4} \text{ g}$ </p>																			
Analyst - 1		Analyst - 2		Analyst - 3		Analyst - 4		Analyst - 5		His		His		His		His		His	
Time Completed		1400		Lab Unit Mgr		8/3/92		8/3/92		8/3/92		8/3/92		8/3/92		8/3/92		8/3/92	
Date		7-31-92																	

WHC-SD-WM-TI-540, REV. 1

RETURN

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
Determination	Method/Standard	Result Units	Charge Code	Reruns
Sample Size	RECOVERY		Customer ID	
Remarks, Calculations, Results 0.600 mL - 10.0 mL EDP 974 F EDP 972 CL EDP 970 S04 EDP 948 NO2 EDP 976 P04 EDP 978 NO3 STD# 73C/IES RESULT STD VAL XREC				
Anion		Result	Std. Value	% Rec
F		54.8 ppm	56 ppm	97.9
Cl		73.7 ppm	75 ppm	98.3
NO ₂		509 ppm	504 ppm	101
NO ₃		609 ppm	578 ppm	105
PO ₄		520 ppm	516 ppm	101
S04		614 ppm	603 ppm	102
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
8-14-92	8-17-92			
Date	Time Completed	Lab Unit Mgr		
8-14-92	10:28	Denise J. Hart		

Serial No	Sample Point	Date	Time Issued	Priority
Determination	Method/Standard	Result Units	Charge Code	Reruns
Sample Size	PPM		Customer ID	
Remarks, Calculations, Results Direct REAGENT BLANK ANION DT DP 8-14-92 F 2.1 ppm Cl 2.1 ppm NO ₂ 21.0 ppm NO ₃ 21.0 ppm PO ₄ 21.0 ppm S04 21.0 ppm				
ANION		Result	Std. Value	% Rec
F		2.1 ppm		
Cl		2.1 ppm		
NO ₂		21.0 ppm		
NO ₃		21.0 ppm		
PO ₄		21.0 ppm		
S04		21.0 ppm		
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
8-14-92	8-17-92			
Date	Time Completed	Lab Unit Mgr		
8-14-92	10:28	Denise J. Hart		

WHC-SD-WM-TI-540, REV. 1

Serial No. R 1754.-7771	Sample Point BY-104	Date 8-18-92	Time Issued 13:22	Priority 23																								
Determination IC	Method/Standard LA-533-105	Result Units ug/g rec	Charge Code H2531	Reruns 1																								
Sample Size ?			Customer ID R5A1429																									
Remarks, Calculations, Results RERUN $\text{Anion Result (ppm)} \left(\frac{\text{ppm}}{10.008 \text{ g/L}} \right) (1000) = \frac{\text{ug}}{\text{g}} \text{ rec} \quad \text{D.F.}$ <table> <tr> <td>F</td> <td>130.728</td> <td>1.31 E4</td> <td>231</td> </tr> <tr> <td>Cl</td> <td>11.0</td> <td>1.10 E3</td> <td>21</td> </tr> <tr> <td>NO₂</td> <td>151.</td> <td>1.51 E4</td> <td>21</td> </tr> <tr> <td>NO₃</td> <td>778</td> <td>7.77 E4</td> <td>231</td> </tr> <tr> <td>PO₄</td> <td>44.2</td> <td>4.42 E3</td> <td>21</td> </tr> <tr> <td>SO₄</td> <td>410.8</td> <td>4.19 E4</td> <td>21</td> </tr> </table>					F	130.728	1.31 E4	231	Cl	11.0	1.10 E3	21	NO ₂	151.	1.51 E4	21	NO ₃	778	7.77 E4	231	PO ₄	44.2	4.42 E3	21	SO ₄	410.8	4.19 E4	21
F	130.728	1.31 E4	231																									
Cl	11.0	1.10 E3	21																									
NO ₂	151.	1.51 E4	21																									
NO ₃	778	7.77 E4	231																									
PO ₄	44.2	4.42 E3	21																									
SO ₄	410.8	4.19 E4	21																									
Analyst - 1 <i>[Signature]</i>	Analyst - 2 <i>[Signature]</i>	Analyst - 3	Analyst - 4	Analyst - 5																								
Hrs	Hrs	Hrs	Hrs	Hrs																								
Date 8-14-92	Time Completed 10:28	Lab Unit Mgr <i>[Signature]</i>																										

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

Serial No. R 1754.-7871	Sample Point BY-104	Date 8-18-92	Time Issued 13:22	Priority 23																								
Determination IC	Method/Standard LA-533-105	Result Units ug/g rec	Charge Code H2531	Reruns 1																								
Sample Size ?			Customer ID R5A1429																									
Remarks, Calculations, Results RERUN $\text{Anion Result (ppm)} \left(\frac{\text{ppm}}{10.010 \text{ g/L}} \right) (1000) = \frac{\text{ug}}{\text{g}} \text{ rec} \quad \text{D.F.}$ <table> <tr> <td>F</td> <td>110.8</td> <td>1.11 E4</td> <td>231</td> </tr> <tr> <td>Cl</td> <td>12.4</td> <td>1.24 E3</td> <td>21</td> </tr> <tr> <td>NO₂</td> <td>163</td> <td>1.63 E4</td> <td>231</td> </tr> <tr> <td>NO₃</td> <td>714</td> <td>7.14 E4</td> <td>21</td> </tr> <tr> <td>PO₄</td> <td>32.6</td> <td>3.26 E3</td> <td>21</td> </tr> <tr> <td>SO₄</td> <td>473</td> <td>4.73 E4</td> <td>21</td> </tr> </table> <p>RPD + comment on back. <i>[Signature]</i></p>					F	110.8	1.11 E4	231	Cl	12.4	1.24 E3	21	NO ₂	163	1.63 E4	231	NO ₃	714	7.14 E4	21	PO ₄	32.6	3.26 E3	21	SO ₄	473	4.73 E4	21
F	110.8	1.11 E4	231																									
Cl	12.4	1.24 E3	21																									
NO ₂	163	1.63 E4	231																									
NO ₃	714	7.14 E4	21																									
PO ₄	32.6	3.26 E3	21																									
SO ₄	473	4.73 E4	21																									
Analyst - 1 <i>[Signature]</i>	Analyst - 2 <i>[Signature]</i>	Analyst - 3	Analyst - 4	Analyst - 5																								
Hrs	Hrs	Hrs	Hrs	Hrs																								
Date 8-14-92	Time Completed 10:28	Lab Unit Mgr <i>[Signature]</i>																										

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

R1754-7871

<u>Anion</u>	<u>RPD</u>
Cl ⁻	16.5
Cl ⁻	12.0
NO ₂ ⁻	7.64
NO ₃ ⁻	8.46
PO ₄ ⁻	30.2
SO ₄ ⁻	12.1

506

7
 □ PO₄ analysis has a large RPD. We had the
 □ Same problem on a previous water digest (of the
 same sample.) Results are reproducible on our
 part as determined by a subsequent analysis.
 Dennis L. Hunt 8-17-92

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
1751-7571	BY-104	6-18-92	1:32	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
IC	LA-533-105	% RECOVERY	112331	0
Sample Size	Customer ID			
0.25ml - 10.0ml	RSAM429			
Remarks, Calculations, Results:				
		Amion	% Recovery	
SAMPLE SPIKED ID		F	73.7	
SPIKE ID 73C4 EM		CI	96.0	
SPIKE VOLUME 100 mL		NO ₂	95.2	
		NO ₃	103	
		PO ₄	97.2	
		SO ₄	95.4	
Calc. on back				
Date Rec'd				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
9-16-92	16:23	Denise J. Hart		
54-6800-061 (R-10-83)				

Serial No	Sample Point	Date	Time Issued	Priority
1751-7571	BY-104	6-18-92	1:32	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
IC	LA-533-105	% RECOVERY	112331	0
Sample Size	Customer ID			
20.100ml - 10.0ml	S10			
Remarks, Calculations, Results:				
		DF Amion	Result	% Rec.
EDP 974 F EDP 972 L		231 F	68.9	65
EDP 970 S04 EDP 968		21 CI	87.2	87
NO2 EDP 976 P04 EDP		21 NO ₂	601	597
978 NO3		231 NO ₃	660	668
SID VAL 73C4 F) RESULT		21 PO ₄	615	598
SID VAL SPEC		21 SO ₄	699	691
Analyst - 1				
Analyst - 2				
Analyst - 3				
Analyst - 4				
Analyst - 5				
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
7-27-92	11:55	Denise J. Hart		
7-29-92				
54-6800-061 (R-10-83)				

807

$$\begin{aligned}
 F &= ((102.1 - 86.1) / (52)(41)(.1) / 10.25) 100 = 73.7\% \\
 Cl &= ((52.1 - 23.9) / (75)(41)(.1) / 10.25) 100 = 96.0\% \\
 NO_2 &= ((45.5 - 2.29) / (507)(41)(.1) / 10.25) 100 = 95.2\% \\
 NO_3 &= ((744 - 504.8) / (576)(41)(.1) / 10.25) 100 = 103.2\% \\
 CO_2 &= ((275 - 74.4) / (516)(41)(.1) / 10.25) 100 = 97.2\% \\
 SO_2 &= ((513 - 243) / (608)(41)(.1) / 10.25) 100 = 95.4\%
 \end{aligned}$$

0 0 7 4 0 2 4

R1753-7971

WHC-SD-WM-TI-540, REV. 1

Serial No R 1752--7671	Sample Point RY-104	Date 6-18-92	Time Issued 13:19	Priority 25
Determination 30	Method/Standard LA-533-105	Result Units PPH	Charge Code 112331	Reruns 0
Sample Size Direct			Customer ID M K	
Remarks, Calculations, Results REAGENT BLANK $\text{Fe} < 0.1$ $\frac{\text{mg}}{\text{L}}$ 8/18-5-92 $\text{Mn} < 0.1$ $\frac{\text{mg}}{\text{L}}$ $\text{Ni} < 1.0$ $\frac{\text{mg}}{\text{L}}$ all results in ppm $\text{Cu} < 1.0$ $\frac{\text{mg}}{\text{L}}$ $\text{Pb} < 1.0$ $\frac{\text{mg}}{\text{L}}$ $\text{Zn} 2.16$ $\frac{\text{mg}}{\text{L}}$				
Analyst D. R. Leek	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-27-92 7-29-92	Time Completed 11:55	Lab Unit Mgr Dennis J. Leek		

54-6800-061 (R-10-93)

Serial No R 1753--7771	Sample Point RY-104	Date 6-18-92	Time Issued 13:20	Priority 25																												
Determination TC	Method/Standard LA-533-105	Result Units mg/g LCC	Charge Code 112331	Reruns 0																												
Sample Size 2			Customer ID RSM129																													
Remarks, Calculations, Results <table border="0"> <thead> <tr> <th>Anion</th> <th>Result</th> <th>Calculation</th> <th>D.F.</th> </tr> </thead> <tbody> <tr> <td>AF</td> <td>66.5</td> <td>$\frac{66.5}{10.0004} (1000) = 6.65E3$</td> <td>231</td> </tr> <tr> <td>Cl</td> <td>19.9</td> <td>$(19.9/10.0004)(1000) = 1.99E3$</td> <td>21</td> </tr> <tr> <td>NO₂</td> <td>126</td> <td>$(126/10.0004)(1000) = 1.26E4$</td> <td>21</td> </tr> <tr> <td>NO₃</td> <td>499</td> <td>$(499/10.0004)(1000) = 4.99E4$</td> <td>21</td> </tr> <tr> <td>SO₄</td> <td>51.4</td> <td>$(51.4/10.0004)(1000) = 5.14E3$</td> <td>21</td> </tr> <tr> <td>SO₄</td> <td>253</td> <td>$(253/10.0004)(1000) = 2.53E4$</td> <td>21</td> </tr> </tbody> </table>					Anion	Result	Calculation	D.F.	AF	66.5	$\frac{66.5}{10.0004} (1000) = 6.65E3$	231	Cl	19.9	$(19.9/10.0004)(1000) = 1.99E3$	21	NO ₂	126	$(126/10.0004)(1000) = 1.26E4$	21	NO ₃	499	$(499/10.0004)(1000) = 4.99E4$	21	SO ₄	51.4	$(51.4/10.0004)(1000) = 5.14E3$	21	SO ₄	253	$(253/10.0004)(1000) = 2.53E4$	21
Anion	Result	Calculation	D.F.																													
AF	66.5	$\frac{66.5}{10.0004} (1000) = 6.65E3$	231																													
Cl	19.9	$(19.9/10.0004)(1000) = 1.99E3$	21																													
NO ₂	126	$(126/10.0004)(1000) = 1.26E4$	21																													
NO ₃	499	$(499/10.0004)(1000) = 4.99E4$	21																													
SO ₄	51.4	$(51.4/10.0004)(1000) = 5.14E3$	21																													
SO ₄	253	$(253/10.0004)(1000) = 2.53E4$	21																													
Analyst D. R. Leek	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5																												
Hrs	Hrs	Hrs	Hrs	Hrs																												
Date 7-27-92 7-29-92	Time Completed 11:55	Lab Unit Mgr Dennis J. Leek																														

54-6800-061 (R-10-93)

WHC-SD-WM-TI-540, REV. 1

Serial No R 1753--7871	Sample Point BY-104	Date 6-18-92	Time Issued 13:20	Priority 25																																			
Determination IC	Method/Standard 1A-533-105	Result Units ug/g	Charge Code 1123.5	Reruns 0																																			
Sample Size 0	Customer ID R5684429																																						
<p>Remarks, Calculations, Results</p> <p>DUPLICATE SAMPLE</p> <table border="1"> <thead> <tr> <th>Anion</th> <th>Result</th> <th>ug/g</th> <th>Relative Difference</th> <th>DF</th> </tr> </thead> <tbody> <tr> <td>F</td> <td>65.3 ppm</td> <td>$(65.3/10.04)(100) = 6.52E3$</td> <td>1.52</td> <td>231</td> </tr> <tr> <td>Cl</td> <td>9.0</td> <td>$(9.0/10.04)(100) = 8.96E2$</td> <td>4.63</td> <td>21</td> </tr> <tr> <td>NO₂</td> <td>112</td> <td>$(112/10.04)(100) = 1.12E4$</td> <td>11.76</td> <td>21</td> </tr> <tr> <td>NO₃</td> <td>482</td> <td>$(482/10.04)(100) = 4.82E4$</td> <td>3.47</td> <td>231</td> </tr> <tr> <td>SO₄</td> <td>56.3</td> <td>$(56.3/10.04)(100) = 5.63E3$</td> <td>5.36</td> <td>21</td> </tr> <tr> <td>Si</td> <td>277</td> <td>$(277/10.04)(100) = 2.77E4$</td> <td>9.06</td> <td>21</td> </tr> </tbody> </table>					Anion	Result	ug/g	Relative Difference	DF	F	65.3 ppm	$(65.3/10.04)(100) = 6.52E3$	1.52	231	Cl	9.0	$(9.0/10.04)(100) = 8.96E2$	4.63	21	NO ₂	112	$(112/10.04)(100) = 1.12E4$	11.76	21	NO ₃	482	$(482/10.04)(100) = 4.82E4$	3.47	231	SO ₄	56.3	$(56.3/10.04)(100) = 5.63E3$	5.36	21	Si	277	$(277/10.04)(100) = 2.77E4$	9.06	21
Anion	Result	ug/g	Relative Difference	DF																																			
F	65.3 ppm	$(65.3/10.04)(100) = 6.52E3$	1.52	231																																			
Cl	9.0	$(9.0/10.04)(100) = 8.96E2$	4.63	21																																			
NO ₂	112	$(112/10.04)(100) = 1.12E4$	11.76	21																																			
NO ₃	482	$(482/10.04)(100) = 4.82E4$	3.47	231																																			
SO ₄	56.3	$(56.3/10.04)(100) = 5.63E3$	5.36	21																																			
Si	277	$(277/10.04)(100) = 2.77E4$	9.06	21																																			
Analyst - 1 R. L. Lark	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5																																			
Hrs	Hrs	Hrs	Hrs	Hrs																																			
Date 6-27-92	Time Completed 11:55	Lab Unit Mgr D. J. Lark	Signature D. J. Lark																																				
54-6800-061 (R-10-93)																																							

Serial No R 1753--7871	Sample Point BY-104	Date 6-18-92	Time Issued 13:20	Priority 25
Determination IC	Method/Standard 1A-533-105	Result Units % RECOVERY	Charge Code 1123.5	Reruns 0
Sample Size 0	Customer ID R5684429			
<p>Remarks, Calculations, Results</p> <p>SAMPLE SPIKE ID</p> <p>SPIKE ID 73CUCF</p> <p>SPIKE VOLUME 0.10 mL</p> <p>73CUCF on back</p>				
Analyst - 1 R. L. Lark	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 6-27-92	Time Completed 11:55	Lab Unit Mgr D. J. Lark	Signature D. J. Lark	
54-6800-061 (R-10-93)				

$$F = ((313.0 - 44.5) / (0.1)(4.5) / (23)) / (14.5) \times 100 = 107.2$$

$$C1 = ((40.0 - 19.5) / (0.1)(3.7) / (21)) / (10.5) \times 100 = 116.2$$

$$C2 = ((256 - 126) / (0.1)(5.7) / (21)) / (10.5) \times 100 = 47.2$$

$$C3 = ((606 - 499) / (0.1)(4.8) / (23)) / (11.0) \times 100 = 107.2$$

$$C4 = ((151 - 59.4) / (0.1)(5.96) / (21)) / (10.5) \times 100 = 102.2$$

$$C5 = ((399 - 253) / (0.1)(4.1) / (21)) / (10.5) \times 100 = 105.2$$

0 0 7 4 0

811

R1753-7971

54-6800-061 (P-10-5)

Serial No	F 17541-7871		Sample Point		Date		6-18-92		Time Issued		1:5:22	Priority	25
Identification	Method/Standard		Result Units		Charge Code		H233L		Customer ID		Returns		
IC	1.0-533-105		100/0 POC		H233L		H233L		Customer ID		Returns		
Sample Size		Remarks, Calculations, Results.											
<p> DUPLICATE SAMPLE GOOD Result 0488-9.92 106 9.67 1.18 6.55 45.9 451 Analysis - 1 Analysis - 2 Analysis - 3 Analysis - 4 Analysis - 5 His His His His His Lab Unit Mgr 54-6800-061 JR-10-131 </p>													

WMC-SD-WM-TI-540, REV. 1

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

[illegible]

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1739 -5511	RY-104	6-10-92	9:40	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	% RECOVERY	W333	0
Sample Size	Customer ID			
11.50mg	STO 27C118U			
Remarks, Calculations, Results:				
Exotherm OK

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
9-11-92	1300

54-6800-064 (R-10-83)

Serial No.	Sample Point	Date	Time Issued	Priority
R 1740 -5711	RY-104	6-10-92	9:40	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	W333	0
Sample Size	Customer ID			
11.74mg	ES08426			
Remarks, Calculations, Results:				
Exotherm 31°C to 43°C, 100.8 J/g				
Endotherm 45°C to 108°C, 48.7 J/g

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
9-11-92	1300

54-6800-064 (R-10-83)

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1740.-581T	81-104	6-18-92	8:48	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
DSC	LA-514-113	EXOTHERMS	N2331	0
Sample Size			Customer ID	
15.22mg			R564426	
Remarks, Calculations, Results				
<p>DUPLICATE SAMPLE</p> <p>Exotherm 316°C to 443°C, 105 J/g</p> <p>Endotherm 46°C to 174°C, 479 J/g</p> <p><i>[Signature]</i></p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
0				
Hrs	Hrs	Hrs	Hrs	Hrs
0				
Date	Time Completed	Lab Unit Mgr		
6-9-92	1300	(Verise) J. Kent	Jean Hopkins	

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

MHC-SD-WM-TI-540, REV. 1

Serial No R 1749	Sample Point M-104	Date 6 18 92	Time Issued 8:51	Priority 25
Determination TGA	Method/Standard LA-560-112	Result Units % RECOVERY	Charge Code 1123SL	Retuns 0
Sample Size 17.86mg		Customer ID 511 111110		
<p>Remarks, Calculations, Results</p> <p>Result: 59.7 % H₂O</p> <p>Std Value: 59.52H₂O</p> <p>Recovery: 100.3 %</p> <p>ROBERT WENDLAND</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Hrs	Hrs	Hrs	Hrs
Date 7-26-92	Time Completed 15:00	Lab Unit Mgr Denise J. West	<p>Signature: Denise J. West</p> <p>54-6800-061 (R-10-83)</p>	

Serial No R 1749	Sample Point M-104	Date 6 18 92	Time Issued 8:51	Priority 25
Determination TGA	Method/Standard LA-560-112	Result Units % 11211	Charge Code 1123SL	Retuns 0
Sample Size 12.52mg		Customer ID R5144426		
<p>Remarks, Calculations, Results</p> <p>60% water = 20.3 %</p> <p>Additional 2.9% wt. lost due to chemical rxn between 115 and 292°C and another 2.9% lost from chemical rxn at 292 and 421°C.</p> <p>ROBERT WENDLAND</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Hrs	Hrs	Hrs	Hrs
Date 7-26-92	Time Completed 15:00	Lab Unit Mgr Denise J. West	<p>Signature: Denise J. West</p> <p>54-6800-061 (R-10-83)</p>	

WHC-SD-WM-TI-540, REV. 1

Serial No R 1744, 15A12	Sample Point BY-104	Date 6-18-92	Time Issued 8:51	Priority 25
Determination 11A	Method/Standard LA-560-112	Result Units % H ₂ O	Charge Code H233L	Reruns 0
Sample Size 23.60mg			Customer ID RSM426	
Remarks, Calculations, Results DUPLICATE SAMPLE 20.12 water 0.99% relative difference ROBBY WENDLAND				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-26-92	Time Completed 15:00	Lab Unit Mgr Dennis J. West		

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

Serial No R 1745, 5A12	Sample Point BY-104	Date 6-18-92	Time Issued 8:53	Priority 25
Determination 11A	Method/Standard LA-560-112	Result Units % H ₂ O	Charge Code H233L	Reruns 0
Sample Size 25.48			Customer ID RSM426	
Remarks, Calculations, Results 19.62 water 21% relative difference ROBBY WENDLAND				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-26-92	Time Completed 15:00	Lab Unit Mgr Dennis J. West		

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1745-5812	Sample Point B1-104	Date 6-18-92	Time Issued 8:53	Priority 25
Determination TOA	Method/Standard LA-560-112	Result Units % H2O	Charge Code H2331	Reruns 0
Sample Size 20.36 mg			Customer ID R560426	
Remarks, Calculations, Results DUPLICATE SAMPLE 24.2% water ROBBY WENDLAND				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-26-92	Time Completed 15:00	Lab Unit Mgr James L. Finley		

54-6800-061 (10-83)

Serial No R 1746-5712	Sample Point B1-104	Date 6-18-92	Time Issued 8:53	Priority 25
Determination TOA	Method/Standard LA-560-112	Result Units % H2O	Charge Code H2331	Reruns 0
Sample Size 26.93 mg			Customer ID R560426	
Remarks, Calculations, Results 22.4% water ROBBY WENDLAND				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-26-92	Time Completed 15:00	Lab Unit Mgr Denise J. West James L. Finley		

54-6800-061 (10-83)

WHC-SD-WM-TI-540, REV. 1

Serial No R 1742, 5/12	Sample Point R1 103	Date 6-18-92	Time Issued 8:42	Priority 25
Determination IGA	Method/Standard LA-560-112	Result Units % RECOVER	Charge Code H2331	Reruns 0
Sample Size 00 102			Customer ID SID 1011A0	
Remarks, Calculations, Results Result: 57.4 Std Value: 59.5 % recovery: 96.5 RUSH				
Analyst - 1 <i>[Signature]</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 6/30/92	Time Completed 13:00	Lab Unit Mgr <i>[Signature]</i>		

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

Serial No R 1742, 5/12	Sample Point R1 103	Date 6-18-92	Time Issued 8:50	Priority 25
Determination IGA	Method/Standard LA-560-112	Result Units % H2O	Charge Code H2331	Reruns 0
Sample Size 18.465 mg			Customer ID RSC4424	
Remarks, Calculations, Results 14.4 % water lost up to 154°C. Additional weight lost up to about 440°C. RUSH				
Analyst - 1 <i>[Signature]</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 6/30/92	Time Completed 13:00	Lab Unit Mgr <i>[Signature]</i>		

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1740.-5712	Sample Point RY-104	Date 6-18-92	Time Issued 8:48	Priority 25
Determination TGA	Method/Standard LA-560-112	Result Units % H ₂ O	Charge Code H2331	Reruns 0
Sample Size 16.758 mg			Customer ID RGAH426	
Remarks, Calculations, Results <p>c20.99% water</p> <p>RUSH</p> <p>additional weight lost due to chemical rxns up to 420°C</p>				
Analyst - 1 <i>P. P. P.</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7/30/92	Time Completed 13:00	Lab Unit Mgr <i>A. Denise J. West</i>		

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

Serial No R 1740.-5812	Sample Point RY-104	Date 6-18-92	Time Issued 8:48	Priority 25
Determination TGA	Method/Standard LA-560-112	Result Units % H ₂ O	Charge Code H2331	Reruns 0
Sample Size 8.859 mg			Customer ID RGAH426	
Remarks, Calculations, Results <p>DUPLICATE SAMPLE</p> <p>19.8% water</p> <p>RUSH</p> <p>Additional weight lost up to 420°C.</p> <p>5.7% relative difference</p>				
Analyst - 1 <i>P. P. P.</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7/30/92	Time Completed 13:00	Lab Unit Mgr <i>A. Denise J. West</i>		

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1741-5712	Sample Point BT-104	Date 6-18-92	Time Issued 8:49	Priority 25
Determination TGA	Method/Standard LA-560-112	Result Units % H ₂ O	Charge Code H2331	Reruns 0
Sample Size 30.121 mg			Customer ID R5AH426	
Remarks, Calculations, Results 17.3% water lost. Water loss RUSH Tends at about 151°C. Additional 23.1% wt lost up to about 440°C.				
Analyst - 1 <i>[Signature]</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7/30/92	Time Completed 13:00	Lab Unit Mgr <i>[Signature]</i>		

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

Serial No R 1741-5812	Sample Point BT-104	Date 6-18-92	Time Issued 8:49	Priority 25
Determination TGA	Method/Standard LA-560-112	Result Units % H ₂ O	Charge Code H2331	Reruns 0
Sample Size 21.340 mg			Customer ID R5AH426	
Remarks, Calculations, Results DUPLICATE SAMPLE 18.1% water lost up to 157°C. RUSH 4.5% relative difference				
Analyst - 1 <i>[Signature]</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7/30/92	Time Completed 13:00	Lab Unit Mgr <i>[Signature]</i>		

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1742--5812		Sample Point RY-104		Date 6-18-92	Time Issued 8:50	Priority 25
Determination TBA	Method/Standard LA-560-112		Result Units % H ₂ O	Charge Code H2331	Reruns 0	
Sample Size 2.24.18mg			Customer ID R507426			
Remarks, Calculations, Results <p>DUPLICATE SAMPLE</p> <p>16.5 % water lost up to 151°C</p> <p>Additional 17.4 % weight lost up to 440°C</p> <p>13.6% relative difference</p> <p>RUSH</p>						
Analyst - 1 <i>[Signature]</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5		
Hrs	Hrs	Hrs	Hrs	Hrs		
Date 5/30/92	Time Completed		Lab Unit Mgr <i>[Signature]</i>	<i>[Signature]</i>		

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

WHC-SD-WM-TI-540:REV.1

Serial No	Sample Point	Date	Time Issued	Priority																												
Determination # 757	Method/Standard	Result Units 6 10 97	Charge Code	Refills																												
TC	LA 533 105	% RECOVERY	Customer ID																													
Sample Size	STD																															
<p>2 0.250 mL - 10.0 mL</p> <p>Remarks, Calculations, Results</p> <table border="1"> <thead> <tr> <th>Anion</th> <th>Results (ppm)</th> <th>STD Value</th> <th>% Rec.</th> </tr> </thead> <tbody> <tr> <td>F</td> <td>53.0</td> <td>56</td> <td>94.6</td> </tr> <tr> <td>Cl</td> <td>77.1</td> <td>75</td> <td>103</td> </tr> <tr> <td>NO₂</td> <td>504</td> <td>507</td> <td>99.4</td> </tr> <tr> <td>NO₃</td> <td>586</td> <td>578</td> <td>101</td> </tr> <tr> <td>PO₄</td> <td>532</td> <td>516</td> <td>103</td> </tr> <tr> <td>SO₄</td> <td>609</td> <td>603</td> <td>101</td> </tr> </tbody> </table> <p>EDF 974 F EDF 972 CL EDF 970 SO₄ EDF 968 NO₂ EDF 976 PO₄ EDF 978 NO₃ STD# 72 Chem RESULT STD VAL %REC</p>					Anion	Results (ppm)	STD Value	% Rec.	F	53.0	56	94.6	Cl	77.1	75	103	NO ₂	504	507	99.4	NO ₃	586	578	101	PO ₄	532	516	103	SO ₄	609	603	101
Anion	Results (ppm)	STD Value	% Rec.																													
F	53.0	56	94.6																													
Cl	77.1	75	103																													
NO ₂	504	507	99.4																													
NO ₃	586	578	101																													
PO ₄	532	516	103																													
SO ₄	609	603	101																													
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5																												
Hrs	Hrs	Hrs	Hrs	Hrs																												
Date	Time Completed	Lab Unit Mgr																														
9-16-92	16:23	Denise Hunt																														

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

BEST AVAILABLE COPY

Serial No	Sample Point	Date	Time Issued	Priority														
Determination # 7671	Method/Standard	Result Units 6 10 92	Charge Code	Refills														
Sample Size	LA 533 105	PPM	Customer ID															
<p>Direct</p> <p>Remarks, Calculations, Results</p> <table border="1"> <thead> <tr> <th>Anions</th> <th>Results (ppm)</th> </tr> </thead> <tbody> <tr> <td>F</td> <td><0.1</td> </tr> <tr> <td>Cl</td> <td><0.1</td> </tr> <tr> <td>NO₂</td> <td><1.0</td> </tr> <tr> <td>NO₃</td> <td><1.0</td> </tr> <tr> <td>PO₄</td> <td><1.0</td> </tr> <tr> <td>SO₄</td> <td><1.0</td> </tr> </tbody> </table> <p>REAGENT BLANK 9-16-92</p>					Anions	Results (ppm)	F	<0.1	Cl	<0.1	NO ₂	<1.0	NO ₃	<1.0	PO ₄	<1.0	SO ₄	<1.0
Anions	Results (ppm)																	
F	<0.1																	
Cl	<0.1																	
NO ₂	<1.0																	
NO ₃	<1.0																	
PO ₄	<1.0																	
SO ₄	<1.0																	
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5														
Hrs	Hrs	Hrs	Hrs	Hrs														
Date	Time Completed	Lab Unit Mgr																
9-16-92	16:23	Denise Hunt																

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

822

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
Determination # 771	Method Standard 104	Result Units 6-18-92	Charge Code 0	Results
Sample Size 0.25 mL - 10.0 mL	LA 533-105	ug/g rec	Custom 10	1
Remarks, Calculations, Results				
Anion	Result (ppm)	Result to calc. 120-100	RSA#429	
F	86.1	8.60E3		
Cl	23.9	2.39E3		
NO ₂	229	2.29E4		
NO ₃	504.8	5.05E4		
PO ₄	74.4	7.44E3		
SO ₄	283	2.83E4		
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
0				
Date 9-16-92	Time Completed 16:23	Lab Unit Mgr Denise J. Hart	E. King	
54-6800-061 (R-10-83)				

Serial No	Sample Point	Date	Time Issued	Priority
Determination # 787	Method Standard 104	Result Units 6-18-92	Charge Code 0	Results
Sample Size 0.25 mL - 10.0 mL	LA 533-105	ug/g rec	Custom 10	1
Remarks, Calculations, Results				
Anion	Result (ppm)	kg/g	RSA#429 RPD	
F	90.1	9.01E3	4.702	
Cl	21.0	2.10E3	12.92	
NO ₂	248	2.48E4	7.972	
NO ₃	523	5.23E4	3.502	
PO ₄	91.0	9.10E3	20.12	
SO ₄	268	2.68E4	1.752	
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 9/16/92	Time Completed 16:23	Lab Unit Mgr Denise J. Hart	E. King	
54-6800-061 (R-10-83)				

WHC-SD-WM-TI-540, REV. 1

Serial No R 1739--5511	Sample Point U-104	Date 5-18-92	Time Issued 8:47	Priority 25
Determination DSC	Method/Standard LG-514-113	Result Units % RECOVERY	Charge Code N233L	Reruns 0
Sample Size 11.50 mg			Customer ID 510	
Remarks, Calculations, Results Exotherm ok				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-23-92	Time Completed 1500	Lab Unit Mgr Denise J. Hart		

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

Serial No R 1740--5711	Sample Point U-104	Date 5-18-92	Time Issued 8:48	Priority 25
Determination DSC	Method/Standard LG-514-113	Result Units EXOTHERMS	Charge Code N233L	Reruns 0
Sample Size 11.74 mg			Customer ID RGA8426	
Remarks, Calculations, Results Energy exotherm 207°C - 270°C and 238°C - 450°C Energy Value: 43.4 J/g 100.7 J/g				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-23-92	Time Completed 1500	Lab Unit Mgr Denise J. Hart		

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

WHC-SD-WM-TI-540.REV.1

Serial No. R 1744 -5711	Sample Point RY-104	Date 6-18-92	Time Issued 8:51	Priority 25
Determination DSC	Method/Standard LA-514-113	Result Units EXOTHERMS	Charge Code N2331	Reruns 0
Sample Size 22.074 mg			Customer ID RSG4426	
Remarks, Calculations, Results Exotherm between 357 C and 433 C Energy 43.2 J/g paste like rocks S/Cobb				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 07-10-92	Time Completed 15:00	Lab Unit Mgr Denise J. Vert		

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

Serial No. R 1740 -5811	Sample Point RY-104	Date 6-18-92	Time Issued 8:48	Priority 25
Determination DSC	Method/Standard LA-514-113	Result Units EXOTHERMS	Charge Code N2331	Reruns 0
Sample Size 5.22 mg			Customer ID RSG4426	
Remarks, Calculations, Results DUPLICATE SAMPLE Energy Exotherm 207°C - 272°C + 238°C - 452°C Energy: 113.4 J/g Value				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-23-92	Time Completed	Lab Unit Mgr Denise J. Vert		

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1744.-5811	Sample Point BY-104	Date 6-18-92	Time Issued 8:51	Priority 25
Determination DSC	Method/Standard LA-514-113	Result Units EXOTHERMS	Charge Code H2331	Reruns 0
Sample Size 21.117 mg			Customer ID KSAH426	
Remarks, Calculations, Results DUPLICATE SAMPLE Exotherm between 378 C & 441 C. Energy 36.1 J/g S.C. Cobb				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 07-10-92	Time Completed 15:00	Lab Unit Mgr Denise J. Hart		

54-6800-061 (R 10-83)

Serial No. R 1745.-5711	Sample Point BY-104	Date 6-18-92	Time Issued 8:53	Priority 25
Determination DSC	Method/Standard LA-514-113	Result Units EXOTHERMS	Charge Code H2331	Reruns 0
Sample Size 19.705 mg			Customer ID KSAH426	
Remarks, Calculations, Results Exotherm between 358 C & 441 C Energy 23.5 J/g S.C. Cobb				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 07-10-92	Time Completed 15:00	Lab Unit Mgr Denise J. Hart		

54-6800-061 (R 10-83)

WHC-SD-WM-TI-540, REV. 1

Serial No R 1745--5811	Sample Point BY-104	Date 6-18-92	Time Issued 8:53	Priority 25
Determination DSC	Method/Standard LA-514-113	Result Units EXOTHERMS	Charge Code H2331	Reruns 0
Sample Size 217.392 mg			Customer ID LSM8426	
Remarks, Calculations, Results DUPLICATE SAMPLE Energy exotherm between 379C + 439C Energy = 38.2 J/g paste like rocks SCCabb				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 07-10-92	Time Completed 15:00	Lab Unit Mgr Denise J. West Teresa L. Frazier 54-6800-061 (R-10-83)		

Serial No R 1743--5511	Sample Point BY-103	Date 6-18-92	Time Issued 8:51	Priority 25
Determination DSC	Method/Standard LA-514-113	Result Units % RECOVERY	Charge Code H2331	Reruns 0
Sample Size 13.117 mg (10ul)			Customer ID SID	
Remarks, Calculations, Results Exotherm OK SLCabb				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 07-10-92	Time Completed 15:00	Lab Unit Mgr Denise J. West Teresa L. Frazier 54-6800-061 (R-10-83)		

NHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1736--5510	BY-104	6-18-92	8:33	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
% H2O	LA-564-101	% RECOVERY	N233L	0
Sample Size	Customer ID			
1 ml	SID			
Remarks, Calculations, Results				
<p>5360 VERLID</p> <p>6408/1011-A0 RESULT 58.91%</p> <p>SJD VAL 59.49% , REC 99.03</p> <p>58.91% 59.49% x 100% = 99.03% RECOVERY</p> <p>SLCobb</p> <p>58.91% 59.49% x 100% = 99.03% RECOVERY</p> <p>58.66% Avg. 59.16%</p> <p>58.91%</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
06-28-92	13:00	J. S. Lachut	Emery	

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

Serial No.	Sample Point	Date	Time Issued	Priority
R 1737--5710	BY-104	6-18-92	8:36	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
% H2O	LA-564-101	% H2O	N233L	0
Sample Size	Customer ID			
35	R568425			
Remarks, Calculations, Results				
<p>R 1737 (200) - 16.9409 g.</p> <p>R 1737a (201) - 17.1218 g.</p> <p>19.1446g 17.1218g 2.0228g</p> <p>18.1446g 18.8434g 0.3012g</p> <p>0.3012g 2.0228g x 100% = 14.89%</p> <p>SLCobb</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
06-28-92	13:00	J. S. Lachut	Emery	

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

00000347059

<u>STD 1</u>	<u>wt</u>	<u>STD 2</u>
18.7937	1	18.6897
20.1189	2	20.0573
19.3469	3	19.2528 #8-15-92
19.3415	4	19.2482

R1736-5510

00000349061

17.1218
~~#8~~
 SC 06-28-92
 19.1446
 18.8430
 18.8434

829

R1737-5110

WHC-SD-WM-TI-540, REV. 1

Serial No R 1738--5810	Sample Point BY-104	Date 6-18-92	Time Issued 8:36	Priority 25
Determination % H2O	Method/Standard LA-564-101	Result Units % H2O	Charge Code H2531	Reruns 0
Sample Size 2			Customer ID RSGM425	
<p>Remarks, Calculations, Results</p> <div style="display: flex; justify-content: space-around;"> <div> $\begin{array}{r} 18.5586 \\ 16.9409 \\ \hline 1.6177 \end{array}$ </div> <div> $\begin{array}{r} 18.5586 \\ 18.3108 \\ \hline 0.2478 \end{array}$ </div> </div> <p>$\frac{0.2478}{1.6177} \times 100\% = 15.32\%$</p> <p>SL Cobb</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 06-28-92	Time Completed 13:00	Lab Unit Mgr J. S. Lachut	6/29/92 54-6800-061 (R-10/83)	

Serial No R 1738--5810	Sample Point BY-104	Date 6-18-92	Time Issued 8:39	Priority 25
Determination % H2O	Method/Standard LA-564-101	Result Units % H2O	Charge Code H2531	Reruns 0
Sample Size 4			Customer ID RSGM425	
<p>Remarks, Calculations, Results</p> <div style="display: flex; justify-content: space-around;"> <div> $\begin{array}{r} 19.8522 \\ 17.0779 \\ \hline 2.7743 \end{array}$ </div> <div> $\begin{array}{r} 19.8522 \\ 19.3820 \\ \hline 0.4702 \end{array}$ </div> </div> <p>$\frac{0.4702}{2.7743} \times 100\% = 16.95\%$</p> <p>SL Cobb</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 06-28-92	Time Completed 13:00	Lab Unit Mgr J. S. Lachut	6/29/92 54-6800-061 (R-10/83)	

WHC-SD-WM-TI-540, REV. 1

16.9409
18.5586
18.3104
18.3108

0 0 9 0 0 0 4 7 0 6 3

R1737-5810

17.0779
19.8522
19.3809
19.3820

0 0 9 0 0 0 4 7 0 6 5

831 R1738-5710

WHC-SD-WM-TI-540.REV.1

Serial No P 1738-5810	Sample Point HY 104	Date 6 18 92	Time Issued 8:30	Priority 25
Determination 1 % H2O	Method/Standard LA-564-101	Result Units % H2O	Charge Code H2531	Reruns 0
Sample Size ?	Customer ID K544425			
<p>Remarks, Calculations, Results</p> <p> $\begin{array}{r} 19.7240g \\ 17.3962g \\ \hline 2.3278g \end{array}$ $\begin{array}{r} 19.7240g \\ 19.3240g \\ \hline 0.4000g \end{array}$ $\frac{0.4000g}{2.3278g} \times 100\% = 17.18\%$ </p> <p>SL Cobb</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 06-28-92	Time Completed 13:00	Lab Unit Mgr J. S. Lachut	<p>6/29/92</p> <p><i>[Signature]</i></p>	

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

Serial No P 1738-5470	Sample Point HY 104	Date 6 18 92	Time Issued 8:30	Priority 25
Determination CN	Method/Standard LA-565-102	Result Units PPM	Charge Code H2531	Reruns 0
Sample Size 4 ML	Customer ID K544425			
<p>Remarks, Calculations, Results</p> <p>4 ML EDTA/ETHYLENE DIAMINE/H₂O MIXTURE</p> <p>ABS = 0.025</p> <p>REAGENT BLANK</p> <p> $\frac{0.025 - 0.01002}{0.162679} = 0.092 \mu g \text{ CN} = 10.1 \mu g$ $\frac{10.1 \mu g}{5 ml} = 2.02 \text{ PPM}$ </p> <p>J. S. Lachut</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 9/8/92	Time Completed 1430	Lab Unit Mgr J. S. Lachut	<p>9/18/92</p> <p><i>[Signature]</i></p>	

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

832

WHC-SD-WM-TI-540, REV. 1

0 2 3 0 0 9 4 7 0 6 7

17.3962

19.7240

19.3233

19.3240

R1738-5810

.833

Att: Jim Lachut

WHC-SD-WM-TI-540.REV.1

Serial No	Sample Point	Date	Time Issued	Priority
R 1734-5728	11Y-100	9-10-92	8:15	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	9-1-92	PPM	11234	2
Sample Size	Customer ID			
0.0078 grams	RSGH324			
Remarks, Calculations, Results				
Use PCA SL-00094 Abs. = 0.129				
$\frac{(0.129 - 0.025) - 0.01002}{0.162679} = 0.578 \mu\text{g CN}^-$ $\frac{0.578 \mu\text{g CN}^-}{0.0078 \text{ g}} = 74.1 \text{ ppm}$				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr	9/10/92	
9/8/92	1430	J. S. Lachut	E. Lachut	

54-6800-061 (R-10-03)

Serial No	Sample Point	Date	Time Issued	Priority
R 1734-5728	11Y-100	9-10-92	8:15	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-625-102	PPM	11234	2
Sample Size	Customer ID			
0.0105 grams	RSGH324			
Remarks, Calculations, Results				
Abs. = 0.145				
DUPLICATE SAMPLE				
$\frac{(0.145 - 0.025) - 0.01002}{0.162679} = 0.676 \mu\text{g CN}^-$ $\frac{0.676 \mu\text{g CN}^-}{0.0105 \text{ g}} = 64.4 \text{ ppm CN}^-$				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr	9/10/92	
9/8/92	1430	J. S. Lachut	E. Lachut	

54-6800-061 (R-10-03)

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1734-5778	RT-104	6-18-92	8:16	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-10%	% RECOVERY	H2331	2
Sample Size			Customer ID	
0.0101 grams + 0.1 mL - 10 mL - 0.5 mL SPIKE			RGAH424	
Remarks, Calculations, Results				
<p>SAMPLE SPIKED TO SPIKE ID 75CHAE = 892 ppm SPIKE VOLUME 0.5 mL</p> <p> $\frac{(0.658 - 0.025) - 0.01002}{0.162679} = 3.83 \mu\text{g CN}$ $\frac{3.83 \mu\text{g CN} - 0.748 \mu\text{g CN}}{4.46 \mu\text{g CN}} \times 100\% = 69.1\% \text{ RECOVERY}$ </p> <p> $\frac{0.578 \mu\text{g CN}}{0.0078 \text{ g}} = \frac{x}{0.0101 \text{ g}}$ $x = 0.748 \mu\text{g CN}$ </p> <p> $\frac{892 \text{ ppm} \times 0.5 \text{ mL}}{100} = 4.46 \mu\text{g CN}$ </p> <p> $\frac{0.578 \mu\text{g CN}}{0.0078 \text{ g}} = \frac{x}{0.0101 \text{ g}}$ $x = 0.748 \mu\text{g CN}$ </p> <p> $\frac{892 \text{ ppm} \times 0.5 \text{ mL}}{100} = 4.46 \mu\text{g CN}$ </p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Date	Time Completed	Lab Unit Mgr	54-6800-061 (R-10-83)	
9/8/92	1430	J. S. Lachut		

Serial No	Sample Point	Date	Time Issued	Priority
R 1735-5778	RT-104	6-18-92	8:18	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-10%	PPH	H2331	2
Sample Size			Customer ID	
0.0078 grams			RGAH424	
Remarks, Calculations, Results				
<p> $\frac{(0.130 - 0.025) - 0.01002}{0.162679} = 0.584 \mu\text{g CN}$ $\frac{0.584 \mu\text{g CN}}{0.0078 \text{ g}} = 74.9 \text{ ppm CN}$ </p> <p> $\frac{0.130 - 0.025}{0.162679} = 0.584 \mu\text{g CN}$ </p> <p> $\frac{0.584 \mu\text{g CN}}{0.0078 \text{ g}} = 74.9 \text{ ppm CN}$ </p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Date	Time Completed	Lab Unit Mgr	54-6800-061 (R-10-83)	
9/8/92	1430	J. S. Lachut		

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1735-5577	RY-104	4-18-92	8:18	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	1 G-695-102	PPM	11234	0
Sample Size			Customer ID	
0.1 mL - 1.0 mL - 0.5 mL			ESM424	
Remarks, Calculations, Results				
<p>8244 KCN STD# 75C11-AE RESULT 806 ppm STD VAL 892 PPM (REC 90.4)</p> <p> $\frac{(0.691 - 0.025) - 0.01002}{0.162679} = 4.03 \mu\text{g CN}^-$ $\frac{806 \text{ ppm}}{892 \text{ ppm}} \times 100\% = 90.4\% \text{ RECOVERY}$ </p> <p> $\frac{4.03 \mu\text{g CN}^-}{0.5 \text{ mL}} \times 100 = 806 \text{ ppm}$ </p> <p>ABS. = 0.691 BLANK = 0.025 D.F. = $\frac{1.0 \text{ mL}}{0.1 \text{ mL}} = 100$</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
J. S. Lachut				
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
4/8/92	1430	J. S. Lachut		

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1735-5878	RY-104	4-18-92	8:18	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	1 G-695-102	PPM	11234	0
Sample Size			Customer ID	
0.0049 grams			ESM424	
Remarks, Calculations, Results				
<p>DUPLICATE SAMPLE</p> <p> $\frac{(0.095 - 0.025) - 0.01002}{0.162679} = 0.369 \mu\text{g CN}^-$ $\frac{0.369 \mu\text{g CN}^-}{0.0049 \text{ g}} = 75.3 \text{ PPM CN}^-$ </p> <p>ABS. = 0.095 BLANK = 0.025</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
J. S. Lachut				
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
4/8/92	1430	J. S. Lachut		

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

WHC-SD-WM-TI-540.REV.1

Serial No	Sample Point	Date	Time Issued	Priority
R 1732.-5578	BY-104	6-18-92	8:15	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	% RECOVERY	N233L	1
Sample Size	Customer ID			
100 ul - 10 ml - 500 ul	STD			
Remarks, Calculations, Results				
<p>2244 KCN $DF = \frac{10 \text{ mL}}{0.1 \text{ mL}} = 100$ RERUN</p> <p>STD# 75C II AD RESULT 8.89E2 ppm .738</p> <p>STD VAL 9.0000E2 ppm %REC (98.8%) Blank = .005</p> <p>$(.738 - .005) \div .010020 = 4.444 \text{ mg CN}^-$</p> <p>$\frac{4.444 \text{ mg} \times 100}{.5 \text{ mL}} = 889 \text{ mg CN}^-/\text{mL} = 8.89 \text{ E2 ppm}$ %Rec = $\frac{889}{900} \times 100 = 98.8\%$</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
7-28-92	13:30	D Y Bisenius		

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1733.-5678	BY-104	6-18-92	8:16	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	PPM	N233L	1
Sample Size	Customer ID			
5 ml	BLK			
Remarks, Calculations, Results				
<p>REAGENT BLANK $\frac{<0.1 \text{ mg CN}^-}{5 \text{ mL}} = <2 \text{ E-2 ppm}$ RERUN</p> <p>.005 - .010020 $\div .162679 = -.03086 \text{ mg CN}^- = <0.1 \text{ mg CN}^-$.005</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
7-28-92	13:30	D Y Bisenius		

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

WHC-SD-WM-TI-540.REV.1

Serial No R 1734.-5778	Sample Point BY-104	Date 6-18-92	Time Issued 8:16	Priority 25
Determination CN	Method/Standard LA-695-102	Result Units PPM	Charge Code N233L	Reruns 1
Sample Size 0.0224 grams			Customer ID RSAH424	
<p>Remarks, Calculations, Results</p> <p>RERUN</p> <p>$\frac{.965 \mu\text{g CN}^-}{.0224 \text{ g rec}} = 43.08 \mu\text{g CN}^-/\text{g rec}$ $= 4.308 \text{ EI PPM}$</p> <p>$\frac{(.172 - .005) - .010020}{.162679} = .965 \mu\text{g CN}^-$</p> <p>Blank = .005</p>				
Analyst - 2		Analyst - 3	Analyst - 4	Analyst - 5
Hrs		Hrs	Hrs	Hrs
Date 7-28-92	Time Completed 13:30	Lab Unit Mgr D Y Bisenius		

54-6000-061 (R-10-83)

Serial No R 1734.-5978	Sample Point BY-104	Date 6-18-92	Time Issued 8:16	Priority 25
Determination CN	Method/Standard LA-695-102	Result Units % RECOVERY	Charge Code N233L	Reruns 1
Sample Size 0.0248 grams			Customer ID RSAH424	
<p>Remarks, Calculations, Results</p> <p>RERUN</p> <p>SAMPLE SPIKED TO R 1734 SPIKE ID 75C11AD SPIKE VOLUME 100ul - 10ml - 500ul</p> <p>$DF = \frac{10 \text{ mL}}{0.1 \text{ mL}} = 100$</p> <p>Blank = .005</p> <p>Sample = .965 $\mu\text{g CN}^-$ sample + spike = $\frac{(927 - .005) - .010020}{.162679} = 5.606 \mu\text{g CN}^-$</p> <p>$\% \text{ Rec} = 103.1\%$ Spike = $\frac{900 \mu\text{g/mL} \times .5 \text{ mL}}{100} = 4.50 \mu\text{g CN}^-$</p> <p>over</p>				
Analyst - 2		Analyst - 3	Analyst - 4	Analyst - 5
Hrs		Hrs	Hrs	Hrs
Date 7-28-92	Time Completed 13:30	Lab Unit Mgr D Y Bisenius		

54-6000-061 (R-10-83)

WHC-SD-WM-TI-540, REV. 1

$$\% \text{ Rec spike} = 100 \times \frac{[5.606 - .965]}{4.50} = 103.1\%$$

R1734-5918

WHC-SD-WM-TI-540-REV. 1

Serial No R 1734--5878	Sample Point BY-104	Date 6-18-92	Time Issued 8:16	Priority 25
Determination CN	Method/Standard LA-695-102	Result Units PPM	Charge Code N233L	Reruns 1
Sample Size ? .0265 grams			Customer ID RSAH424	
Remarks, Calculations, Results DUPLICATE SAMPLE $\frac{1.131 \mu\text{g CN}^-}{.0265 \text{ g rec}} = 42.68 \mu\text{g CN}^-/\text{g rec} = 4.268 \text{ EI PPM}$ $\frac{(.199 - .005) - .010020}{.162679} = 1.131 \mu\text{g CN}^-$ <p style="text-align: right;">RERUN .199 Blank = .005</p>				
Analyst - 2 Analyst - 3 Analyst - 4 Analyst - 5				
Hrs Hrs Hrs Hrs Hrs				
Date 6-28-92	Time Completed 13:30	Lab Unit Mgr D Y Bisenius <i>Jessie L. Francis</i>		

54-6800-001 (R-10-83)

Serial No R 1735--5778	Sample Point BY-104	Date 6-18-92	Time Issued 8:18	Priority 25
Determination CN	Method/Standard LA-695-102	Result Units PPM	Charge Code N233L	Reruns 1
Sample Size ? .0236 grams			Customer ID RSAH424	
Remarks, Calculations, Results $\frac{2.139 \mu\text{g CN}^-}{.0236 \text{ g rec}} = 90.64 \mu\text{g CN}^-/\text{g rec} = 9.064 \text{ EI PPM}$ $\frac{(.363 - .005) - .010020}{.162679} = 2.139 \mu\text{g CN}^-$ <p style="text-align: right;">RERUN .363 Blank = .005</p>				
Analyst - 2 Analyst - 3 Analyst - 4 Analyst - 5				
Hrs Hrs Hrs Hrs Hrs				
Date 6-28-92	Time Completed 13:30	Lab Unit Mgr D Y Bisenius <i>Jessie L. Francis</i>		

54-6800-001 (R-10-83)

WHC-SD-WM-TI-540, REV. 1

Serial No R 1735--5878	Sample Point BY-104	Date 6-18-92	Time Issued 8:18	Priority 25
Determination CN	Method/Standard LA-695-102	Result Units PPM	Charge Code N233L	Reruns 1
Sample Size .0211 grams			Customer ID RSA#424	
Remarks, Calculations, Results DUPLICATE SAMPLE $\frac{1.715 \mu\text{g CN}^-}{.0211 \text{ g rec}} = 81.28 \mu\text{g CN}^-/\text{g rec}$ $= 8.128 \text{ EI PPM}$ $\frac{(.294 - .005) - .010020}{.162679} = 1.715 \mu\text{g CN}^-$ <p style="text-align: right;">RERUN .294</p>				
Analyst - 1 <i>William M. ...</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-28-92	Time Completed 13:30	Lab Unit Mgr <i>D. Y. Bisenius</i>		

54-6800-061 (R 10-83)

Serial No R 1735--5978	Sample Point BY-104	Date 6-18-92	Time Issued 8:18	Priority 25
Determination CN	Method/Standard LA-695-102	Result Units % RECOVERY	Charge Code N233L	Reruns 1
Sample Size .0220 grams			Customer ID RSA#424	
Remarks, Calculations, Results SAMPLE SPIKED ID R1735 SPIKE ID 7SC11AD SPIKE VOLUME 100ul - 10 ml - 50ul $\text{Sample} = 2.139 \mu\text{g CN}^-$ $\text{Sample + spike} = \frac{(6.929 - .005) - .010020}{.162679} = 5.618 \mu\text{g CN}^-$ <p style="text-align: right;">RERUN .929 Blank = .005 Spike = $\frac{100 \mu\text{g/mL} \times 0.5 \text{ mL}}{100} = 4.50 \mu\text{g CN}^-$ over</p>				
Analyst - 1 <i>William M. ...</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-28-92	Time Completed 13:30	Lab Unit Mgr <i>D. Y. Bisenius</i>		

54-6800-061 (R 10-83)

WHC-SD-WM-TI-540.REV.1

$$\% \text{ Rec spike} = 100 \times \frac{[5.618 - 2.139]}{4.50} = 77.31\%$$

.842

R1735-5978

WHC-SD-WM-TI-540, REV. 1

Serial No R 1734--5978	Sample Point HY-104	Date 6-18-92	Time Issued 8:16	Priority 25
Determination CN	Method/Standard LA-695-102	Result Units % RECOVERY	Charge Code H2331	Reruns 0
Sample Size .0202 grams			Customer ID R644124	
<p>Remarks, Calculations, Results</p> <p>SAMPLE SPIKED TO R1734 .959</p> <p>SPIKE TO 75CII AD</p> <p>SPIKE VOLUME 100ul - 10ml - 500ul (%Rec = 114.6%) Blank = .007</p> <p>Sample = .6330 ug CN⁻</p> <p>Sample + spike = $(.959 - .007) - .010020 = 5.790 \text{ ug CN}^-$</p> <p>Spike = $\frac{900 \text{ ug/mL} \times .5 \text{ mL}}{100} = 4.50 \text{ ug CN}^-$ OVER</p>				
Analyst - 2		Analyst - 3	Analyst - 4	Analyst - 5
Hrs		Hrs	Hrs	Hrs
Date 7-20-92	Time Completed	Lab Unit Mgr D.Y. Bisenius		

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

Serial No R 1732--5578	Sample Point HY-104	Date 6-18-92	Time Issued 8:15	Priority 25
Determination CN	Method/Standard LA-695-102	Result Units % RECOVERY	Charge Code H2331	Reruns 0
Sample Size 100ul - 10ml - 500ul			Customer ID STD	
<p>Remarks, Calculations, Results</p> <p>S244 KCN RESULT 9.87E2 ppm</p> <p>STD 75CII AD</p> <p>STD VAL 9.00E2 ppm REC 109.7%</p> <p>$(.820 - .007) - .010020 = 4.936 \text{ ug CN}^-$ %Rec = $\frac{987}{900} \times 100$</p> <p>$\frac{4.936 \text{ ug CN}^-}{.5 \text{ mL}} \times 100 = 987 \text{ ppm}$ %Rec = 109.7%</p>				
Analyst - 2		Analyst - 3	Analyst - 4	Analyst - 5
Hrs		Hrs	Hrs	Hrs
Date 7-20-92	Time Completed 8:43	Lab Unit Mgr D.Y. Bisenius		

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

R1734-5978

844

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1754.-7826	BY-104	6-18-92	13:22	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
LOC	LA-344-105	ug/g rec	H233L	1
Sample Size	Customer ID			
1 mL + 100 mL 5m H ₂ SO ₄ - 200 mL	RSM429			
Remarks, Calculations, Results				
DUPLICATE SAMPLE				

RE RUN

WHC-SD-WM-TI-540, REV. 1

Serial No.	Sample Point	Date	Time Issued	Priority
R 1733-5678	RY-104	6-18-92	8:16	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	PPM	N233L	0
Sample Size	Customer ID			
5 ml Q H ₂ O	BLK			
Remarks, Calculations, Results				
REAGENT BLANK $\frac{< 0.1 \mu\text{g CN}^-}{5 \text{ mL}} = < 2 \text{E-}2 \text{ ppm}$.007 $\frac{.007 - .010020}{.162679} = -.0186 = < 0.1 \mu\text{g CN}^-$				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
7-20-92		DY Bisenius		

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1734-5778	RY-104	6-18-92	8:16	25
Determination	Method/Standard	Result Units	Charge Code	Reruns
CN	LA-695-102	PPM	N233L	0
Sample Size	Customer ID			
.0206 grams	RSAN424			
Remarks, Calculations, Results				
$\frac{.6330 \mu\text{g CN}^-}{.0206 \text{ g}} = 30.73 \mu\text{g/g}$.120 Blank = .007 $(.120 - .007) - .010020 = .102980$ $\frac{.102980}{.162679} = .6330 \mu\text{g CN}^-$ = 3.073 E1 PPM				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
7-20-92		DY Bisenius	.845	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1734-5878	Sample Point RY-104	Date 6-18-92	Time Issued 8:15	Priority 25
Determination CH	Method/Standard LA-695-102	Result Units PPM	Charge Code H2331	Reruns 0
Sample Size .0205 grams			Customer ID R548424	
Remarks, Calculations, Results: DUPLICATE SAMPLE $\frac{.8912 \mu\text{gCN}^-}{.0205 \text{ g}} = 43.47 \mu\text{g/g}$ Blank = .007 $\frac{(.162 - .007) - .010020}{.162679} = .8912 \mu\text{gCN}^-$ $\frac{43.47}{10} = 4.347 \text{ E1 ppm}$				
Analyst - 2 Analyst - 3 Analyst - 4 Analyst - 5				
Hrs Hrs Hrs Hrs Hrs				
Date 7-20-92	Time Completed	Lab Unit Mgr DY Bisenius		

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

Serial No R 1735-5778	Sample Point RY-104	Date 6-18-92	Time Issued 8:18	Priority 25
Determination CH	Method/Standard LA-695-102	Result Units PPM	Charge Code H2331	Reruns 0
Sample Size .0201 grams			Customer ID R548424	
Remarks, Calculations, Results: $\frac{1.235 \mu\text{gCN}^-}{.0201 \text{ g}} = 61.44 \mu\text{g/g}$ Blank = .007 $\frac{(.218 - .007) - .010020}{.162679} = 1.235 \mu\text{gCN}^-$ $\frac{61.44}{10} = 6.144 \text{ E1 ppm}$				
Analyst - 2 Analyst - 3 Analyst - 4 Analyst - 5				
Hrs Hrs Hrs Hrs Hrs				
Date 57-20-92	Time Completed	Lab Unit Mgr DY Bisenius	846	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1735-5878	Sample Point BY-104	Date 6-18-92	Time Issued 8:48	Priority 25
Determination CH	Method/Standard LA-695-102	Result Units PPM	Charge Code H233L	Reruns 0
Sample Size .0203 grams			Customer ID RSGH424	
Remarks, Calculations, Results DUPLICATE SAMPLE $\frac{1.641 \mu\text{g CN}^-}{.0203 \text{ g}} = 80,84 \mu\text{g/g}$ Blank = .007 $(.284 - .007) - .010020 = 1.641 \mu\text{g CN}^-$ $\frac{1.62679}{.0203} = 80,84 \text{ ppm}$				
Analyst - 2 Analyst - 3 Analyst - 4 Analyst - 5				
Hrs Hrs Hrs Hrs Hrs				
Date 7-20-92	Time Completed	Lab Unit Mgr D J Bisenius		

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

Serial No R 1735-5878	Sample Point BY-104	Date 6-18-92	Time Issued 8:18	Priority 25
Determination CH	Method/Standard LA-695-102	Result Units % RECOVERY	Charge Code H233L	Reruns 0
Sample Size .0203 grams			Customer ID RSGH424	
Remarks, Calculations, Results SAMPLE SPIKED TO R1735 SPIKE ID 75C1AD SPIKE VOLUME 100ul - 10ml - 500ul $\text{Sample} = 1.235 \mu\text{g CN}^-$ $\text{Sample + spike} = \frac{(1.119 - .007) - .010020}{.0203} = 6.774 \mu\text{g CN}^-$ $\text{Spike} = \frac{900 \mu\text{g/mL} \times .5 \text{ mL}}{100} = 4.50 \mu\text{g CN}^-$ $\% \text{Rec} = 123.1\%$				
Analyst - 2 Analyst - 3 Analyst - 4 Analyst - 5				
Hrs Hrs Hrs Hrs Hrs				
Date 7-20-92	Time Completed	Lab Unit Mgr D J Bisenius	847	

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

WHC-SD-WM-TI-540, REV. 1

$$\% \text{ Rec spike} = 100 \times \frac{(6.774 - 1.235)}{4.50} = 123.1\%$$

000004098

R1735-5978

.848

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
E 2146-5511	BY-102	8-11-92	11:30	2A
Determination	Method/Standard	Result Units	Charge Code	Refruns
MSC	LA-514-113	% RECOVERY	NETT	0
Sample Size	Customer ID			
2-H-372mg	11.35 mg			STD 2X.17 BU
Remarks, Calculations, Results				
Exotherm OK batched with R1741 also.				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Willie J. West				
Hrs	Hrs	Hrs	Hrs	Hrs
C.				
Date	Time Completed	Lab Unit Mgr		
8-11-92	15:30	Denise J. West	[Signature]	

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

Serial No	Sample Point	Date	Time Issued	Priority
E 1741-5511	BY-102	8-12-92	12:50	2A
Determination	Method/Standard	Result Units	Charge Code	Refruns
MSC	LA-514-113	% RECOVERY	NETT	0
Sample Size	Customer ID			
913.2mg	R-64426			
Remarks, Calculations, Results				
Exotherm OK				
Analyst	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Willie J. West				
Hrs	Hrs	Hrs	Hrs	Hrs
C.				
Date	Time Completed	Lab Unit Mgr		
8-12-92	0900	Denise J. West	[Signature]	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1741-5711	Sample Point BY-104	Date 6-12-92	Time Issued 8:49	Priority 25
Determination DSC	Method/Standard LA-514-113	Result Units EXOTHERMS	Charge Code N2331	Reruns 0
Sample Size DA 8-1892 10.76 mg 12.81 mg			Customer ID R544126	
Remarks, Calculations, Results <p>Exotherm between 345°C and 454°C, 17.2 J/g</p> <p>Endotherm 54°C to 154°C, and 221°C to 305°C, 63.3 J/g total</p> <p>Endotherms 44.6°C to 176°C, 150°C to 214°C, 214°C to 303°C</p> <p>Endotherm total energy, 900 J/g</p> <p>Exotherm 303°C to 404°C, 12.2 J/g</p> <p>Will not test</p>				
Analyst WKS	Analyst - 2 WKS	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 8-12-92	Time Completed 11:10	Lab Unit Mgr Denise J. Went		

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

Serial No R 1741-5811	Sample Point BY-104	Date 6-12-92	Time Issued 8:49	Priority 25
Determination DSC	Method/Standard LA-514-113	Result Units EXOTHERMS	Charge Code N2331	Reruns 0
Sample Size 17.94 mg			Customer ID R544126	
Remarks, Calculations, Results <p>THE FIRST SAMPLE</p> <p>Exotherm 305°C to 405°C, 219 J/g</p> <p>Endotherm 57°C to 193°C, 215°C to 305°C, 77.9 J/g total</p> <p>Will not test</p>				
Analyst WKS	Analyst - 2 WKS	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 8-12-92	Time Completed 12:00	Lab Unit Mgr Denise J. Went		

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

Serial No	Determination	Method/Standard	Result Units	Date	Sample Point
R-1746	EXOTHERMS	LA-514-LT3	CHARGE CODE	PRIORITY	RETURNS
Customer ID	Charge Code	Priority	Time Issued	Retains	Customer ID
8-13-92	12.15 mg	12.15 mg	12.15 mg	12.15 mg	12.15 mg
Remarks, Calculations, Results.	Exotherm beginning 40°C. Still unresolved.	at 450°C, termination of experiment.	(Duplicate sample run to 500°C.)	Exotherm 391°C - 435°C, 9.7 J/g Endotherm 59°C - 141°C and 229°C to 287°C, 744 J/g total	Analyst - 2 Analyst - 3 Analyst - 4 Analyst - 5
Lab Unit Mgr	Hrs	Hrs	Hrs	Hrs	Hrs
Time Completed	15:30	15:30	15:30	15:30	15:30
Date	8-11-92	8-11-92	8-11-92	8-11-92	8-11-92

Serial No	IR 1746-5811	Sample Point	BY-104	Date	6-18-92	Time issued	8:53	Priority	25
Determination	Method/Standard	Result Units	Charge Code	Returns	Customer ID	Remarks, Calculations, Results			
7.02 mg	1A-514-113	FOURTEENS	14234	0	PS884426	<p>Endotherm 275°C to 430°C, 269 g 46°C to 195°C and 234°C - 277 g 471 g total</p> <p>Exotherm 275°C to 430°C, 269 g 46°C to 195°C and 234°C - 277 g 471 g total</p>			
Analyst - 2		Analyst - 3		Analyst - 4		Analyst - 5		Lab Unit Mgr	
His		His		His		His		His	
8-11-92		8-11-92		8-11-92		8-11-92		8-11-92	
Time Completed		16 30		Lab Unit Mgr		Customer ID		PS884426	
8-11-92		16 30		Lab Unit Mgr		Customer ID		PS884426	

WHC-SD-WM-TI-540, REV. 1

Serial No R 1742.-5311	Sample Point BY-104	Date 6-18-92	Time Issued 8:50	Priority 25
Determination DSC	Method/Standard LA-514-113	Result Units EXOTHERMS	Charge Code N2331	Reruns 0
Sample Size C 12.15mg			Customer ID PSA8426	
Remarks, Calculations, Results <p>Endotherm 390°C - 446°C, 18.8 J/g</p> <p>Exotherm 53°C to 179°C, 219°C to 305°C, 739 J/g total</p>				
Analyst - 1 <i>[Signature]</i>	Analyst - 2 <i>[Signature]</i>	Analyst - 3 <i>[Signature]</i>	Analyst - 4 <i>[Signature]</i>	Analyst - 5 <i>[Signature]</i>
Date 8-12-92	Time Completed 1410	Lab Unit Mgr <i>[Signature]</i>		

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

Serial No R 1742.-5811	Sample Point BY-104	Date 6-18-92	Time Issued 8:50	Priority 25
Determination DSC	Method/Standard LA 514-113	Result Units EXOTHERMS	Charge Code N2331	Reruns 0
Sample Size C 12.7mg			Customer ID PSA8426	
Remarks, Calculations, Results <p>DUPLICATE SAMPLE</p> <p>Exotherm 390°C to 454°C, 24.2 J/g</p> <p>Endotherm 52°C - 158°C of ⁸⁻¹²⁻⁹² ₂₁₇ ^{WKS} 211°C to 311°C, 703 J/g total</p>				
Analyst - 1 <i>[Signature]</i>	Analyst - 2 <i>[Signature]</i>	Analyst - 3 <i>[Signature]</i>	Analyst - 4 <i>[Signature]</i>	Analyst - 5 <i>[Signature]</i>
Date 8-12-92	Time Completed 1210	Lab Unit Mgr <i>[Signature]</i>		

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

WHC-SD-WM-TI-540, REV. 1

604756

Serial No R 1746-5812	Sample Point G-104	Date 6-18-92	Time Issued 8:53	Priority 25
Determination IDA	Method/Standard LA-540-112	Result Units H2O	Charge Code H2031	Reruns 0
Sample Size 19.45mg			Customer ID R344126	
Remarks, Calculations, Results DUPLICATE SAMPLE 17.8% water 23% relative difference ROBBY WENDLAND				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-26-92	Time Completed 15:00	Lab Unit Mgr Denise J. Hunt Jesse L. King		

54-6800-061 (10-83)

WHC-SD-WM-TI-540, REV. 1

Serial No R 1752.-7600	Sample Point BY-104	Date 6-18-92	Time Issued 13:19	Priority 25
Determination H2O DGST	Method/Standard LA-504-101	Result Units G/L	Charge Code N233L	Reruns 3
Sample Size 50 ml			Customer ID ELK	
Remarks, Calculations, Results REAGENT BLANK <i>Completed</i>				
Analyst - 1 <i>May, Tracy</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 10-2-92	Time Completed 1930	Lab Unit Mgr <i>Keith Fuller</i>		

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

Serial No R 1754.-7700	Sample Point BY-104	Date 6-18-92	Time Issued 13:23	Priority 26
Determination H2O DGST	Method/Standard LA-504-101	Result Units G/L	Charge Code N233L	Reruns 0
Sample Size ?			Customer ID RSA#429	
Remarks, Calculations, Results JAR ID# GRAMS SAMPLE <u>0.5056g</u> VOLUME ON COMPLETION <u>0.050 L</u> <u>0.5056g = 10.1120 g/L</u> <u>DIDNEX</u> <i>May, Tracy</i>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 10-2-92	Time Completed 1930	Lab Unit Mgr <i>Keith Fuller</i>		

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

Serial No	Sample Point	Date	Time Issued	Priority
1753	7700	9-15-92	12:30	1
Determination	Method/Standard	Result Units	Charge Code	Remarks
USO POST	LA 504 101	G/L	12331	1
Sample Size	LA 504 101	G/L	Custom ID	1
Remarks, Calculations, Results				RSAN429
<p>JAR ID#</p> <p>GRAMS SAMPLE <u>.5003g</u> $\frac{.5003g}{.0501} = 10.0060g/l$</p> <p>VOLUME ON COMPLETION <u>.0501</u></p>				
<p>Analyst - 1</p> <p>Analyst - 2</p> <p>Analyst - 3</p> <p>Analyst - 4</p> <p>Analyst - 5</p>				
<p>Hrs</p> <p>Hrs</p> <p>Hrs</p> <p>Hrs</p> <p>Hrs</p>				
Date	Time Completed	Lab Unit Mgr	Signature	
9-15-92	15:30	Keith Fuller	Leslie Diden	

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

Serial No	Sample Point	Date	Time Issued	Priority
1753	7800	9-15-92	12:30	1
Determination	Method/Standard	Result Units	Charge Code	Remarks
USO POST	LA 504 101	G/L	12331	1
Sample Size	LA 504 101	G/L	Custom ID	1
Remarks, Calculations, Results				RSAN429
<p>DUPLICATE SAMPLE</p> <p>JAR ID#</p> <p>GRAMS SAMPLE <u>.5003g</u> $\frac{.5003g}{.0501} = 10.0060g/l$</p> <p>VOLUME ON COMPLETION <u>.0501</u></p>				
<p>Analyst - 1</p> <p>Analyst - 2</p> <p>Analyst - 3</p>				
<p>Hrs</p> <p>Hrs</p> <p>Hrs</p> <p>Hrs</p> <p>Hrs</p>				
Date	Time Completed	Lab Unit Mgr	Signature	
9-15-92	15:30	Keith Fuller	Leslie Diden	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1253-7600	Sample Point R1-104	Date 6-18-92	Time Issued 13:20	Priority 25
Determination H2O DGS1	Method/Standard LA-504-101	Result Units 13-1	Charge Code H2331	Reruns 0
Sample Size 7			Customer ID R544429	
Remarks, Calculations, Results JAR ID# GRAMS SAMPLE 0.5002g VOLUME ON COMPLETION 50ml $\frac{0.5002g}{0.0508} = 10.0040g/L$ Att: Save residue from H2O Digest, deliver to PCL				
Analyst - 1 <i>Mary Tracy</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 07-1-92	Time Completed 1100	Lab Unit Mgr <i>Keith Tuller</i>		<i>E. Perry</i>

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

Serial No R 1752-7600	Sample Point R1-104	Date 6-18-92	Time Issued 13:12	Priority 25
Determination H2O DGS1	Method/Standard LA-504-101	Result Units 13-1	Charge Code H2331	Reruns 1
Sample Size 50ml			Customer ID R17	
Remarks, Calculations, Results REAGENT IN AIR <div style="text-align: center;"> <h1>RERUN</h1> <p>complete</p> </div>				
Analyst - 1 <i>Mary Tracy</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 8-13-92	Time Completed 1500	Lab Unit Mgr <i>Keith Tuller</i>		<i>E. Perry</i>

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

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1754-7800	BT-101	6-18-92	13:22	23
Determination	Method/Standard	Result Units	Charge Code	Reruns
H2O DBST	LA-504-101	G/L	H233L	1
Sample Size	Customer ID			
0	R568429			
Remarks, Calculations, Results				
<p>JAR UN</p> <p>GRAMS SAMPLE 0.5004g</p> <p>VOLUME ON COMPLETION 50ml</p> <p>$\frac{0.5004g}{0.050L} = 10.0080g/L$</p> <p>RERUN</p>				
Analyst - 1	Analyst - 2	Analyst - 3		
<i>Smiley</i>	Hrs	Hrs	Hrs	Hrs
<i>Frans</i>				
Date	Time Completed	Lab Unit Mgr		
8-13-92	1500	<i>Keith Full</i>		

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1754-7800	BT-101	6-18-92	13:22	23
Determination	Method/Standard	Result Units	Charge Code	Reruns
H2O DBST	LA-504-101	G/L	H233L	1
Sample Size	Customer ID			
0	R568429			
Remarks, Calculations, Results				
<p>DUPLICATE SAMPLE</p> <p>JAR UN</p> <p>GRAMS SAMPLE 0.5005g</p> <p>VOLUME ON COMPLETION 50ml</p> <p>$\frac{0.5005g}{0.050L} = 10.0100g/L$</p> <p>RERUN</p>				
Analyst - 1	Analyst - 2	Analyst - 3		
<i>Smiley</i>	Hrs	Hrs	Hrs	Hrs
<i>Frans</i>				
Date	Time Completed	Lab Unit Mgr		
8-13-92	1500	<i>Keith Full</i>		

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

858

WHC-SD-WM-TI-540, REV. 1

Serial No R 1752.-7600	Sample Point BY-104	Date 6-18-92	Time Issued 13:17	Priority 25
Determination H2O DGS	Method/Standard LA-504-101	Result Units G/L	Charge Code H233L	Reruns 0
Sample Size 2 50 ml			Customer ID BLK	
Remarks, Calculations, Results REAGENT BLANK COMPLETE				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
<i>Emory</i>	Hrs	Hrs	Hrs	Hrs
Date 7-1-92	Time Completed 1100	Lab Unit Mgr Keith Fuller	6/30/92 <i>Emory</i>	

54-6800-061 (R-10-63)

Serial No R 1753.-7800	Sample Point BY-104	Date 6-18-92	Time Issued 13:20	Priority 25
Determination H2O DGS	Method/Standard LA-504-101	Result Units G/L	Charge Code H233L	Reruns 0
Sample Size 50			Customer ID 13541429	
Remarks, Calculations, Results DUPLICATE SAMPLE CAR TON GRAMS SAMPLE 0.5007g VOLUME ON COMPLETION 0.050 L $\frac{0.5007g}{0.050L} = 10.0140g/L$ Att: Save residue from H2O digest, deliver to PCL				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
<i>Emory</i>	Hrs	Hrs	Hrs	Hrs
Date 7-1-92	Time Completed 1100	Lab Unit Mgr Keith Fuller	6/30/92 <i>Emory</i>	

54-6800-061 (R-10-63)

WHC-SD-WM-TI-540, REV. 1

Serial No R 1754--7700	Sample Point RY-104	Date 6-18-92	Time Issued 13:22	Priority 25
Determination H2O DGS1	Method/Standard LA-504-101	Result Units G/L	Charge Code H233L	Reruns 0
Sample Size 2			Customer ID PSGH429	
<p>Remarks, Calculations, Results</p> <p>2AR 10H GRAMS SAMPLE 0.5024g</p> <p>VOLUME ON COMPLETION 0.050L</p> <p>$\frac{0.5024g}{0.050L} = 10.0480g/L$</p> <p>Att: Save residue from H₂O digest, deliver to PCL</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
<i>Ernest</i>				
Date 7-1-92	Time Completed 1100	Lab Unit Mgr <i>Ruth Fuller</i>	<i>6/30/92</i> <i>Ernest</i>	

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

Serial No R 1754--7800	Sample Point RY-104	Date 6-18-92	Time Issued 13:22	Priority 25
Determination H2O DGS1	Method/Standard LA 504-101	Result Units G/L	Charge Code H233L	Reruns 0
Sample Size 2			Customer ID PSGH429	
<p>Remarks, Calculations, Results</p> <p>DUPLICATE SAMPLE 2AR 10H GRAMS SAMPLE 0.5015g</p> <p>VOLUME ON COMPLETION 0.050L</p> <p>$\frac{0.5015g}{0.050L} = 10.0300g/L$</p> <p>Att: Save residue from H₂O digest, deliver to PCL</p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
<i>Ernest</i>				
Date 7-1-92	Time Completed 1100	Lab Unit Mgr <i>Ruth Fuller</i>	<i>6/30/92</i> <i>Ernest</i>	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1751-7550	Sample Point CY-104	Date 6-18-92	Time Issued 13:19	Priority 23																																
Determination ICP	Method/Standard LA-505-151	Result Units % RECOVERY	Charge Code H2331	Reruns 0																																
Sample Size 1848AR 2848AS 3848AS	Undigested		Customer ID STD																																	
Remarks, Calculations, Results:																																				
1st STD Digested STD																																				
<table border="0"> <tr> <td>Cu 9.63</td> <td>96.30%</td> <td>Al 4.84</td> <td>96.80%</td> </tr> <tr> <td>Cu 5.04</td> <td>100.80%</td> <td>P 10.32</td> <td>103.20%</td> </tr> <tr> <td>Ni 4.79</td> <td>95.80%</td> <td>Zr 9.82</td> <td>98.20%</td> </tr> <tr> <td>Fe 4.83</td> <td>96.60%</td> <td>S 5.41</td> <td>108.20%</td> </tr> <tr> <td>Cs 9.65</td> <td>96.50%</td> <td>Mo 10.00</td> <td>100.00%</td> </tr> <tr> <td>Cr 5.04</td> <td>100.80%</td> <td></td> <td></td> </tr> <tr> <td>Na 9.81</td> <td>98.10%</td> <td></td> <td></td> </tr> <tr> <td>Mn 4.69</td> <td>93.80%</td> <td></td> <td></td> </tr> </table>					Cu 9.63	96.30%	Al 4.84	96.80%	Cu 5.04	100.80%	P 10.32	103.20%	Ni 4.79	95.80%	Zr 9.82	98.20%	Fe 4.83	96.60%	S 5.41	108.20%	Cs 9.65	96.50%	Mo 10.00	100.00%	Cr 5.04	100.80%			Na 9.81	98.10%			Mn 4.69	93.80%		
Cu 9.63	96.30%	Al 4.84	96.80%																																	
Cu 5.04	100.80%	P 10.32	103.20%																																	
Ni 4.79	95.80%	Zr 9.82	98.20%																																	
Fe 4.83	96.60%	S 5.41	108.20%																																	
Cs 9.65	96.50%	Mo 10.00	100.00%																																	
Cr 5.04	100.80%																																			
Na 9.81	98.10%																																			
Mn 4.69	93.80%																																			
2nd STD CCV OR LNCB																																				
<p><i>Teresa L. Higin</i></p> <p>Analyst - 1 Analyst - 2 Analyst - 3 Analyst - 4 Analyst - 5</p> <p>Hrs Hrs Hrs Hrs Hrs</p> <p>8-18-92</p> <p>Date Time Completed Lab Unit Mgr</p> <p>8/17/92 3:30 PM Brian Wells <i>Teresa L. Higin</i></p> <p>54-6800-061 (R-10-83)</p>																																				

Serial No R 1752-7650	Sample Point R1 104	Date 6-18-92	Time Issued 13:20	Priority 23																					
Determination ICP	Method/Standard LA-505-151	Result Units ug/L	Charge Code H2331	Reruns 0																					
Sample Size ? 50ml			Customer ID BLK																						
Remarks, Calculations, Results:																									
REAGENT BLANK																									
<table border="0"> <tr> <td>Al < 3.50E1</td> <td>Cu < 4.00</td> <td>Mo < 1.10E1</td> </tr> <tr> <td>Na 6.73E1</td> <td>Co < 8.00 < 10.00</td> <td></td> </tr> <tr> <td>Ca < 4.40E1</td> <td>Fe < 1.50E1</td> <td></td> </tr> <tr> <td>K 1.45E2</td> <td>Cr < 1.20E1</td> <td></td> </tr> <tr> <td>B < 9.90E1</td> <td>Ni < 1.40E1</td> <td></td> </tr> <tr> <td>Zr < 8.00</td> <td>Mn < 3.00</td> <td></td> </tr> <tr> <td></td> <td>S < 4.50E1</td> <td></td> </tr> </table>					Al < 3.50E1	Cu < 4.00	Mo < 1.10E1	Na 6.73E1	Co < 8.00 < 10.00		Ca < 4.40E1	Fe < 1.50E1		K 1.45E2	Cr < 1.20E1		B < 9.90E1	Ni < 1.40E1		Zr < 8.00	Mn < 3.00			S < 4.50E1	
Al < 3.50E1	Cu < 4.00	Mo < 1.10E1																							
Na 6.73E1	Co < 8.00 < 10.00																								
Ca < 4.40E1	Fe < 1.50E1																								
K 1.45E2	Cr < 1.20E1																								
B < 9.90E1	Ni < 1.40E1																								
Zr < 8.00	Mn < 3.00																								
	S < 4.50E1																								
<p><i>Teresa L. Higin</i></p> <p>Analyst - 2 Analyst - 3 Analyst - 4 Analyst - 5</p> <p>Hrs Hrs Hrs Hrs</p> <p>8-18-92</p> <p>Date Time Completed Lab Unit Mgr</p> <p>8/17/92 3:30 PM Brian Wells <i>Teresa L. Higin</i></p> <p>54-6800-061 (R-10-83)</p>																									

WHC-SD-WM-TI-540, REV. 1

Serial No R 1753.-7750	Sample Point BY-104	Date 6-18-92	Time Issued 13:22	Priority 23
Determination ICP-LTO	Method/Standard LA-505-151	Result Units UG/M	Charge Code 112331	Reruns 0
Sample Size 0.5002g in SD (10.004g/l) - Inl-Sol for Na	Customer ID R644429			
Remarks, Calculations, Results $Zr (9.90)/10.004 = 9.90E-1$ ug/g rec. $P 2.33E4/10.004 = 2.33E3$ $Al 1.84E4/10.004 = 1.84E3$ $S 8.81E4/10.004 = 8.81E3$ $Co 4.96E1/10.004 = 4.96$ $Mg 1.51E1/10.004 = 1.51 *$ $Cu 5.72/10.004 = 5.72E-1 *$ $Mo 2.71E2/10.004 = 2.71E1$ $Ni 2.25E1/10.004 = 2.25$ $K 2.93E4/10.004 = 2.93E3$ $Ca 2.72E2/10.004 = 2.72E1$ $Na (2.52E5)(6)/10.004 = 1.51E5$ $Cr 1.18E5/10.004 = 1.18E4$ $Mn 2.30/10.004 = 2.30E-1$ $AFIRG Cu, m. Same/Dup > 20% Diff$				
Analyst - 1 Teresa L. Trajer	Analyst - 2	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 8-18-92	Hrs	Hrs
Date 8/17/92	Time Completed 3:30pm	Lab Unit Mgr Brian Wells	Teresa L. Trajer	

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

Serial No R 1753.-7850	Sample Point BY-104	Date 6-18-92	Time Issued 13:22	Priority 23
Determination ICP-LTO	Method/Standard LA-505-151	Result Units UG/M	Charge Code 112331	Reruns 0
Sample Size 0.5007g in SD (10.014g/l) - Inl-Sol for Na	Customer ID R644429			
Remarks, Calculations, Results $Mn 2.30/10.014 = 2.30E-1$ $Ca 2.72E2/10.014 = 2.72E1$ DUPLICATE SAMPLE $Cr 1.20E5/10.014 = 1.20E4$ $Zr (8.0)/10.014 = 7.99E-1$ $P 2.21E4/10.014 = 2.21E3$ $Al 1.93E4/10.014 = 1.93E3$ $S 9.53E4/10.014 = 9.52E3$ $Co 3.99E1/10.014 = 3.98$ $Mg 9.04/10.014 = 9.03E-1$ $Cu 4.0/10.014 = 3.99E-1$ $Na (2.53E5)(6)/10.014 = 1.52E5$ 8/17/92 $Ni 1.95E1/10.014 = 1.95$ $Mo 2.51E2/10.014 = 2.51E1$ $Fe 6.29E1/10.014 = 6.28$ $K 3.00E4/10.014 = 3.00E3$ $AFIRG 8/17/92$				
Analyst - 1 Teresa L. Trajer	Analyst - 2	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 8-18-92	Hrs	Hrs
Date 8/17/92	Time Completed 3:30pm	Lab Unit Mgr Brian Wells	Teresa L. Trajer	

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

WHC-SD-WM-TI-540, REV. 1

NOTE: C_n, m_g close to detection limits

R1753-7750

563

WHC-SD-WM-TI-540, REV. 1

Serial No R 1754-7750	Sample Point BY-104	Date 8-18-92	Time Issued 13:23	Priority 23
Determination TCP-LIO	Method/Standard LA-505-151	Result Units UG/M	Charge Code H2331	Reruns 0
Sample Size 20.5024 g in 50.2 (10.048 g/L) - 1nd-Snd for NA			Customer ID PSA4429	
<p>Remarks, Calculations, Results:</p> <p>Zr $1.76E1/10.048 = 1.75 \text{ ug/g rec.}$ Cr $2.68E4/10.048 = 2.67E3$</p> <p>Al $3.20E3/10.048 = 3.18E2$ P $3.21E4/10.048 = 3.19E3$</p> <p>Co $2.05E1/10.048 = 2.04$ S $2.06E5/10.048 = 2.05E4$</p> <p>Cu $9.50E1/10.048 = 9.45E-1$ Mo $2.14E2/10.048 = 2.13E1$</p> <p>Ni $4.19E1/10.048 = 4.17$ K $2.38E4/10.048 = 2.37E3$</p> <p>Fe $5.80E1/10.048 = 5.77$ Mn $<3.0/10.048 = <2.99E-1$</p> <p>Ca $4.23E2/10.048 = 4.21E1$ Na $(4.46E5)(6)/10.048 = 2.66E5$</p>				
Analyst - 1 <i>Teresa L. Frasier</i>	Analyst - 2	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 8-18-92	Hrs	Hrs
Date 8/17/92	Time Completed 3:30 pm	Lab Unit Mgr Brian Wells <i>Teresa L. Frasier</i>		

54-6800-061 (R 10-83)

Serial No R 1754-7850	Sample Point BY-104	Date 8-18-92	Time Issued 13:23	Priority 23
Determination TCP-LIO	Method/Standard LA-505-151	Result Units UG/M	Charge Code H2331	Reruns 0
Sample Size 20.5015 g in 50.2 (10.030 g/L) - 1nd-Snd for NA			Customer ID PSA4429	
<p>Remarks, Calculations, Results:</p> <p>DUPLICATE SAMPLE</p> <p>Zr $1.34E1/10.030 = 1.34 \text{ ug/g rec.}$ Cr $4.84E2/10.03 = 4.83E1$</p> <p>Al $3.01E3/10.03 = 3.00E2$ P $1.93E4/10.03 = 1.92E3$</p> <p>Co $<1.00E1/10.03 = <9.97E-1$ S $1.79E4/10.03 = 1.78E3$</p> <p>Cu $8.95E1/10.03 = 8.92E-1$ Mo $1.60E5/10.03 = 1.60E4$</p> <p>Ni $2.40E1/10.03 = 2.39$ K $1.61E2/10.03 = 1.61E1$</p> <p>Fe $3.50E1/10.03 = 3.49$ Mn $<3.0/10.03 = <2.99E-1$</p> <p>Na $(4.67E5)(6)/10.030 = 2.79E5$</p>				
Analyst - 1 <i>Teresa L. Frasier</i>	Analyst - 2	Analyst - 3 82484	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 8-18-92	Hrs	Hrs
Date 8/17/92	Time Completed 3:30 pm	Lab Unit Mgr Brian Wells <i>Teresa L. Frasier</i>		

54-6800-061 (R 10-83)

3.3 3660

Serial No. R 1711.-6681	Sample Point BY-104	Date 6-17-92	Time Issued 11:45	Priority 25
Determination PU239/40	Method/Standard 1A-503-156	Result Units uCi/L	Charge Code H2331	Reruns 0
Sample Size 1.0 ml			Customer ID EILK	
Remarks, Calculations, Results REAGENT BLANK COUNT AS UCI/L $P_{236}(54843) \cdot 0.50 \text{ ml}$ 1 ml Co. HNU $C = 0.05 (282.78) (100) \left(\frac{1.0}{2.22 \times 10^6} \right) \cdot 15.92 = 46.78 \times 10^{-3} \text{ uCi/L}$ $C = 9377 (2.22 \times 10^6) \cdot 15.92$				
Analyst - 1	Analyst - 2 62549	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 6/20/92	Time Completed 13:00	Lab Unit Mgr JUL 23 1992	54-6800-061 (R-10-83)	

3.4 4737

Serial No. R 1712.-6781	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination PU239/40	Method/Standard 1A-503-156	Result Units uCi/L	Charge Code H2331	Reruns 0
Sample Size 1.0 ml			Customer ID EILK	
Remarks, Calculations, Results COUNT AS UCI/L $P_{236}(54843) \cdot 0.50 \text{ ml}$ 1 ml Co. HNU $C = \frac{.5354 (282.78 \times 1000) (1)}{.4113 (2.22 \times 10^6)} = \frac{1.66 \times 10^{-1} \text{ uCi/L}}{2.00529 \times 10^{-2}} = 8.27 \times 10^{-2} \text{ uCi/gne}$				
Analyst - 1	Analyst - 2 69549	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7/20/92	Time Completed 13:00	Lab Unit Mgr JUL 23 1992	54-6800-061 (R-10-83)	

2 7-21-92 AG

WHC-SD-WM-TI-540, REV. 1

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R1711-6681

3 7-21-92 AG

4099 - 12
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866

R1712-6781

4.1 5681 WHC-SD-WM-TI-540, REV. 1

Serial No R 1712-6881	Sample Point BT-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination PU239/40	Method/Standard LA-503-156	Result Units dCL/d rec	Charge Code 112331	Reruns 0
Sample Size 1.0 m/			Customer ID PSAN418	
Remarks, Calculations, Results DUPLICATE SAMPLE COUNT AS UCL $\frac{236(54843) \cdot 0.50 \text{ m}^3}{1 \text{ m}^3 \text{ Con HNVs}} = \frac{1.12 \times 10^{-1} \text{ g/L}}{2.026 \text{ g/L}} = 5.53 \times 10^{-2} \text{ g/g}$				
Analyst - 1 Hrs	Analyst - 2 69549 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7/20/92	Time Completed 13:00	Lab Unit Mgr JUL 23 1992 SAC		

54-6800-061 (R-10-93)

4.2 6656

Serial No R 1713-6781	Sample Point BT-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination PU239/40	Method/Standard LA-503-156	Result Units dCL/d rec	Charge Code 112331	Reruns 0
Sample Size 1.0 m/			Customer ID PSAN418	
Remarks, Calculations, Results COUNT AS UCL $\frac{236(54843) \cdot 0.50 \text{ m}^3}{1 \text{ m}^3 \text{ Con HNVs}} = \frac{4.63 \times 10^{-2} \text{ g/L}}{2.03129 \text{ g/L}} = 2.28 \times 10^{-2} \text{ g/g}$				
Analyst - 1 Hrs	Analyst - 2 69549 Hrs	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7/20/92	Time Completed 13:00	Lab Unit Mgr JUL 23 1992 SAC		

54-6800-061 (R-10-93)

#3 7-21-92 AG

WHC-SD-WM-TI-540, REV. 1

7360 - 12
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R1712-6881

#2 7-21-92 AG

37621 - 10
830

0 0 3 0 0 0 4 7 2

868

R1713-6781

4.3 7290

WHC-SD-WM-TI-540, REV. 1

Serial No. R 1713, -6881		Sample Point RY-104		Date 6-17-92	Time Issued 11:53	Priority 25
Determination FLU239/40	Method/Standard LA-503-156	Result Units uCi/g FCC		Charge Code N2331	Reruns 0	
Sample Size 2. 1.0 m/				Customer ID 0354018		
Remarks, Calculations, Results DUPLICATE SAMPLE SHUNT AS UCL/L $10236 (54843) \cdot 0.050 m^1$ $1 m^1 \text{ Con HNO}_3$ $0.2832 (282.78) (1000) (4)$ $0.6593 (2.22 \times 10^4)$ $5.47 \times 10^{-2} \text{ uCi/g}$ $2.75 \times 10^{-2} \text{ uCi/g}$ 7.9916 "AEA" - 480MIN ATTACH PRINTOUT						
Analyst - 1 C	Analyst - 2 69549 A. Phama	Analyst - 3 JH-15	Analyst - 4 72	Analyst - 5		
Hrs M. B. ...	Hrs	Hrs	Hrs	Hrs		
Date 7/20/92	Time Completed 13:00	Lab Unit Mol UL 23 1992 SAC Catto				

54-6800-061 (R-10-84)

#1 7-21-92 AJ

WHC-SD-WM-TI-540, REV. 1

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R1713-6881

4.2 6658 WHC-SD-WM-TI-540, REV. 1

Serial No R 1711.-6682	Sample Point BY-104	Date 6-17-92	Time Issued 11:45	Priority 25
Determination M241	Method/Standard LA-503-156	Result Units mCi/L	Charge Code H2341	Reruns 0
Sample Size 7 1.0 ml			Customer ID H K	
Remarks, Calculations, Results: REAGENT BLANK COUNT AS DET/1 $A_{243}(18843) \cdot 100 \text{ ml}$ 1.0 ml Con HNO_3 $\frac{225(2.274 \times 10^{-3})(61)(100)(1)}{1166} = 4.85 \times 10^{-3} \text{ uCi/L}$				
Analyst - 1 Hrs H. Brown	Analyst - 2 Hrs J. Smith	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 6/21/92	Time Completed 13:00	Lab Unit Mgr JUL 27 1992 S. D. Smith	"AEA" - 480MIN ATTACH PRINTOUT [Signature]	

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

4.1 5683

Serial No R 1712.-6782	Sample Point BY-104	Date 6-17-92	Time Issued 11:47	Priority 25
Determination M241	Method/Standard LA-503-156	Result Units mCi/L	Charge Code H2341	Reruns 0
Sample Size 1.0 ml			Customer ID H2341B	
Remarks, Calculations, Results: COUNT AS DET/1 $A_{243}(18843) \cdot 100 \text{ ml}$ 1.0 ml Con HNO_3 $\frac{350(2.274 \times 10^{-3})(1)(100)(1)}{397} = \frac{2.00 \times 10^{-6} \text{ uCi}}{2.0052 \text{ g/L}} = 1.00 \times 10^{-6} \text{ uCi/g}$				
Analyst - 1 Hrs H. Brown	Analyst - 2 Hrs J. Smith	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 6/21/92	Time Completed 13:00	Lab Unit Mgr JUL 27 1992 S. D. Smith	"AEA" - 480MIN ATTACH PRINTOUT [Signature]	

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

#1 7-23-92

WHC-SD-WM-TI-540, REV. 1

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R1711-6682

#3 7-23-92

2394 -8
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.872

R1712-6782

4.1 5685

WHC-SD-WM-TI-540, REV. 1

Serial No R 1712-6832	Sample Point BY-104	Date 6-17-92	Time Issued 11:49	Priority 25
Determination AN241	Method/Standard LA-503-156	Result Units uCi/g for	Charge Code 112331	Reruns 0
Sample Size 1.0 ml			Customer ID KSAH418	
Remarks, Calculations, Results DUPLICATE SAMPLE COUNT AS TOTAL Am243 (18343), 100 ml 0.0 ml Con HNU's $\frac{1102 (2.274 \times 10^{-3}) (1) (1000) (1)}{1170} = \frac{2.14 \times 10^{-1} \text{ uCi}}{2.026 \text{ g/L}} = 1.06 \times 10^{-1} \text{ g/L}$				
Analyst - 1 Hrs M. B. ...	Analyst - 2 Hrs F. ...	Analyst - 3 Hrs D. H. ...	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7/21/92	Time Completed 13:00	Lab Unit Mgr JUL 27 1992 SAC ...		

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

3.2

2025

Serial No R 1713-6782	Sample Point BY-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination AN241	Method/Standard LA-503-156	Result Units uCi/g for	Charge Code 112331	Reruns 0
Sample Size 1.0 ml			Customer ID KSAH418	
Remarks, Calculations, Results COUNT AS TOTAL Am243 (18343), 100 ml 0.0 ml Con HNU's $\frac{50 (2.274 \times 10^{-3}) (1) (1000) (1)}{125} = \frac{9.10 \times 10^{-2} \text{ uCi}}{2.03129 \text{ g/L}} = 4.48 \times 10^{-2} \text{ g/L}$				
Analyst - 1 Hrs M. B. ...	Analyst - 2 Hrs F. ...	Analyst - 3 Hrs	Analyst - 4 Hrs	Analyst - 5 Hrs
Date 7/21/92	Time Completed 13:00	Lab Unit Mgr JUL 27 1992 SAC ...		

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

#2 7-23-92

WHC-SD-WM-TI-540, REV. 1

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R1712-6882

#3 7-23-92

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R1713-6782

874

33 3662 WAC-SD-WM-TI-540, REV. 1

Serial No R 1713-6882	Sample Point R1-104	Date 6-17-92	Time Issued 11:53	Priority 25
Determination AM241	Method/Standard LA-503-156	Result Units dpm/g sec	Charge Code 11233L	Reruns 0
Sample Size 1.0 ml	Remarks, Calculations, Results DUPLICATE SAMPLE COUNT AS dpm/g $A_{m241} (18843) \cdot 100 \text{ ml}$ $7.0 \text{ ml Contaminant}$ $107 (2.274 \times 10^{-3}) \cdot (1) (1000) (1)$ $295 = \frac{8.25 \times 10^{-2} \text{ dpm/g}}{1.99169 \text{ g/L}} = 24.17 \times 10^{-2} \text{ g/L}$			Customer ID P5668418
Analyst - 1 M. B. R. m.	Analyst - 2 J. L. L. m.	Analyst - 3	Analyst - 4	Analyst - 5
Date 7/21/92	Time Completed 13:00	Lab Unit Mgr JUL 27 1992 J. L. L. m.		

"AEA" - 480MIN
ATTACH PRINTOUT

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

BEST AVAILABLE COPY

875

#1 7-23-92

WHC-SD-WM-TI-540, REV. 1

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R1713-6882

WHC-SD-WM-TI-540, REV. 1

Serial No E-1775-5707-104	Sample Point	Date	Time Issued	Priority
Determination ADIAE	Method/Standard L.I-000	Result Units 6.17 52	Charge Code 0-13	Reruns 0
Sample Size	Customer ID RSA# 442			
Remarks, Calculations, Results <p>Sample pre-dried at 100C, then pulverized.</p> <p>Results: See attached (6) sheets for "Test 920831"</p> <p><i>[Signature]</i></p>				
Analyst - 1 <i>[Signature]</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5 <i>[Signature]</i> 9/4/92
Hrs	Hrs	Hrs	Hrs	Hrs
Date 9-1-92	Time Completed 1300	Lab Unit Mgr <i>[Signature]</i> 9/21/92	<i>[Signature]</i>	

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

877

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1773.-5709	RY-104	6-23-92	8:13	23
Determination	Method/Standard	Result Units	Charge Code	Reruns
ADIAB	LI-000-200	NONE	N233L	0
Sample Size	Customer ID			
2	RSA# 442			
Remarks, Calculations, Results:				
<p>- Duplicate Analysis</p> <p>Sample dried at 57°C, then pulverized.</p> <p>Results: See attached (6) sheets for "Test 920914"</p> <p><i>Jnl hsa</i></p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
1				
Hrs	Hrs	Hrs	Hrs	Hrs
0				
Date	Time Completed	Lab Unit Mgr		
9-15-92	1400	<i>J. B. [Signature]</i> 9/21/92	<i>[Signature]</i>	

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1775.-5709	RY-104	6-23-92	8:14	23
Determination	Method/Standard	Result Units	Charge Code	Reruns
ADIAB	LI-000-200	NONE	N233L	0
Sample Size	Customer ID			
2	RSA# 442			
Remarks, Calculations, Results:				
<p>- Duplicate Analysis</p> <p>Sample dried at 100°C, then pulverized.</p> <p>Results: See attached (6) sheets for "Test 920901"</p> <p><i>Jnl hsa</i></p>				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
1				
Hrs	Hrs	Hrs	Hrs	Hrs
0				
Date	Time Completed	Lab Unit Mgr		
9-2-92	1400	<i>J. B. [Signature]</i> 9/21/92	<i>[Signature]</i>	

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

WHC-SD-WM-TI-540, REV. 1

Serial No R 1750-5702	Sample Point BY-101	Date 6-18-92	Time Issued 11:4	Priority 26
Determination PARTSIZE	Method/Standard LI-000-200	Result Units NONE	Charge Code N2331	Retuns 0
Sample Size			Customer ID RSAH428	
Remarks, Calculations, Results: Duplicate Analysis. Dispersant: H ₂ O fused agglomerates apparent see attached (6) sheets				
Analyst - 1 J.B. Kunkler 9-3-92	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5 J.B. Kunkler 9/8/92
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr <i>[Signature]</i>		

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

Serial No R 1773-5702	Sample Point BY-101	Date 6-23-92	Time Issued 9:10	Priority 26
Determination DIAP	Method/Standard LI-000	Result Units	Charge Code N2331	Retuns 0
Sample Size			Customer ID RSAH 442	
Remarks, Calculations, Results: Sample pre-dried at 400C, then pulverized Results: See attached (6) sheets for "Test 920901" 920910 9/8/92				
Analyst - 1 <i>[Signature]</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5 J.B. Kunkler 9/7/92
Hrs	Hrs	Hrs	Hrs	Hrs
Date 9-11-92	Time Completed 1400	Lab Unit Mgr <i>[Signature]</i> Do not Mfg. sent		

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

Serial No R 1734--5878	Sample Point BY-104	Date 6-18-92	Time Issued 8:16	Priority 25
Determination CN	Method/Standard LA-695-102	Result Units PPM	Charge Code N2331	Reruns 0
Sample Size ? .0205 grams			Customer ID RSA#424	
Remarks, Calculations, Results DUPLICATE SAMPLE $\frac{.8912 \mu\text{gCN}^-}{.0205 \text{ g}} = 43.47 \mu\text{g/g}$ Blank = .007 $\frac{(.162 - .007) - .010020}{.162679} = .8912 \mu\text{gCN}^-$ $\in 4.347 \text{ E1 ppm}$ WHC-SD-WM-TI-540, REV. 1				
Analyst - 1 <i>Valerie Massie</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date 7-20-92	Time Completed	Lab Unit Mgr <i>DY Bisenino</i>		

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

Serial No R 1734--5778	Sample Point BY-104	Date 6-18-92	Time Issued 8:16	Priority 25
Determination CN	Method/Standard LA-695-102	Result Units PPM	Charge Code N2331	Reruns 0
Sample Size ? .0206 grams			Customer ID RSA#424	
Remarks, Calculations, Results $\frac{.6330 \mu\text{gCN}^-}{.0206 \text{ g}} = 30.73 \mu\text{g/g}$ Blank = .007 $\frac{(.120 - .007) - .010020}{.162679} = .6330 \mu\text{gCN}^-$ $\in 3.073 \text{ E1 ppm}$: 680				
Analyst - 1 <i>Valerie Massie</i>	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed			

00360741378

Serial No	Sample Point	Date	Time Issued	Priority
R 1735-5578	HY-104	6-18-92	R=18	25
Determination	Method/Standard	Result Units	Charge Code	Returns
CH	LA-695-102	PPM	H2331	0
Sample Size	Customer ID			
.0201 grams	RSAM124			
Remarks Calculations Results				
$\frac{1.235 \mu\text{g CN}^-}{.0201 \text{ g}} = 61.44 \mu\text{g/g} \quad \text{Blank} = .007$ $\frac{(218 - .007) - .010020}{.162679} = 1.235 \mu\text{g CN}^-$				
Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5	
16g	16g	16g	16g	16g
Date	Time Completed	Lab Unit Mgr		
7-20-92		DY Bisenius		

Serial No	Sample Point	Date	Time Issued	Priority
R 1734-5578	HY-104	6-18-92	R=16	25
Determination	Method/Standard	Result Units	Charge Code	Returns
CH	LA-695-102	PPM	H2331	0
Sample Size	Customer ID			
.0206 grams	RSAM124			
Remarks Calculations Results				
$\frac{.6330 \mu\text{g CN}^-}{.0206 \text{ g}} = 30.73 \mu\text{g/g} \quad \text{Blank} = .007$ $\frac{(120 - .007) - .010020}{.162679} = .6330 \mu\text{g CN}^-$				
Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5	
16g	16g	16g	16g	16g
Date	Time Completed	Lab Unit Mgr		
7-20-92		DY Bisenius		

WHC-SD-WM-TI-540, REV. 1

Serial No	Sample Point	Date	Time Issued	Priority
R 1734-5578	HY-104	6-18-92	R=16	25
Determination	Method/Standard	Result Units	Charge Code	Returns
CH	LA-695-102	% RECOVERY	H2331	0
Sample Size	Customer ID			
.0202 grams	RSAM124			
Remarks Calculations Results				
$\frac{.959}{.0202 \text{ g}} = 47.47 \mu\text{g/g} \quad \text{Blank} = .007$ $\frac{(959 - .007) - .010020}{.162679} = 5.790 \mu\text{g CN}^-$ $\frac{900 \mu\text{g/mL} \times .5 \text{ mL}}{100} = 4.50 \mu\text{g CN}^-$				
Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5	
16g	16g	16g	16g	16g
Date	Time Completed	Lab Unit Mgr		
7-20-92		DY Bisenius		

Serial No	Sample Point	Date	Time Issued	Priority
R 1732-5578	HY-104	6-18-92	R=15	25
Determination	Method/Standard	Result Units	Charge Code	Returns
CH	LA-695-102	% RECOVERY	H2331	0
Sample Size	Customer ID			
100ml - 10ml - 500ml	GID			
Remarks Calculations Results				
$\frac{9.87 \text{ E2 ppm}}{.0202 \text{ g}} = 493.6 \mu\text{g CN}^- \quad \% \text{Rec} = \frac{987}{900} \times 100$ $\frac{(820 - .007) - .010020}{.162679} = 4.936 \mu\text{g CN}^- \quad \% \text{Rec} = 109.7\%$				
Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5	
16g	16g	16g	16g	16g
Date	Time Completed	Lab Unit Mgr		
7-20-92		DY Bisenius		

Serial No	Sample Point	Date	Time Issued	Priority
R 1734-5578	HY-104	6-18-92	R=16	25
Determination	Method/Standard	Result Units	Charge Code	Returns
CH	LA-695-102	PPM	H2331	0
Sample Size	Customer ID			
5ml Q H ₂ O	DLK			
Remarks Calculations Results				
$\frac{.007 - .010020}{.162679} = -.0186 = < 0.1 \mu\text{g CN}^-$				
Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5	
16g	16g	16g	16g	16g
Date	Time Completed	Lab Unit Mgr		
7-20-92		DY Bisenius		

Serial No	Sample Point	Date	Time Issued	Priority
R 1735-5578	HY-104	6-18-92	R=18	25
Determination	Method/Standard	Result Units	Charge Code	Returns
CH	LA-695-102	PPM	H2331	0
Sample Size	Customer ID			
.0203 grams	RSAM124			
Remarks Calculations Results				
$\frac{1.641 \mu\text{g CN}^-}{.0203 \text{ g}} = 80.84 \mu\text{g/g} \quad \text{Blank} = .007$ $\frac{(284 - .007) - .010020}{.162679} = 1.641 \mu\text{g CN}^-$				
Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5	
16g	16g	16g	16g	16g
Date	Time Completed	Lab Unit Mgr		
7-20-92		DY Bisenius		

Serial No	Sample Point	Date	Time Issued	Priority
R 1735-5578	HY-104	6-18-92	R=18	25
Determination	Method/Standard	Result Units	Charge Code	Returns
CH	LA-695-102	% RECOVERY	H2331	0
Sample Size	Customer ID			
.0203 grams	RSAM124			
Remarks Calculations Results				
$\frac{1.119}{.0203 \text{ g}} = 55.12 \mu\text{g/g} \quad \text{Blank} = .007$ $\frac{(1119 - .007) - .010020}{.162679} = 6.774 \mu\text{g CN}^-$ $\frac{900 \mu\text{g/mL} \times .5 \text{ mL}}{100} = 4.50 \mu\text{g CN}^-$				
Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5	
16g	16g	16g	16g	16g
Date	Time Completed	Lab Unit Mgr		
7-20-92		DY Bisenius		

.881

Serial No	Sample Point	Date	Time Issued	Priority
R 1754-5815	BY-104	6-18-92	13:23	
Determination	Method/Standard	Result Units	Charge Code	Ref/Ins
PH	LA-212-103	gH 8.542		
Sample Size	Customer ID			
3.4617g / 3.4617 ml	RSA#429			
Remarks, Calculations, Results				
13.16				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
many	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
6-30-92	1030	Keith Tulla	C. K. Ray	

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1754-5815	BY-104	6-18-92	13:23	
Determination	Method/Standard	Result Units	Charge Code	Ref/Ins
PH	LA-212-103	gH 8.542		
Sample Size	Customer ID			
3.6873g / 3.6873 ml	RSA#429			
Remarks, Calculations, Results				
DUPLICATE SAMPLE				
11.87				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
many	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
6-30-92	1030	Keith Tulla	C. K. Ray	

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1751-5515	BY-104	6-18-92	13:23	
Determination	Method/Standard	Result Units	Charge Code	Ref/Ins
PH	LA-212-103	% RECOVERY		
Sample Size	Customer ID			
5 ml	SID			
Remarks, Calculations, Results				
EDP S348 PH-STD				
STD # 72C11-P, RESULT 10.07				
STD VAL 10.00 % REC 100.7				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
many	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
6-30-92	1030	Keith Tulla	C. K. Ray	

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

Serial No	Sample Point	Date	Time Issued	Priority
R 1753-5815	BY-104	6-18-92	13:23	
Determination	Method/Standard	Result Units	Charge Code	Ref/Ins
PH	LA-212-103	gH 8.542		
Sample Size	Customer ID			
3.4597g / 3.4597 ml	RSA#429			
Remarks, Calculations, Results				
DUPLICATE SAMPLE				
13.15				
Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
many	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
6-30-92	1030	Keith Tulla	C. K. Ray	

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

MHC-SD-MM-TI-540, REV. 1