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16. KEY

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2	1	Cog. Mgr. R. P. Marshall			T6-20						
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SUPPORTING DOCUMENT

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Single Shell Tank Waste Characterization
241-BX-107 Cores 40 and 41

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APPROVED FOR PUBLIC RELEASE

KMB 3/9/93

6. Author

Name: J. G. Kristofzski

Signature

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Part 1

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DISTRIBUTION SHEET

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Project Title/Work Order		EDT No. 140665
Single Shell Tank BX-107 Summary Report		ECN No. NA

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Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-DP-028
REV 0

222-S Analytical Laboratory

Project: SINGLE SHELL TANK WASTE CHARACTERIZATION

Tank: BX-107

Cores: 40 and 41

Date Printed: December 29, 1992

Hanford Operations and Engineering Contractor for the US Department of Energy

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TABLE OF CONTENTS

Cover Page 1
Table of Contents 1.1
Signature Page 2
Narrative 3
Sample Data Summary 23
Sampling and Custody Data 73
Photographs 263

CORE 40 SEGMENTS 268

Physical Test Results 269
- Particle Size 270
- Thermo Gravimetric (TGA) (Samples J895, J897) 326
- Thermo Gravimetric (TGA) (Samples J892, J893) 337
- Thermo Gravimetric (TGA) (Sample J890) 348
- Differential Thermal (DSC) (Samples J895, 897) 356
- Differential Thermal (DSC) (Samples J892, J893) 368
- Differential Thermal (DSC) (Sample J890) 380

Homogenized Segment Analyses 386
- Percent Water (Samples J907, J908) 387
- Percent Water (Samples J902, J903) 390
- Percent Water (Samples J900, J901) 393
- Percent Water (Samples J854, J855) 397
- Percent Water (Samples J851, J852) 401

CORE 40 COMPOSITES 1 AND 2 405

Physical Tests Results 406
- Thermo Gravimetric (TGA) 407
- Differential Thermal (DSC) (Sample J924) 418
- Differential Thermal (DSC) (Sample J926) 427

Undigested Sample Analyses - Direct 436
- pH 437
- Percent Water 442
- Mercury 447
- Cyanide 455

Water Digestion Sample Analyses 463
- Water Digestion (Samples J924, J926, Run 2) 464
- Water Digestion (J924, J926, Run 0) 469
- Ion Chromatographic (IC) 478
- Total Organic Carbon (TOC) 497
- Ammonia 510
- Total Inorganic Carbon (TIC) 516
- Nitrite 529
- Inductively Coupled Plasma Spectrographic (ICP) 534.1
- Carbon 14 603
- Tritium (Sample J926) 611
- Tritium (Sample J924) 616

KOH Fusion Dissolution Sample Analyses 622
Fusion Dissolution 623
Inductively Coupled Plasma Spectrographic (ICP) (Sample J924) 629
Inductively Coupled Plasma Spectrographic (ICP) (Samples J926) 700
Total Alpha 786
Total Beta 795
Gamma Energy (Sample J924) 804
Gamma Energy (Sample J926) 824
Americium 844
Iodine 870
Neptunium 893
Plutonium (Sample J926) 903
Plutonium (Sample J924) 921
Selenium 939
Strontium (Sample J924) 946
Strontium (Samples J925, J926) 952
Technetium 958
Uranium 965
Acid Digestion Analyses Results 971
Acid Digestion 972
Inductively Coupled Plasma Spectrographic (ICP) 979
Arsenic 1074
Selenium 1084
TCLP Analyses 1093
TCLP 1094
Acid Digestion (Sample J990) 1099
Acid Digestion (Samples J986, J987, J994) 1103
Inductively Coupled Plasma Spectrographic (ICP) (Samples J986, J987) 1109
Inductively Coupled Plasma Spectrographic (ICP) (Sample J990) 1176
Arsenic 1244
Mercury 1252
Selenium (Samples J986, J987) 1260
Selenium (Sample J994) 1268

CORE 41 SEGMENTS 1275

Physical Test Results 1276
Thermo Gravimetric (TGA) (Samples J882, J883, J884) 1277
Thermo Gravimetric (TGA) (Samples J887, J888) 1291
Differential Thermal (DSC) (Sample J887) 1301
Differential Thermal (DSC) (Sample J888) 1309
Differential Thermal (DSC) (Sample J884) 1315
Differential Thermal (DSC) (Samples J882, J883) 1324
Homogenized Segment Analyses 1335
Percent Water (Samples J831, J832) 1336
Percent Water (Samples J829, J830) 1340
Percent Water (Samples J809, J810) 1343
Percent Water (Samples J806, J807) 1346
Percent Water (Samples J878, J879, J868, J869, J874, J875) 1349

CORE 41 HOMOGENIZATION TEST RESULTS 1352

Segment 2 1353
Acid Digestion 1354
Inductively Coupled Plasma Spectrographic Analysis (ICP) 1360
Total Alpha 1442
Gamma Energy 1451
Segment 6 1485
Acid Digestion (Samples J814, J815) (12-03-92) 1486
Acid Digestion (Sample J814) (11-02-92) 1490
Acid Digestion (Sample J814) (8-17-92) 1496
Acid Digestion (Sample J815) (8-06-92) 1500
Inductively Coupled Plasma Spectrographic Analysis (ICP) 1504
Total Alpha 1581
Gamma Energy 1590

CORE 41 COMPOSITES 1 AND 2 1619

Physical Test Results 1620
Thermo Gravimetric Analysis (TGA) (Sample J925) 1621
Thermo Gravimetric Analysis (TGA) (Sample J927) 1629
Differential Thermal (DSC) (Sample J925) 1635
Differential Thermal (DSC) (Sample J927) 1642
Undigested Sample Analyses - Direct 1649
pH (Sample J925) 1650
pH (Sample J927) 1654
Percent Water 1658
Mercury (Sample J925) 1663
Mercury (Sample J927) 1670
Cyanide (Sample J925) 1677
Cyanide (Sample J929) 1684
Water Digestion Sample Analyses 1690
Water Digestion (Sample J925) (12-03-92) 1691
Water Digestion (Sample J925) (10-26-92) 1696
Water Digestion (Samples J924, J925) 1701.1
Water Digestion (Sample J927) 1702
Ion Chromatographic (IC) (Sample J925) 1706
Ion Chromatographic (IC)) (Sample J927) 1720
Total Organic Carbon (TOC) (Sample J925) 1730
Total Organic Carbon (TOC) (Sample J927) 1741
Ammonia (Sample J925) 1749
Ammonia (Sample J927) 1754
Total Inorganic Carbon (TIC) (Sample J925) 1758
Total Inorganic Carbon (TIC) (Sample J927) 1768
Nitrite (Sample J925) 1777
Nitrite (Sample J927) 1782
Inductively Coupled Plasma Spectrographic (ICP) (Sample J925) 1785
Inductively Coupled Plasma Spectrographic (ICP) (Sample J927) 1859
Carbon 14 (Sample J925) 1925
Carbon 14 (Sample J927) 1932
Tritium (Sample J925) 1937
Tritium (Sample J927) 1943

KOH Fusion Dissolution Sample Analyses 1948
Fusion Dissolution (Sample J925) 1949
Fusion Dissolution (Sample J927) 1953
Inductively Coupled Plasma Spectrographic (ICP) 1956
Total Alpha (Sample J925) 2024
Total Alpha (Sample J927) 2031
Total Beta (Sample J925) 2037
Total Beta (Sample J927) 2044
Gamma Energy (Sample J925) 2050
Gamma Energy (Sample J927) 2070
Americium (Sample J925) 2090
Americium (Samples J927) 2108
Iodine (Sample J925) 2126
Iodine (Sample J927) 2142
Neptunium (Sample J925) 2158
Neptunium (Sample J927) 2164.1
Plutonium (Samples J924, J925) 2165
Plutonium (Sample J927) 2183
Selenium (Sample J925) 2202
Selenium (Sample J927) 2208
Strontium (Sample J925) 2214
Strontium (Sample J927) 2220
Technetium (Sample J925) 2225
Technetium (Sample J927) 2231
Uranium (Sample J925) 2237
Uranium (Sample J927) 2242
Acid Digestion Analyses Results 2246
Acid Digestion (Sample J925) (10-21-92) 2247
Acid Digestion (Sample J925) (8-19-92) 2252
Acid Digestion (Sample J927) 2257
Inductively Coupled Spectrographic (ICP) (Samples J924, J925, J926) 2261
Inductively Coupled Spectrographic (ICP) (Sample J927) 2348
Arsenic (Sample J925) 2417
Arsenic (Sample J927) 2424
Selenium (Sample J925) 2431
Selenium (Sample J927) 2439

RADIO CHEMISTRY CALIBRATIONS 2451

Total Alpha/Total Beta 2452
Alpha Proportional Counters/Alpha Energy 2495
Gamma Spectroscopy 2554
Iodine 2586
Tritium 2589
Carbon 14/Selenium 79 2594
Technetium 2600

HOT CELL AND FIELD CELL BLANKS 2606

Undigested Sample Analyses - Direct 2606.1
Total Organic Carbon - Hot Cell Blank 2607
Total Organic Carbon - Field Cell Blank 2617
Total Alpha/Total Beta 2625
Ion Chromatographic 2641
Gamma Energy 2658
Inductively Coupled Plasma Spectrographic (ICP) 2682
Arsenic 2738
Mercury 2746
Selenium 2754

Validation Report ADDENDUM 1 . . . . . 1 - 308
Validation Data Summary ADDENDUM 2 . . . . . 1 - 41
Raw Data (not used for final results) ADDENDUM 3 . . . . . 1 - 605

This report consists of pages 1 through 2761, plus pages 1.1-1.5, 22.1, 387.1, 390.1, 496.1-496.4, 529.1, 534.1-534.27, 628.1 - 628.2, 1123.1-1123.3, 1701.1 - 1701.7, 1702.1, 1719.1-1719.4, 1729.1-1729.4, 2000.1, 2164.1-2164.7, 2222.1, 2419.1, and 2606.1.

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DUE TO THE LARGE VOLUME,
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WHC-SD-WM-DP-028
ADDENDUM 1 REV 0

BX-107 DATA VALIDATION REPORT

ADDENDUM 1

This report consists of pages 1 through 308, plus page 138.1.

Prepared for:

Westinghouse Hanford Company
P. O. Box 1970
Richland, Washington 99352

Prepared by:

Los Alamos Technical Associates
8633 West Gage Boulevard
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March 16, 1993

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WHC-SD-WM-DP-028
ADDENDUM 1 REV 0

Data Validation Report

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SIGNATURE PAGE

I have reviewed the Inorganic and Radiochemistry results reported in this data package (when applicable). The results meet the requirements of "Quality Assurance Project Plan for Characterization of Single Shell Tanks" - WHC-EP-0210, Appendix D, unless superseded by the Statement of Work or Technical Project Plan. Deviations from approved plans are documented in Characterization Change Notices, Letters of Instruction, or addressed in the narrative.

J. G. Kristofzski
Single Shell Tank Project Manager

Date

I have reviewed the compiled report and certify that this data package meets the document standards of the RCRA Data Packaging Procedure WHC-CM-5-4, Section 3.4, Rev. 0.

L. R. Webb
Records Management Specialist
Data Coordinator

2/24/93
Date

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

L. P. Markel
Laboratory Q.A. Officer

2/24/93
Date

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

for by telecon 720am
M. L. Bell, Manager
Processing and Analytical Laboratories

2/24/93
Date

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BX-107 Data Validation

Validation of the BX-107 data package was performed to the requirements provided in Sections 2.0, 2.1, and 2.4, of WHC-CM-5-3, Rev. 0. The overriding QA Requirements document was Appendix D of WHC-EP-210, Rev. 3. This data package was validated by Los Alamos Technical Associates (LATA) personnel.

The primary objective of the data validation effort was to ensure the usability and defensibility of the data produced for the Single Shell Tank (SST) characterization project. This was accomplished through a detailed examination of the data package to recreate the analytical process and verify that proper and acceptable analytical techniques had been applied. Additionally, the data package was checked for correct submission of required deliverables, correct data transcriptions from the raw data to the data summary forms, and for proper calculation of a number of parameters.

An overall assessment of the data for each Sample Data Group (SDG) is provided on the Data Assessment Summary Form as required by WHC-CM-5-3. Additionally, a summary of each constituent, associated qualifiers, sub-qualifiers, and specific comments are included on the reverse side of the Data Assessment Summary Form for each SDG.

Data Assessment Summary Tables

Data Assessment Summary Tables are contained both at the end of this narrative, and individually in each appropriate section of analysis validation. The Sumary Tables present the data qualifiers and sub-qualifiers assigned to all BX-107 analytical results, and include all properties and analytes reported for the Segments, Cores, and Composites. The analytical results included on the Summary Tables are taken from the raw data sheets, and are presented in a more condensed form than in the Sample Data Summary. Since the Summary Tables include specific qualification categories, and therefore contain more information on data shortcomings, they are provided as a concise package of all data validation results.

At the top of each table is presented the analysis type, the composite or segment analyzed, and the unique sample ID. The analyte or property, and the sample results, are listed in the first two columns. If the sample results are below the instrument detection limits, either a "U" appears after the sample value or the value is reported as "Less Than." When particular sample results are considered unreliable, an "R" is placed after the value in the results column. The numbered qualifier columns provide a more comprehensive presentation of the assessments made to each sample result. While each qualification category does not apply to all analyses, the qualification numbers always refer to a specific qualification criteria.

Validation of the chemical analyses data package was performed to the requirements provided in Sections 2.0 and 2.1 of WHC-CM-5-3, Rev. 0. The qualification categories for non-radiochemical analyses are presented below:

1 Chain of Custody
2 Holding Times
3 Instrument Calibration

4 Initial and Continuing Calibration Verification
5 Analytical Blanks
6 Preparation Blanks
7 Interference Check Sample
8 Laboratory Control Sample
9 Duplicate Analysis
10 Matrix Spike or Post-Digestion Spike
11 Retention Time
12 Contract Required Detection Limit Standard
13 Serial Dilution

When Quality Assurance criteria were not met in a particular category for a sample result, the appropriate data qualifier was attached. By cross-referencing the above lists, it can be seen which qualification criteria were lacking. The RCRA validation process data qualifiers are defined as follows:

U The material was analyzed for, but was not detected. The associated value is the MDL or SQL.

UJ The material was analyzed for, but was not detected. The MDL or SQL is an estimated quantity.

J The associated value is an estimated quantity.

R The data are unusable.

Validation of the radiochemical parameters of the data package was performed to the requirements provided in Section 2.4 of WHC-CM-5-3, Rev. 0. The unique qualification catagories for radiochemical data validation are listed below:

Major Deficiencies resulting in the qualification of data as Unreliable:
R1 Tracer Recovery below 50%
R2 Raw Data sheet not provided for analysis batch
R3 Matrix Spike not run or reported
R4 Calibration information not provided

Minor Deficiencies resulting in the qualification of data as estimated "J" for detects and "UJ" for nondetects:
J1 Calibration Standard not traceable to NIST or equivalent
J2 Detector Efficiency check data not provided
J3 Analysis run when efficiency exceeded control limit
J4 Background check data not provided
J5 Analysis run when background check exceeded control limit
J6 Blank activity exceeds 10% of the sample activity
J7 Duplicate RPD exceeds 20%, with sample >5X background value
J8 Matrix Spike recovery below 75%, with spike >25% sample activity
J9 Internal Standard not traceable to NIST or equivalent
J10 Calculation and reporting of "Less Than" values not defined or consistent
J11 Values reported were lower than "Less Than" quantity in blanks
J12 Calibration information incomplete or unclear
J13 Sample analysis result not reported
J14 Duplicate analysis not reported or run
J15 Sample run in separate batch from all other QC data reported

Concerns not requiring qualification of the data but still having a potential impact on data quality:

- C1 Laboratory Control Standard not traceable to reference source
- C2 Matrix Spike not traceable to reference source
- C3 Carrier not traceable to reference source
- C4 Detector Efficiency Check Source not traceable to reference source
- C5 Program requirements specify calibration using SR/Y-90; detectors calibrated using Co-60
- C6 No documentation provided for initial energy channel calibration
- C7 Spike/Tracer/Carrier recoveries not reproducible from data provided
- C8 Percent recovery not reported
- C9 LCS/Blank samples run on different Sr-90 detector than sample
- C10 Background acceptance criteria not provided

As a supplement to the Data Assessment Summary Forms, a narrative based on the reviewers comments for each analytical technique is included. In general, only major inconsistencies requiring an "R" qualifier or minor inconsistencies that appeared frequently for a particular analyte are called out in the validation narrative.

Chemical Data Validation Narrative

Inductively Coupled Argon Plasma (ICP)

Samples from each core composite, hot cell blank, field blank, and 2 segments were analyzed by ICP. Samples preparation consisted of either acid digestion, KOH fusion, water digestion, or TCLP extraction (followed by acid digestion). Thirty elements were then determined by simultaneous ICP and reported in EPA CLP format using Ward Scientific Software.

Two areas were identified within this data package for which deficiencies exist that could significantly affect the overall quality of the ICP data. The first area, instrument calibration, affects nearly all of the sample results generated by ICP for the BX-107 data.

Because the ICP instrumentation is relatively unstable, the Waste Characterization Plan (WHC-EP-0210 Rev. 3, App. D) requires ICP instrument calibration once every 24 hours or once per setup. This calibration, which is based on EPA SW-846 and CLP protocols, requires the ICP operator to analyze at a minimum one calibration blank and one calibration standard at least once during the specified interval for all elements analyzed. By re-establishing the slope and intercept at frequent intervals, accurate results are ensured over the entire linear range for each element. ICP raw data from several packages did not contain evidence of this two-point initial calibration. However, since additional accuracy indicators such as matrix spikes, calibration verification standards, and LCS analyses are included in the ICP data package, and because 222-S laboratory personnel have indicated that the initial calibrations were performed at the required intervals, affected data points were not qualified when initial calibration documentation was not present.

Another potential source of error arises from interelement effects which, in some cases, can adversely affect the accuracy and detection limits of the ICP results. This is especially true for uranium because of the abundance of emission lines produced as well as the relatively high uranium concentration in the samples. To evaluate the effect of uranium on the analytes of interest, the 222-S laboratory analyzed 50 mg/L and 100 mg/L uranium standards. Using the apparent analyte concentrations seen in the standards, the potential for significant interelement effects was examined. Analytes were assigned "J" qualifiers if the absolute value of the apparent analyte concentration caused by uranium exceeded 10% of the sample concentration.

Metals by Gaseous Hydride Atomic Absorption Spectrometry

Arsenic, antimony, and selenium were determined by Gaseous Hydride Atomic Absorption (GHAA) spectrometry. No major problems were noted during the review of the gaseous hydride data. With the absence of potential uranium interferences, and with lower instrument detection limits, the results for these elements by GHAA should be considered to be more reliable than those obtained by ICP.

Mercury by Cold Vapor Atomic Absorption Spectrometry

Mercury was determined by cold vapor atomic absorption spectrometry (CVAA). No major problems were noted for the data associated with this package.

Ion Chromatography

Anions were determined by ion chromatography (IC) on the water digestions from both core samples as well as on the hot cell and field blanks. Most of the anion data was qualified as being estimated, "J", because of high contaminant levels present in the preparation blanks. Additionally, all nitrate, sulfate, and phosphate results were qualified as estimated, "J", because retention time acceptance criteria were exceeded.

Ammonia

No major problems were found with the data.

Cyanide

No major problems were found with the data.

Nitrite

No major problems were found with the data.

Hexavalent Chromium

No major problems were found with the data.

Radiochemical Data Validation Narrative

A consistent problem that significantly reduced the ability of the reviewer to reconstruct specific calculations was the lack of adequate documentation for the radiochemical data. In many instances, calculations were shown with no units provided and with unexplained factors present on the data card. In other cases, documentation was not provided for the preparation of calibration or check standards. If a data validator could not reconstruct the calculation, the defensibility of that data could be considered questionable. Therefore, in such cases, a comment qualifier "C" was assigned to the associated data.

Total Alpha

Total alpha activity was determined for the KOH fusion core samples, two acid digested segments, and both blanks. Accuracy was monitored through the use of matrix spikes. Because no matrix spike was analyzed with the fused sample from core 41 Composite 2, total alpha data for that sample was qualified as unreliable, "R". There were no other major deficiencies noted during the evaluation of the data.

Total Beta

Total Beta activity was determined on the KOH fusion core samples and two acid digested segments. Matrix spikes were run to monitor accuracy. No major deficiencies were noted during the evaluation of the data.

Americium-241

Americium-241 was determined on the KOH fusion samples for each core. Initially, each sample mount was counted on an Alpha Proportional Counter (APC) to determine the total activity for that mount. Americium-241 was then determined by Alpha Energy Spectrometry (AEA). A known activity of a tracer was added to each sample mount to determine efficiency for that sample. Because the efficiency is verified for each sample using the tracer recovery, efficiency checks are not applicable to AEA analyses. Each AEA detector is evaluated daily using a mixed isotope standard to verify energy calibrations. Because no documentation was provided for daily energy verification for the dates that the BX-107 samples were counted, all data was qualified as "J" (estimated). Also, since the tracer recoveries were well below the program goal of 50%, all results have been qualified as "R" (unreliable).

Plutonium 239/240

Plutonium 239/240 was also determined on the fused samples by AEA. Each sample mount was initially counted on the APC to determine the total alpha activity. The mounts were then counted on the AEA detector to determine the activity of the alpha emitting isotopes. As with Americium-241, efficiency checks are not required. Energy calibrations were checked on a daily basis. No major deficiencies were noted with the plutonium determinations. Some "J" and "C" qualifiers were assigned because of missing documentation.

Neptunium-237

Neptunium-237 was determined on the KOH fusion samples by chemical separation followed by mounting the sample and counting by APC. Detector efficiency for the APC's were determined for one counter and then applied to other APC's of identical geometry. Accuracy was monitored through the use of matrix spikes. No significant problems were encountered during the review of this data.

Strontium-90

Strontium-90 was determined on the fused samples using the beta emanation technique. Other than insufficient documentation for determination of theoretical carrier yields, no significant problems were identified for the Sr-90 determinations.

Iodine-129

Iodine-129 was determined on the KOH fusion samples by chemical separation followed by gamma spectrometry. Accuracy was evaluated by comparing theoretical carrier yields with the actual yields. The results for core 41, composite 2 was qualified as unreliable, "R", because of poor carrier recovery.

Technicium-99

Technicium-99 was determined on the fused samples from both cores by liquid scintillation counting. No problems with the data were encountered.

Tritium

Tritium (H-3) was determined on the water digests by liquid scintillation. Matrix spikes and duplicates were run with each batch. Quench curves and background checks were provided with all data packages. No significant deficiencies were noted during the review of the tritium data packages.

Carbon-14

Carbon-14 was also determined on the water digests by liquid scintillation counting. Matrix spikes and duplicates were run with each batch. Quench curves and background checks were provided for each sample. Sample results were qualified as "J" (estimated) because duplicate RPD's exceeded acceptance criteria.

Selenium-79

Selenium-79 was determined on the water digests by liquid scintillation using calibrations obtained from C-14 reference material. Since Se-79 calibration standards do not exist, matrix spikes or LCS samples were not run. Corrections for method efficiency were provided through the use of a selenium carrier.

Total Uranium

Uranium was determined by laser fluorescence on the fused samples from each core composite. An internal standard was run with each sample, therefore no initial calibration was required. No major deficiencies were noted with the data from this batch. The data was qualified as "J" (estimated) because of poor duplicate precision and missing documentation for internal standard traceability.

Gamma Energy Analyses (GEA)

Gamma Energy Analysis was run on the fused samples, water digests, acid digests, and the hot cell and field blanks from both core composites as well as two of the segments. No matrix spikes or tracers are required for GEA determinations. Backgrounds are run daily on each GEA detector and compared to an historical 60,000 second background. If the daily background is accepted as within limits, the 60,000 second file is used to background correct the sample data. No significant deficiencies were found with the GEA determinations.

Physical Parameters Data Validation Narrative

Wt% Water

No problems were noted with the wt% water data. The wt% water was determined in duplicate for each sample.

Particle Size

Particle size data were assigned J4 and J8 qualifiers since no LCS or CCV analyses were run with the sample batch.

pH

The pH data were assigned J3, J4, and J8 qualifiers; there was no evidence indicating that two standard buffers were used to calibrate the instrument, and no ICV or CCV analyses were conducted.

Differential Scanning Calorimetry (DSC)

No exotherm was exhibited.

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J924

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	12300 mg/kg				J									
Sb	34.8 U				UJ	U		UJ						
As	2.8 U							UJ						
Ba	7.3							J						
Be	0.28 U					U		UJ						
Cd	2.0					J		J						
Ca	3500						J		J					
Cr	889													
Co	2.2					J		J						
Cu	65.1						J							
Fe	9860													
Pb	55.5				J	J								
Mg	202						J							
[illegible]	37.8													
Ni	11.6					J		J						
K	273						J		J					
Se	326				J		J		J					
Ag	0.95 U				UJ	U		UJ	UJ					
Na	102000				J				J					
Zn	75.0						J	J						
Bi	21900							J	J					
B	47.0						J	J	J					
Ce	154						J	J						
La	1.5 U					U		UJ						
P	19500							J						
Si	1660						J		J					
Sr	161							J						
S	4760						J	J	J					
[illegible]	3.3					J		J						
Ti	3.2					J		J						
Zr	112						J							

OTHER ANALYSES
CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J924, J986, J987, J994, J995

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
DIRECT ANALYSIS														
DSC	NO EXOTHERM													
TGA	56.40%													
% WATER	57.50%													
pH	9.59													
WATER DIGEST														
As	.462 µg/g								J	J				
Se	1.52 µg/g					J								
Hg	.560 µg/g													
CN^-	3.14 µg/g													
NH_3	<4500 µg/g													
TOC	700 µg/g				J									
TIC	1,100 µg/g				J	J								
SPEC WATER														
NO_2	13,100 µg/g													
TCLP														
As	before H+: 2.04 µg/g after H+: <.0050 µg/g					U				U				
Se	before H+: 1.63 µg/g after H+: <.00 µg/g				U	U				U				
Hg	before H+: .0264 µg/g after H+: .0497 µg/g				U	U								

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J924

PREPARATION Water Digest

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS		QUALIFIERS												
			1	2	3	4	5	6	7	8	9	10	11	12	13
Al	115 mg/kg														
Sb	37.3	U				UJ									
As	3.1	U													
Ba	0.45														
Be	0.31	U													
Cd	0.71	U													
Ca	1130							J			J				
Cr	158														
Co	1.0	U													
Cu	0.69														
Fe	51.6							J							
Pb	7.2	U							UJ						
Mg	24.3	U						J			J				
	1.5										J				
Ni	1.4	U													
K	170														
Se	8.5	U				UJ									
Ag	1.0	U					UJ	UJ							
Na	26300							J			J				J
Zn	43.3										J				
Bi	99.6														
B	27.9							J							
Ce	10.0	U													
La	1.6	U													
P	4770														J
Si	524							J			J				
Sr	2.0										J				
S	4540							J							J
	2.3	U													
Ti	0.41	U													
Zr	1.5														

ION CHROMATOGRAPHY

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J924

PREPARATION WATER DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	8,910 µg/g				J									
Cl	1,170				J									
NO_2	10,200				J									
NO_3	145,000				J							J		
PO_4	14,500				J							J		
SO_4	14,100				J							J		

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C1_ SAMPLE ID J924

PREPARATION KOH FUSION

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	13400 mg/kg													
Sb	183 U				UJ			UJ						
As	15.0 U							UJ						
Ba	4.2						J	J						
Be	1.5 U							UJ						
Cd	3.5 U							UJ						
Ca	343													
Cr	954													
Co	5.0 U							UJ						
Cu	61.0													
Fe	10700													
Pb	35.4 U							UJ	UJ					
Mg	108													
[illegible]	65.1													
Ni	8520							J						
K														
Se	41.4 U				UJ			UJ						
Ag	5.0 U							UJ	UJ					
Na	102000				J									
V	23.6							J						
Zn	78.1							J						
Bi	21300							J						
B	16.1							J						
Ce	48.9 U							UJ						
La	8.0 U							UJ						
P	23900							J						
Si	6430													
Sr	164							J						
[illegible]	4790							J						
Sn	11.5													
Ti	2.0 U				UJ			UJ						
Zr	181													

RADIOCHEMICAL ANALYSIS
CORE C40 COMPOSITE C1

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.0789 µCi/g	C	C											
TOTAL BETA	50.3	C	C											
TOTAL U	9.32×10^{-6} (1,560 µg/g)	C	C											
GEA														
Cs-137	13.5	C	J		J									
Eu-154	<.0185	C	UJ		UJ									
Eu-155	<.0311	C	UJ		UJ									
Am-241	<.0748	C	UJ		UJ									
Co-60	<.00683	C	UJ		UJ									
I-129	<.0139		UJ								C	UJ		
AEA														
Pu 239/240	.0349						C	J			C			
Pu-238	<.00449													
Am-241	.00805 R	R C	J				C				C			
Cm-244	No Detect													
Np-237	<.0216													
BETA Sr-90	9.76				C		C			J	C			
LIQUID SCINT														
Tc-99	.0356				C			C			C			
H-3	.000389	C	C											
C-14	.000306	C						J						
Se-79	<.000125			C										

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT CI SAMPLE ID J986

PREPARATION TCLP

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al														
Sb														
As	.321500 mg/L				J			J						
Ba	.041130							J						
Be														
Cd	.070000 U													
Ca														
Cr	.120000 U													
Co														
Cu														
Fe														
Pb	.710000 U													
Mg														
In														
Ni														
K														
Se	.830000 U				UJ								UJ	
Ag	.100000 U										UJ			
Na														
Zn														
Bi														
B														
Ce														
La														
P														
Si														
Sr														
S														
n														
Ti														
Zr														

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J987

PREPARATION TCLP

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al														
Sb														
As	.300000 mg/L U				UJ									
Ba	.103040							J						
Be														
Cd	.070000 U													
Ca														
Cr	7.055620							J						
Co														
Cu														
Fe														
Pb	.710000 U													
Mg														
Mn														
Ni														
K														
Se	.830000 U				UJ								UJ	
Ag	.100000 U										UJ			
Na														
Zn														
Bi														
B														
Ce														
La														
P														
Si														
Sr														
S														
Mn														
Ti														
Zr														

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J990

PREPARATION TCLP

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al														
Sb														
As														
Ba	48.977200 mg/L									J				
Be														
Cd	.762933													
Ca														
Cr	9.076867													
Co														
Cu														
Fe														
Pb	12.759100									J				
Mg														
In														
Ni														
K														
Se														
Ag	.964333				J			J	J	J				
Na														
Zn														
Bi														
B														
Ce														
La														
P														
Si														
Sr														
S														
n														
Ti														
Zr														

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C2 SAMPLE ID J926

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS 1	2	3	4	5	6	7	8	9	10	11	12	13
Al	12500 mg/kg				J									
Sb	34.5 U				UJ	U		UJ						
As	2.8 U							UJ						
Ba	6.3							J						
Be	0.28 U					U		UJ						
Cd	2.0					J		J						
Ca	365						J		J					
Cr	877													
Co	1.6					J		J						
Cu	72.4						J							
Fe	9430													
Pb	54.9				J	J								
Mg	156						J							
[illegible]	33.2													
Ni	10.8					J		J						
K	199						J		J					
Se	260						J		J					
Ag	0.94 U				UJ	U		UJ	UJ					
Na	103000				J				J					
Zn	31.3						J	J						
Bi	22200							J	J					
B	68.5						J	J	J					
Ce	169						J	J						
La	1.5 U					U		UJ						
P	22100							J						
Si	1630						J		J					
Sr	158							J						
S	5070						J	J	J					
[illegible]	2.2 U					U		UJ						
Ti	3.7					J		J						
Zr	87.2						J							

OTHER ANALYSES
CORE C40 COMPOSITE/SEGMENT C2 SAMPLE ID J926

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
DIRECT ANALYSIS														
DSC	NO EXOTHERM													
TGA	63.30%													
% WATER	57.30%													
pH	9.77													
WATER DIGEST														
As	.433 µg/g								J	J				
Se	1.76 µg/g													
Hg	.366 µg/g													
CN^-	1.79 µg/g									J				
NH_3	<4500 µg/g													
TOC	<550 µg/g				UJ									
TIC	1,600 µg/g				J	J				J				
SPEC WATER														
NO_2	10,000 µg/g													

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C2 SAMPLE ID J926

PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	80.0 mg/kg													
Sb	37.3 U													
As	3.1 U													
Ba	0.39									J				
Be	0.31 U													
Cd	0.71 U													
Ca	947									J				
Cr	131													
Co	1.0 U													
Cu	0.77													
Fe	42.7													
Pb	7.2 U							UJ						
Mg	44.1									J				
In	1.6									J				
Ni	1.4 U													
K	131													
Se	8.4 U				UJ									
Ag	1.0 U					UJ								
Na	52900									J				J
Zn	33.1									J				
Bi	78.3													
B	28.9													
Ce	10 U													
La	1.6 U													
P	5260													J
Si	368													
Sr	1.9									J				
S	4690													J
n	2.3 U													
Ti	0.41 U													
Zr	0.81 U									UJ				

ION CHROMATOGRAPHY

CORE C40 COMPOSITE/SEGMENT C2 SAMPLE ID J926

PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	8,500 μg/g				J									
Cl	1,140				J									
NO_2	9,120				J									
NO_3	146,000				J							J		
PO_4	14,800				J							J		
SO_4	14,100				J							J		

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C2 SAMPLE ID J926

PREPARATION KOH FUSION

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

NALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	11200 mg/kg													
Sb	183 U				UJ			UJ						
As	15.0 U							UJ						
Ba	8.4							J						
Be	1.5 U							UJ						
Cd	3.5 U							UJ						
Ca	303													
Cr	787													
Co	5.0 U							UJ						
Cu	72.7													
Fe	8350													
Pb	65.6					J				J				
Mg	85.5													
[illegible]	49.9									J				
Ni	2480							J		J				
K														
Se	41.4 U							UJ						
Ag	8.5					J	J	J						
Na	99700													
V	7.3							J						
Zn	51.3							J						
Bi	19300				J			J						
B	20.1							J						
Ce	211				J			J		J				
La	8.0 U				UJ			UJ						
P	19400				J			J						J
Si	5630													
Sr	165				J			J						
[illegible]	4650				J			J						
Sn	11.5 U				UJ									
Ti	6.3							J		J				
Zr	79.0				J	[illegible]				J				

RADIOCHEMICAL ANALYSIS
CORE C40 COMPOSITE C2

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.0717 µCi/g	C	C											
TOTAL BETA	38.8	C	C											
TOTAL U	5.27×10^{-6} (1,860 µg/g)	C	C											
GEA														
Cs-137	10.9	C									C			
Eu-154	<.00181	C									C			
Eu-155	<.0290	C									C			
Am-241	<.0689	C									C			
Co-60	<.00654	C									C			
I-129	<.0954		UJ								C	UJ		
AEA														
Pu 239/240	.0834						C	J			C			
Pu-238	<.00450													
Am-241	.0141 R	R C	J				C				C			
Cm-244	No Detect													
Np-237	<.0216													
BETA Sr-90	7.71	C			C		C			J	C			
LIQUID SCINT														
Tc-99	.0283				C			C			C			
H-3	.000779	C	C											
C-14	.000182	C						J						
Se-79	<.000123			C										

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT S2H SAMPLE ID J836

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

NALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	16200 mg/kg								J					
Sb	34.4 U				UJ			UJ			UJ			
As	7.5							J		J				
Ba	16.2							J						
Be	0.28 U							UJ						
Cd	3.8							J						
Ca	371 R						J		J		R			
Cr	1220													
Co	1.4							J						
Cu	22.1													
Fe	17400													
Pb	92.3													
Mg	158										J			
n	70.6													
Ni	16.6							J						
K	549													
Se	378 R				R				J					
Ag	0.94 U				UJ			UJ			UJ			
Na	95900				J									
V	5.9							J		J				
Zn	120							J						J
Bi	31000							J						
B	31.9							J		J	J			
Ce	253							J						
La	1.5 U							UJ						
P	26300							J	J					
Si	2280								J					
Sr	218							J						
	4250						J	J						
Sn	9.4													
Ti	5.5							J						
Zr	146										J			

RADIOCHEMICAL ANALYSIS
CORE 41 SEGMENT 2H-1 SAMPLE ID J836

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.142 µCi/g	C	C											
GEA														
Cs-137	45.7	C									C			
Eu-154	<.0170	C									C			
Eu-155	<.0520	C									C			
Am-241	<.130	C									C			
Co-60	<.00650	C									C			

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT S2H SAMPLE ID J837

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

NALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	16600 mg/kg								J					
Sb	35.3 U				UJ			UJ			UJ			
As	6.3							J						
Ba	16.6							J						
Be	0.29 U							UJ						
Cd	4.0							J						
Ca	366 R						J		J		R			
Cr	1250													
Co	0.97 U							UJ		UJ				
Cu	22.4													
Fe	17800													
Pb	102													
Mg	163										J			
ı	71.5													
Ni	16.2							J						
K	573													
Se	399 R				R				J					
Ag	0.97 U				UJ			UJ			UJ			
Na	98800				J									
V	6.0							J						
Zn	126							J						J
Bi	32000							J						
B	25.7							J		J	J			
Ce	261							J						
La	1.6 U							UJ						
P	26700							J	J					
Si	2190								J					
Sr	225							J						
	4430						J	J						
Sn	11.1													
Ti	5.8							J						
Zr	137										J			

RADIOCHEMICAL ANALYSIS
CORE 41 SEGMENT 2H-1 SAMPLE ID J837

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.171 µCi/g	C	C											
GEA														
Cs-137	47.1	C									C			
Eu-154	<.0180	C									C			
Eu-155	<.0550	C									C			
Am-241	<.130	C									C			
Co-60	<.00580	C									C			

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT S6H SAMPLE ID J814

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	17100 mg/kg				J	J								
Sb	34.9 U				UJ	UJ		UJ						
As	3.0 U					UJ		UJ						
Ba	8.4					J		J						
Be	0.29 U					UJ		UJ						
Cd	2.6					J		J						
Ca	277					J	J							
Cr	1040					J								
Co	1.9					J		J						
Cu	18.3					J								
Fe	12200					J								
Pb	64.8				J	J								
Mg	138					J	J							
[illegible]	40.1					J		J						
Ni	12.4					J		J						
K	94.7					J		J						
Se	14.3				J	J		J		J				
Ag	0.98 U					UJ		UJ	J					
Na	101000				J	J	J		J					J
Zn	44.5					J		J						
Bi	28200					J		J						
B	25.6					J	J	J	J	J				
Ce	194					J		J						
La	2.1 U					UJ		UJ						
P	25900					J		J						
Si	1610 R					J	J		R		J			
Sr	174					J		J						
S	4050					J		J						
[illegible]	9.4					J								
Ti	4.1					J								
Zr	108					J					J			

RADIOCHEMICAL ANALYSIS
CORE 41 SEGMENT 6H-1 SAMPLE ID J814

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.141 µCi/g	C	C								C			
GEA														
Cs-137	7.26	C									C			
Eu-154	<.00370	C									C			
Eu-155	<.0100	C									C			
Am-241	<.0240	C									C			
Co-60	<.00126	C									C			

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT S6H SAMPLE ID J815

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

NALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	17000 mg/kg				J	J								
Sb	33.6 U				UJ	UJ		UJ						
As	2.9 U					UJ		UJ						
Ba	8.5					J		J						
Be	0.28 U					UJ		UJ						
Cd	2.5					J		J						
Ca	276					J	J							
Cr	1030					J								
Co	1.7					J		J						
Cu	18.6					J								
Fe	12200					J								
Pb	60.6				J	J								
Mg	136					J	J							
[illegible]	40.4					J								
Ni	12.3					J		J						
K	113					J								
Se	26.1				J	J		J		J				
Ag	0.94 U					UJ		UJ	UJ					
Na	98200				J	J	J		J					J
Zn	43.9					J		J						
Bi	27900					J		J						
B	24.2					J	J	J	J					
Ce	193					J		J						
La	2.0 U					UJ		UJ						
P	25300					J		J						
Si	1150 R					J	J		R	J	J			
Sr	174					J		J						
S	4130					J		J						
[illegible]	7.5					J								
Ti	4.3					J		J						
Zr	76.6					J				J	J			

RADIOCHEMICAL ANALYSIS
CORE 41 SEGMENT 6H-1 SAMPLE ID J815

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.145 µCi/g	C	C								C			
GEA														
Cs-137	7.20	C									C			
Eu-154	<.00380	C									C			
Eu-155	<.00980	C									C			
Am-241	<.0235	C									C			
Co-60	<.00120	C									C			

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C1 SAMPLE ID J925

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	16200 mg/kg				J									
Sb	34.7 U				UJ	U		UJ			UJ			
As	3.1							J						
Ba	10.1							J						
Be	0.28 U					U		UJ						
Cd	2.7					J		J						
Ca	416						J		J	J	J			
Cr	1070													
Co	2.1					J		J						
Cu	18.6						J				J			
Fe	12800													
Pb	77.5				J						J			
Mg	162						J			J				
n	46.2													
Ni	13.6					J		J			J			
K	299						J		J		J			
Se	366				J		J		J		J			
Ag	0.95 U				UJ	U		UJ	UJ		UJ			
Na	104000				J				J					
Zn	77.1						J	J	J		J			
Bi	27300							J	J					
B	57.6						J	J	J	J				
Ce	192						J	J	J	J				
La	1.5 U					U		UJ			UJ			
P	24400							J						J
Si	1630						J		J					
Sr	185							J						
S	4520						J	J	J					
ı	5.3					J		J		J				
Ti	4.2					J		J						
Zr	86.4						J				J			

OTHER ANALYSES
CORE C41 COMPOSITE/SEGMENT CC1 SAMPLE ID J925

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
DIRECT ANALYSIS														
DSC	NO EXOTHERM													
TGA	66.30%													
% WATER	56.00%													
pH	9.95													
WATER DIGEST														
As	.319 µg/g									J				
Se	2.01 µg/g													
Hg	.539 µg/g										J			
CN^-	2.88 µg/g													
NH_3	<4500 µg/g													
TOC	<500 µg/g				UJ									
TIC	1,390 µg/g				J	J				J				
SPEC WATER														
NO_2	13,900 µg/g													

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C1 SAMPLE ID J925

PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	73.3 mg/kg				J		J							
Sb	36.3 U				UJ									
As	3.2 U													
Ba	0.31 U													
Be	0.31 U													
Cd	0.71 U													
Ca	141						J							J
Cr	154													
Co	1.2 U													
Cu	0.61 U				UJ	UJ	UJ							
Fe	61.5													
Pb	8.7 U													
Mg	6.6						J							
n	0.31 U				UJ									
Ni	1.8 U													
K	151													
Se	13.4 U				UJ									
Ag	1.0 U					UJ								
Na	79400													
Zn	2.6 U													
Bi	116										J			
B	20.5													
Ce	8.8 U													
La	2.1 U													
P	4560													
Si	133													J
Sr	1.5													
S	4350													
ı	1.6 U													
Ti	0.57 U													
Zr	1.1 U						UJ			UJ				

ION CHROMATOGRAPHY
CORE C41 COMPOSITE/SEGMENT C1 SAMPLE ID J925
PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	9,040 µg/g				J									
Cl	1,040				J									
NO_2	12,500				J									
NO_3	124,000				J							J		
PO_4	13,400				J							J		
SO_4	12,800				J							J		

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C1 SAMPLE ID J925

PREPARATION KOH FUSION

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

NALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	17200 mg/kg													
Sb	182 U				UJ			UJ						
As	14.9 U							UJ						
Ba	12.0							J						
Be	1.5 U							UJ						
Cd	4.7					J		J						
Ca	365													
Cr	1080													
Co	5.0 U							UJ						
Cu	25.9													
Fe	13400													
Pb	123					J		J		J				
Mg	131													
ı	65.2									J				
Ni	4300							J		J				
K														
Se	41.3 U							UJ						
Ag	7.6					J	J	J						
Na	101000													
V	10.5							J						
Zn	92.8						J	J						
Bi	28200				J			J						
B	8.3							J						
Ce	230				J			J		J				
La	8.0 U				UJ			UJ						
P	25900				J			J						J
Si	7980													
Sr	188				J			J						
	4030				J			J						
Sn	11.5 U				UJ									
Ti	8.1							J		J				
Zr	173				J					J				

RADIOCHEMICAL ANALYSIS
CORE C41 COMPOSITE C1

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.123 µCi/g	C	C											
TOTAL BETA	52.4	C	C								C			
TOTAL U	0.00 (2,820 µg/g)							J		J				
GEA														
Cs-137	20.0	C									C			
Eu-154	<.0159	C									C			
Eu-155	<.0376	C									C			
Am-241	<.0896	C									C			
Co-60	<.00682	C									C			
I-129	<.0183										C			
AEA														
Pu 239/240	.0549		J				C			J	C			
Pu-238	No Detect													
Am-241	.0128 R	R					C				C			
Cm-244	No Detect													
Np-237	<.0215	C	C											
BETA Sr-90	11.8	C			C		C			J	C			
LIQUID SCINT														
Tc-99	.0429				C			C			C			
H-3	.000420	C	C											
C-14	.000349	C						J						
Se-79	<.000126			C										

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C2 SAMPLE ID J927

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	16600 mg/kg						J		J					
Sb	33.5 U				UJ	U		UJ	UJ					
As	2.7 U					U		UJ						
Ba	9.3							J						
Be	0.27 U					U		UJ						
Cd	2.7					J		J						
Ca	306						J		J					
Cr	1040													
Co	0.91 U					U		UJ						
Cu	17.2								J					
Fe	12500								J					
Pb	69.2					J								
Mg	125						J		J					
Mn	43.9						J							
Ni	13.9							J						
K	278						J		J					
Se	7.6 U				UJ	U		UJ						
Ag	0.91 U				UJ	U		UJ	J					
Na	100000						J		J					J
Zn	66.5						J	J	J					
Bi	26400							J	J					
B	21.2						J	J	J	J				
Ce	205							J						
La	1.5 U					U		UJ						
P	26900							J						
Si	1770						J		J					
Sr	172						J	J						
S	4030						J	J	J					
Sn	10.7					J								
Ti	4.1							J						
Zr	115													

OTHER ANALYSES
CORE C41 COMPOSITE/SEGMENT C2 SAMPLE ID J927

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
DIRECT ANALYSIS														
DSC	NO EXOTHERM													
TGA	50.70%													
% WATER	55.90%													
pH	9.72													
WATER DIGEST														
As	.517 µg/g													
Se	.596 µg/g				J									
Hg	.627 µg/g			J										
CN^-	2.07 µg/g													
NH_3	<4500 µg/g													
TOC	796 µg/g				J									
TIC	1,100 µg/g				J	J								
SPEC WATER														
NO_2	12,400 µg/g													

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C2 SAMPLE ID J927

PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	350 mg/kg				J		J			J				
Sb	37.2 U				UJ									
As	3.0 U				UJ									
Ba	0.64				J					J				
Be	0.30 U				UJ									
Cd	0.71 U				UJ									
Ca	136				J		J			J				
Cr	171				J									
Co	1.2				J									
Cu	1.1				J					J				
Fe	422				J					J				
Pb	7.5				J			J						
Mg	9.6				J		J			J				
[illegible]	1.7				J					J				
Ni	1.4 U				UJ									
K	128				J									
Se	74.5 R				R		J							
Ag	1.0 U				UJ									
Na	72600				J									
V	0.81 U				UJ									
Zn	5.3				J									
Bi	839				J					J				
B	23.2				J		J							
Ce	10 U				UJ									
La	1.6 U				UJ									
P	4810				J									J
Si	271				J		J							J
Sr	6.5				J					J				
[illegible]	4170				J	J	J							
Sn	2.3 U				UJ									
Ti	0.41 U				UJ									
Zr	7.9				J		[illegible]			J				

ION CHROMATOGRAPHY

CORE C41 COMPOSITE/SEGMENT C2 SAMPLE ID J927

PREPARATION WATER DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	10,900 µg/g													
Cl	1,200													
NO_2	1,210													
NO_3	128,000													
PO_4	14,300											J		
SO_4	12,200											J		

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C2 SAMPLE ID J927

PREPARATION KOH FUSION

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	13300 mg/kg						J							
Sb	183 U R				R									
As	15.0 U													
Ba	10.6													
Be	1.5 U													
Cd	4.3									J				
Ca	520													
Cr	958													J
Co	9.7									J				
Cu	53.3									J				
Fe	10500													
Pb	101									J				
Mg	107													
[illegible]	66.0													
Ni	7640									J				
K														
Se	316 R				R		J							
Ag	5.9				J		J			J				
Na	94500				J		J							
Zn	111													
Bi	18900					J	J							
B	18.8					U	J			J				
Ce	252						J			J				
La	8.0 U													
P	20900													
Si	6100													
Sr	144						J							J
S	4200						J							
[illegible]	11.5 U													
Ti	6.9									J				
Zr	135						J			J				

RADIOCHEMICAL ANALYSIS
CORE C41 COMPOSITE C2

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.115 µCi/g R	C		R										
TOTAL BETA	45.8	C												
TOTAL U	N/A (2,820 µg/g)							J		J				
GEA														
Cs-137	24.3	C									C			
Eu-154	<.0210	C									C			
Eu-155	<.0390	C									C			
Am-241	<.0970	C									C			
Co-60	<.00660	C									C			
I-129	<.0504 R	R									C			
AEA														
Pu 239/240	.0449						C			J	C			
Pu-238	<.00450													
Am-241	.0131 R	R					C				C			
Cm-244	No Detect													
Np-237	<.00324	C	C											
BETA Sr-90	8.74	C			C		C							
LIQUID SCINT														
Tc-99	.0374				C			C			C			
H-3	.000697	C	C											
C-14	.000224	C						J						
Se-79	<.000147			C										

INDUCTIVELY COUPLED PLASMA

HOT CELL BLANK COMPOSITE/SEGMENT___ SAMPLE ID J999

PREPARATION WATER DIGEST

~~WHC-SD-WM-DP-028~~ ADDENDUM 1 REV 0

NALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	204 ug/L U R				R									
Sb	2140 U													
As	186 U													
Ba	18.0 U													
Be	18.0 U													
Cd	42.0 U													
Ca	2540													
Cr	84.0 U													
Co	72.0 U													
Cu	36.0 U													
Fe	120 U													
Pb	510 U				UJ									
Mg	106									J				
ı	88.2													
Ni	108 U													
K	798 U									UJ				
Se	786 U												UJ	
Ag	60.0 U R				R									
Na	4360													
Zn	150 U													
Bi	510 U										UJ			
B	1130													
Ce	516 U													
La	126 U													
P	480 U													
Si	3360										J			
Sr	36.0 U													
S	569									J				
ı	96.0 U													
Ti	30.0 U													
Zr	66.0 U													

OTHER ANALYSES
CORE HOT CELL BLANK SAMPLE ID J999

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
As	<.0100 µg/mL													
Se	<.0100 µg/mL				UJ									
Hg	<.00500 µg/mL		UJ											
TOC	7.10 µg/mL		J		J									

RADIOCHEMICAL ANALYSIS
CORE HOT CELL BLANK

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	$<1.13 \times 10^{-6}$ µCi/mL	C	C		UJ									
TOTAL BETA	.000782 µCi/mL	C	C		J									
GEA														
Cs-137	.000412				J									
Eu-154	$<1.62 \times 10^{-6}$				UJ									
Eu-155	$<1.86 \times 10^{-6}$				UJ									
Am-241	$<4.31 \times 10^{-6}$				UJ									
Co-60	$<5.45 \times 10^{-7}$				UJ									

ADDENDUM 1 REV 0

ION CHROMATOGRAPHY
CORE HOT CELL BLANK SAMPLE ID J999
PREPARATION WATER DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	.294 µg/g				J									
Cl	.935				J									
NO_2	.393				J									
NO_3	1.41				J							J		
PO_4	NO DATA				UJ							UJ		
SO_4	1.05				J							J		

INDUCTIVELY COUPLED PLASMA

FIELD BLANK COMPOSITE/SEGMENT___ SAMPLE ID J1000

PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	204 ug/L U R				R									
Sb	2140 U													
As	186 U													
Ba	18.0 U													
Be	18.0 U													
Cd	42.0 U													
Ca	237													
Cr	84.0 U													
Co	72.0 U													
Cu	36.0 U													
Fe	120 U													
Pb	510 U				UJ									
Mg	36.0 U													
[illegible]	18.0 U													
Ni	108 U													
K	987									J				
Se	786 U												UJ	
Ag	60.0 U R				R									
Na	4610													
Zn	150 U													
Bi	510 U										UJ			
B	888													
Ce	516 U													
La	126 U													
P	496									J				
Si	534									J	J			
Sr	36.0 U													
S	360 U													
[illegible]	96.0 U													
Ti	30.0 U													
Zr	66.0 U													

OTHER ANALYSES
CORE FIELD BLANK SAMPLE ID J1000

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
As	<.0100 µg/mL													
Se	<.0100 µg/mL				UJ									
Hg	<.00500 µg/mL		UJ											
TOC	<5.50 µg/mL		UJ		UJ									

ION CHROMATOGRAPHY
CORE FIELD BLANK SAMPLE ID J1000
PREPARATION WATER DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	.487 µg/g				J									
Cl	.662				J									
NO_2	.352				J									
NO_3	2.95				J							J		
PO_4	.926				J							J		
SO_4	1.12				J							J		

RADIOCHEMICAL ANALYSIS
CORE FIELD BLANK

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	$<1.13 \times 10^{-6}$ µCi/mL	C	C		UJ									
TOTAL BETA	.000136 µCi/mL	C	C		J									
GEA														
Cs-137	.000176													
Eu-154	$<1.79 \times 10^{-6}$													
Eu-155	$<1.53 \times 10^{-6}$													
Am-241	$<3.36 \times 10^{-6}$													
Co-60	$<5.45 \times 10^{-7}$													

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Sample Data Summary

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WHC-SD-WM-DP-028
REV 0

ADDENDUM 1 REV 0

SAMPLE DATA SUMMARY

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Physical Properties Summary For BX 107

CORE 40

Segment	Solids Volume (mL)	Solids Weight (g) **	Liquids Volume (mL)	Liquids Weight (g)	Recovery (%)	Density (g/mL) Solids	Density (g/mL) Liquids
1	Empty*		NONE				
2	187	204.31	NONE		100	1.0926	
3	EMPTY*		NONE				
4	187	216.57	NONE		100	1.1581	
5	187	216.04	NONE		100	1.1660	
6	187	215.81	NONE		100	1.1541	
7	187	132.45	NONE		66	0.7083	

CORE 41

Segment	Solids Volume (mL)	Solids Weight (g) **	Liquids Volume (mL)	Liquids Weight (g)	Recovery (%)	Density (g/mL) Solids	Density (g/mL) Liquids
1	EMPTY*		NONE				
2	187	186.17	NONE		100	0.9956	
3	93	185.23	NONE		50	1.9917	
4	EMPTY*		NONE				
5	9.35	5.53	NONE		5	0.5914	
6	187	248.04	NONE		100	1.3264	
7	187	250.2	NONE		100	1.3380	

* Extruder valve in "open" position.

** Weight includes net weight of solids plus all weights from the sample breakdown (VOA, Rheology, PSD, and DSC/TGA) from the core extrusion worksheet.

Note: Solid Volumes are approximations.

CORE 40 DIRECT SEGMENT ANALYSIS

SEGMENT ADDENDUM 1 REV 0

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
DSC	NO SAMPLE	NA	NA	NA	NA	NA
TGA	NO SAMPLE	NA	NA	NA	NA	NA
%WTR	NO SAMPLE	NA	NA	NA	NA	NA

SEGMENT 2

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J897-5711	J897-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J897-5712	J897-5812		
TGA	101.50	NA	45.00	43.70	44.35	2.93
			J907-5710	J908-5710		
%WTR	100.13	NA	55.15	54.68	54.92	0.86

SEGMENT 3*

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J895-5711	J895-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J895-5712	J89-5812		
TGA	101.50	NA	51.20	51.40	51.30	0.39
			J878-5710			
%WTR	99.60	NA	50.80	NA	NA	NA

*= NOTE: SAMPLE WAS DEPLETED AFTER THESE ANALYSIS

SEGMENT 4

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
DSC	NO SAMPLE	NA	NA	NA	NA	NA
TGA	NO SAMPLE	NA	NA	NA	NA	NA
R	NO SAMPLE	NA	NA	NA	NA	NA

CORE 40 DIRECT SEGMENT ANALYSIS

SEGMENT 5 ADDENDUM 1 REV 0

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J893-5711	J893-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J893-5712	J893-5812		
TGA	97.60	NA	54.90	50.80	52.85	7.76
%WTR	NO SAMPLE	NA	NA	NA	NA	NA

SEGMENT 6

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J892-5711	J892-5811		
DSC	EXO	N/A	EXO	EXO	NA	NA
			J892-5712	J892-5812		
TGA	100.60	N/A	46.20	46.00	46.10	0.43
			J854-5710	J855-5710		
%WTR	100.60	N/A	56.20	56.30	56.25	0.18

SEGMENT 7

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J890-5711	J890-5811		
DSC	EXO	NA	NO EXO	NA	NA	NA
			J890-5712	J890-5812		
TGA	99.70	NA	50.40	48.80	49.60	3.23
			J851-5710	J852-5710		
%WTR	100.50	NA	44.30	43.00	43.65	2.98

WHC-SD-WM-DP-028
REV 0

BX107 CORE ORE COMP 1

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J924-8755	Result #2 (ug/g) J924-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	120.90	3.50E+00	J 1.23E+04	1.14E+04	1.19E+04	8.00	4.84E+01	-431.50	3.50E+00	3.40E+03
	Sb	5000	68.80	3.66E+01	UJ 3.46E+01	3.35E+01	3.41E+01		4.84E+01	77.80	3.66E+01	9.32E-01
	As	5000	94.10	3.00E+00	UJ 2.85E+00	2.74E+00	2.80E+00		4.84E+01	98.90	3.00E+00	9.33E-01
	Ba	10000	105.60	3.00E-01	J 7.28E+00	6.22E+00	6.75E+00	15.70	9.68E+01	98.30	3.00E-01	2.25E+01
	Be	10000	103.10	3.00E-01	UJ 2.85E-01	2.74E-01	2.80E-01		9.68E+01	92.40	3.00E-01	9.33E-01
	Cd	10000	101.80	7.00E-01	J 2.04E+00	1.67E+00	1.86E+00	19.80	9.68E+01	90.60	7.00E-01	2.68E+00
	Ca	10000	156.00	8.94E+01	J 3.50E+03	7.86E+02	2.14E+03	126.60	9.68E+01	-182.40	2.72E+01	7.87E+01
	Cr	5000	105.70	1.20E+00	8.89E+02	8.20E+02	8.54E+02	8.20	4.84E+01	24.90	1.20E+00	7.12E+02
	Co	10000	103.20	1.00E+00	J 2.22E+00	1.94E+00	2.08E+00	13.90	9.68E+01	91.70	1.00E+00	2.08E+00
	Cu	5000	105.30	1.65E+00	J 6.51E+01	6.04E+01	6.27E+01	7.60	4.84E+01	92.50	4.00E-01	1.57E+02
	Fe	5000	108.20	1.50E+00	9.86E+03	9.04E+03	9.45E+03	8.60	4.84E+01	-984.60	1.50E+00	6.30E+03
	Pb	5000	102.50	7.10E+00	J 5.55E+01	5.30E+01	5.43E+01	4.60	4.84E+01	85.80	7.10E+00	7.65E+00
	Mg	5000	111.50	1.50E+00	J 2.02E+02	1.37E+02	1.70E+02	38.20	4.84E+01	48.40	7.00E-01	2.43E+02
	Mn	5000	99.60	3.00E-01	3.78E+01	3.30E+01	3.54E+01	13.70	4.84E+01	87.00	3.00E-01	1.18E+02
	Ni	5000	102.70	1.40E+00	J 1.16E+01	1.03E+01	1.09E+01	11.90	4.84E+01	91.40	1.40E+00	7.79E+00
	K	5000	75.60	-2.70E+01	J 2.73E+02	2.56E+02	2.64E+02	6.70	4.84E+01	86.50	1.29E+01	2.05E+01
	Se	5000	154.50	-2.57E+01	J 3.26E+02	2.99E+02	3.12E+02	8.50	4.84E+01	72.90	6.30E+00	3.76E+01
	Ag	5000	48.10	1.00E+00	UJ 9.50E-01	9.14E-01	9.32E-01		4.84E+01	49.00	1.00E+00	9.32E-01
	Na	10000	154.60	2.28E+01	J 1.02E+05	9.85E+04	1.00E+05	3.20	9.68E+01	-238.70	2.80E+00	3.57E+04
	Zn	10000	102.10	5.84E+00	J 7.50E+01	3.72E+01	5.61E+01	67.35	9.68E+01	113.70	2.50E+00	2.24E+01
	Bi	5000	70.00	5.80E+00	J 2.19E+04	2.05E+04	2.12E+04	6.70	4.84E+01	-924.50	5.80E+00	3.66E+03
	B	5000	142.50	1.83E+00	J 4.70E+01	5.25E+01	4.98E+01	11.10	4.84E+01	104.00	1.00E+00	4.98E+01
	Ca	5000	86.40	-2.33E+01	J 1.54E+02	1.47E+02	1.51E+02	4.30	4.84E+01	128.20	9.80E+00	1.54E+01
	La	5000	107.70	1.60E+00	UJ 1.52E+00	1.46E+00	1.49E+00		9.68E+01	42.00	1.60E+00	9.31E-01
	P	10000	111.50	9.90E+00	J 1.95E+04	2.00E+04	1.97E+04	2.40	9.68E+01	2499.70	9.90E+00	1.99E+03
	Si	10000	404.60	9.18E+00	J 1.66E+03	1.41E+03	1.54E+03	16.30	9.68E+01	969.10	4.30E+00	3.58E+02
	Sr	10000	105.60	4.00E-01	J 1.61E+02	1.47E+02	1.54E+02	8.95	9.68E+01	93.40	4.00E-01	3.85E+02
	S	5000	132.70	1.78E+01	J 4.76E+03	4.76E+03	4.76E+03	0.00	4.84E+01	453.40	4.50E+00	1.06E+03
	Sn	5000	104.30	2.30E+00	J 3.34E+00	3.23E+00	3.28E+00	3.50	4.84E+01	98.70	2.30E+00	1.43E+00
	Ti	5000	102.10	-4.30E-01	J 3.18E+00	3.18E+00	3.18E+00	0.20	4.84E+01	93.60	4.00E-01	7.95E+00
	Zr	10000	99.20	-1.02E+00	J 1.12E+02	7.72E+01	9.46E+01	36.70	9.68E+01	38.90	8.00E-01	1.18E+02

Direct/Unhot	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g) J924-5711	Result #2 (ug/g) J924-5811	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
	DSC	EXO	NA	NO EXO	NO EXO	NA	NA	NA	NA	NA
				J924-5712	J924-5812					
	TGA (%)	98.30	NA	56.40	56.50	56.45	0.18	NA	NA	NA
				J931-5710	J932-5710					
	%WTR (%)	100.60	NA	57.50	58.00	57.75	0.87		9.00E-01	
				J924-8795	J924-8895					
HYAA	As	115.80	6.27E+00	J 4.62E-01	4.02E-01	4.30E-01	13.95	85.80	2.50E-01	1.72
	Se	100.00	3.10E-01	J 1.52E+00	1.48E+00	1.50E+00	2.67	111.80	2.50E-01	6.00
CVAA	Hg	99.9	<1.25E-1	5.60E-01	6.61E-01	6.11E-01	16.54	107.30	1.25E-01	4.88E+00
				J924-5778	J924-5878					
CN-Dir	CN	95.10	<2.00E 0	3.14E+00	3.08E+00	3.11E+00	1.90	91.30	2.00E+00	1.55E+00

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

BX107 CORI CORE COMP 1

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J924-7755	Result #2 (ug/g) J924-7855	Average (ug/g)	RPD %	Spk add (ug/L)	Spike % Rec	DET LIM (ug/g)	Ratio H/DL
ICP-Water	Al	5000	99.10	3.80E+01	1.15E+02	9.57E+01	1.05E+02	18.30	1.25E+03	103.10	3.50E+00	30.08
	Sb	5000	101.70	3.66E+01	UJ 3.73E+01	3.73E+01	3.73E+01		1.25E+03	103.60	3.66E+01	1.02
	As	5000	101.50	3.00E+00	3.06E+00	3.05E+00	3.06E+00		1.25E+03	100.70	3.00E+00	1.02
	Ba	10000	96.50	3.00E-01	4.52E-01	3.05E-01	3.79E-01	200.00	2.50E+03	97.30	3.00E-01	1.26
	Be	10000	100.20	3.00E-01	3.06E-01	3.05E-01	3.06E-01		2.50E+03	98.60	3.00E-01	1.02
	Cd	10000	98.30	7.00E-01	7.14E-01	7.13E-01	7.13E-01		2.50E+03	98.50	7.00E-01	1.02
	Ca	10000	98.60	1.13E+02	J 1.13E+03	3.71E+02	7.52E+02	101.20	2.50E+03	52.60	2.72E+01	27.65
	Cr	5000	101.60	1.20E+00	1.58E+02	1.57E+02	1.57E+02	0.80	1.25E+03	99.80	1.20E+00	131.19
	Co	10000	98.10	1.00E+00	1.02E+00	1.02E+00	1.02E+00		2.50E+03	98.30	1.00E+00	1.02
	Cu	5000	98.80	4.00E-01	8.87E-01	7.65E-01	7.26E-01	10.80	1.25E+03	98.30	4.00E-01	1.82
	Fe	5000	98.80	3.17E+00	J 5.16E+01	5.78E+01	5.47E+01	11.30	1.25E+03	95.60	1.50E+00	36.48
	Pb	5000	101.70	7.10E+00	UJ 7.24E+00	7.23E+00	7.23E+00		1.25E+03	99.90	7.10E+00	1.02
	Mg	5000	100.30	3.35E+00	2.43E+01	8.72E+00	1.65E+01	94.30	1.25E+03	97.10	7.00E-01	23.57
	Mn	5000	94.10	3.00E-01	J 1.53E+00	6.31E-01	1.08E+00	83.40	1.25E+03	92.80	3.00E-01	3.61
	Ni	5000	97.70	1.40E+00	1.43E+00	1.43E+00	1.43E+00		1.25E+03	97.50	1.40E+00	1.02
	K	5000	99.30	1.29E+01	1.70E+02	1.64E+02	1.67E+02	3.70	1.25E+03	100.90	1.29E+01	12.95
	Se	5000	106.40	8.30E+00	UJ 8.47E+00	8.45E+00	8.46E+00		1.25E+03	104.40	8.30E+00	1.02
	Ag	5000	98.80	-2.17E+00	UJ 1.02E+00	1.02E+00	1.02E+00		1.25E+03	99.40	1.00E+00	1.02
	Na	10000	97.90	1.38E+01	J 2.63E+04	8.03E+04	5.33E+04	101.40	2.50E+03	142.90	2.80E+00	19032.5
	V	10000	98.70	8.00E-01	8.16E-01	8.14E-01	8.15E-01		2.50E+03	99.20	8.00E-01	1.02
	Zn	10000	100.10	2.50E+00	J 4.33E+01	7.94E+00	2.56E+01	138.00	2.50E+03	95.30	2.50E+00	10.25
	Si	5000	103.80	5.80E+00	9.98E+01	1.13E+02	1.06E+02	12.70	1.25E+03	88.60	5.80E+00	18.34
	B	5000	98.70	1.21E+01	J 2.79E+01	2.78E+01	2.79E+01	0.50	1.25E+03	96.30	1.00E+00	27.86
	Ce	5000	105.90	9.80E+00	1.00E+01	9.98E+00	9.99E+00		1.25E+03	111.50	9.80E+00	1.02
	La	5000	104.30	1.60E+00	1.63E+00	1.63E+00	1.63E+00		1.25E+03	106.80	1.60E+00	1.02
	P	10000	110.80	9.90E+00	J 4.77E+03	4.74E+03	4.78E+03	0.80	2.50E+03	98.20	9.90E+00	479.98
	Si	10000	99.40	1.38E+01	J 5.24E+02	3.03E+02	4.14E+02	53.30	2.50E+03	134.50	4.30E+00	96.17
	Sr	10000	98.60	4.00E-01	J 1.99E+00	1.41E+00	1.70E+00	33.90	2.50E+03	97.80	4.00E-01	4.25
	S	5000	103.30	5.60E+00	J 4.54E+03	4.57E+03	4.56E+03	0.50	1.25E+03	85.70	4.50E+00	1012.43
	Sn	5000	98.70	2.30E+00	2.35E+00	2.34E+00	2.34E+00		1.25E+03	97.20	2.30E+00	1.02
	Ti	5000	99.80	4.00E-01	4.08E-01	4.07E-01	4.08E-01		1.25E+03	100.00	4.00E-01	1.02
	Zr	10000	110.70	8.00E-01	1.49E+00	1.60E+00	1.54E+00	7.50				

	Ratio AA/ICP
As	0.153571428
Se	0.004807692

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

60

28

BX107 CORE · ORE COMP 1

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J924-7771	J924-7871					
IC-Water	F	103.00	<1.00E+1	J 8.91E+03	8.11E+03	8.51E+03	9.40	121.00	1.00E+01	851.00
	Cl	105.00	2.36E+01	J 1.17E+03	1.14E+03	1.16E+03	2.60	107.00	2.36E+01	48.94
	NO3	106.00	1.86E+03	J 1.45E+05	1.39E+05	1.42E+05	4.23	124.00	1.86E+03	76.34
	NO2	103.00	<100.	J 1.02E+04	9.17E+03	9.68E+03	10.64	109.00	1.00E+02	96.85
	PO4	106.00	<100.	J 1.45E+04	1.43E+04	1.44E+04	1.39	111.00	1.00E+02	144.00
	SO4	105.00	<100.	J 1.41E+04	1.40E+04	1.41E+04	0.71	108.00	1.00E+02	140.50
	P ACID ICP/PO4 IC					4.19E+00				
	S ACID ICP/SO4 IC					1.02E+00				
				J924-7779	J924-7879					
Spec-water	NO2	103.0	<5.11E3	1.31E+04	1.32E+04	1.32E+04	0.76	97.40	5.11E+03	2.57
	NO3 (IC)/NO2 Spec.					1.08E+01				
	NO2 (IC)/NO2 (SPEC)					7.37E-01				
				J924-5715	J924-5815					
pH	pH	101.10	N/A	9.59E+00	9.66E+00	9.63E+00	0.73	NA	NA	NA
				J924-7728	J924-7828					
NH3-Water	NH3	108.20	<4.50E+3	<4.50E3	<4.50E3	NA	NA	100.90	4.50E+03	0.00
				J924-7726	J924-7826					
TOC-Water	TOC	96.70	<5.50E+02	J 7.00E+02	7.00E+02	7.00E+02	0.00	98.30	5.50E+02	1.27
	Acetate Eq		3.44E+03							
				J924-7727	J924-7827					
TIC-water	CO3	106.0	3.40E-01	J 1.10E+03	1.20E+03	1.15E+03	8.70	103.90	5.00E+02	2.30

BX107 CORE CORE COMP 1

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J924-6755	Result #2 (ug/g) J924-6855	Average (ug/g)	RPD %	Spk add (ug/L)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Fusion	Al	5000	96.80	6.54E+01	1.34E+04	1.43E+04	1.39E+04	6.50	1.25E+03	99.20	1.75E+01	791.89
	Sb	5000	99.70	1.83E+02	UJ 1.83E+02	1.83E+02	1.83E+02		1.25E+03	93.60	1.83E+02	1.00
	As	5000	95.90	1.50E+01	UJ 1.50E+01	1.50E+01	1.50E+01		1.25E+03	94.20	1.50E+01	1.00
	Ba	10000	101.60	2.50E+00	J 4.17E+00	7.97E+00	6.07E+00	62.60	2.50E+03	98.60	1.50E+00	4.05
	Be	10000	99.40	1.50E+00	UJ 1.50E+00	1.50E+00	1.50E+00		2.50E+03	95.50	1.50E+00	1.00
	Cd	10000	99.20	3.50E+00	UJ 3.49E+00	3.87E+00	3.68E+00	200.00	2.50E+03	98.00	3.50E+00	1.05
	Ca	10000	100.10	1.36E+02	3.43E+02	3.77E+02	3.60E+02	9.60	2.50E+03	102.70	1.36E+02	2.65
	Cr	5000	104.40	6.08E+00	9.54E+02	9.90E+02	9.72E+02	3.70	1.25E+03	102.60	6.00E+00	162.03
	Co	10000	99.90	5.00E+00	UJ 4.99E+00	4.99E+00	4.99E+00		2.50E+03	97.50	5.00E+00	1.00
	Cu	5000	101.10	4.87E+00	6.10E+01	7.36E+01	6.73E+01	18.80	1.25E+03	98.70	2.00E+00	33.64
	Fe	5000	101.30	7.50E+00	1.07E+04	1.13E+04	1.10E+04	5.10	1.25E+03	93.50	7.50E+00	1467.94
	Pb	5000	97.70	3.55E+01	UJ 3.54E+01	5.45E+01	4.50E+01	200.00	1.25E+03	98.00	3.55E+01	1.27
	Mg	5000	98.70	3.50E+00	1.08E+02	1.14E+02	1.11E+02	5.10	1.25E+03	98.40	3.50E+00	31.72
	Mn	5000	97.40	1.50E+00	6.51E+01	6.05E+01	6.28E+01	7.30	1.25E+03	94.80	1.50E+00	41.85
	Ni	5000	99.60	7.00E+00	J 6.52E+03	5.89E+03	7.20E+03	38.50	1.25E+03	96.00	7.00E+00	1029.05
	K	5000	106.40	6.45E+01			NA				6.45E+01	0.00
	Se	5000	97.60	5.70E+01	UJ 4.14E+01	4.14E+01	4.14E+01		1.25E+03	97.40	4.15E+01	1.00
	Ag	5000	106.80	5.00E+00	UJ 4.99E+00	4.99E+00	4.99E+00		1.25E+03	100.80	5.00E+00	1.00
	Na	10000	100.50	1.12E+03	J 1.02E+05	1.06E+05	1.04E+05	4.00	2.50E+03	76.40	1.40E+01	7424.77
	V	10000	98.80	4.00E+00	J 2.38E+01	1.30E+01	1.83E+01	57.90	2.50E+03	98.80	4.00E+00	4.57
	Zn	10000	101.20	1.28E+01	J 7.81E+01	7.25E+01	7.53E+01	7.40	2.50E+03	98.70	1.25E+01	6.02
	Bi	5000	100.50	2.90E+01	J 2.13E+04	2.25E+04	2.19E+04	5.50	1.25E+03	55.70	2.90E+01	754.05
	B	5000	110.00	1.31E+01	J 1.61E+01	2.06E+01	1.84E+01	24.70	1.25E+03	104.30	5.00E+00	3.67
	Ce	5000	107.60	9.40E+01	UJ 4.69E+01	1.35E+02	9.21E+01	200.00	1.25E+03	113.90	4.90E+01	1.88
	La	5000	105.20	9.18E+00	UJ 7.98E+00	7.98E+00	7.98E+00		1.25E+03	102.40	9.00E+00	1.00
	P	10000	103.70	4.95E+01	J 2.38E+04	2.44E+04	2.42E+04	2.30	2.50E+03	97.90	4.95E+01	488.25
	Si	10000	95.40	2.30E+02	6.43E+03	6.77E+03	6.60E+03	5.30	2.50E+03	98.00	2.15E+01	306.98
	Sr	10000	100.50	2.00E+00	J 1.64E+02	1.77E+02	1.71E+02	7.90	2.50E+03	98.00	2.00E+00	85.36
	S	5000	104.80	2.25E+01	J 4.78E+03	4.87E+03	4.83E+03	1.80	1.25E+03	108.80	2.25E+01	214.74
	Sn	5000	92.50	1.15E+01	1.15E+01	1.15E+01	1.15E+01		1.25E+03	94.00	1.15E+01	1.00
	Ti	5000	103.20	4.10E+00	UJ 2.00E+00	4.51E+00	3.25E+00	200.00	1.25E+03	102.00	2.00E+00	1.63
	Zr	10000	97.00	1.12E+01	1.81E+02	1.97E+02	1.89E+02	8.20				-

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BX107 CORE CORE COMP 1

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J924-6740	J924-6840					
Fluor	U	107.9	<2.33E+02	C 1.56E+03	2.07E+03	1.82E+03	28.00	94.10	2.30E+02	7.89E+00
	U as uCi/g					9.32E-06				

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
				J924-6725	J924-6825						
RAD Fus.	AT	91.2	<3.58E-03	C 7.89E-02	9.47E-02	8.68E-02	18.20	87.40	3.60E-03	2.41E+01	7.00E+00
	TA/Pu + Am			1.84E+00	1.45E+00						
				J924-6720	J924-6820						
	TB	94.50	<1.31E+00	C 5.03E+01	5.02E+01	5.03E+01	0.20	97.30	1.30E+00	3.87E+01	2.60E+00
	TB/Cs + Sr			1.05E+00	1.02E+00						
				J924-6730	J924-6830						
GEA	Cs-137	105.70	<7.90E-3	J 1.35E+01	1.34E+01	1.34E+01	0.52	NA	7.20E-03	1.86E+03	0.70
	Eu-154	NA	<1.88E-2	UJ <1.85E-2	<2.22E-2	NA	NA	NA	2.04E-02	NA	
	Eu-155	NA	<1.23E-2	UJ <3.11E-2	<3.19E-2	NA	NA	NA	1.26E-02	NA	
	Am-241	NA	<3.61E-2	UJ <7.48E-2	<7.47E-2	NA	NA	NA	2.90E-02	NA	
	Co 60	103.80	<6.35E-3	UJ <6.83E-3	<5.73E-3	NA	NA	NA	6.75E-03	NA	
				J924-6781	J924-6881						
	PU239/40	97.80	<3.26E-03	C 3.49E-02	5.32E-02	4.40E-02	41.54	75.90	3.30E-03	13.35	2.00
	PU-238			<4.49E-03	<4.49E-03	NA	NA	70.50	4.50E-03	0.00	5.00

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
				J924-6782	J924-6882						
	Am-241	105.8	<1.08E-02	R 8.05E-03	1.23E-02	1.02E-02	41.77	12.00	4.70E-03	2.16E+00	2.03E+01
	Cm-244			NONE DETECTED		NA	NA	13.80		NA	
	Am-241 (GEA)/Am-241 (ALPHA)					NA					
				J924-6783	J924-6883						
	NP-237	81.50	<2.16E-02	<2.16E-2	<1.08E-02	NA	NA	95.60	2.10E-02	0.00	<5.00E2
				J924-6784	J924-6884						
	TC 99	94.4	<9.38E-04	C 3.56E-02	4.06E-02	3.81E-02	13.12	70.00	9.40E-04	40.53	2.20
						NA		69.00			
				J924-6785	J924-6885						
	I-129	98.0	<1.47E-02	UJ <1.39E-02	<1.45E-02	NA	NA	63.60	1.40E-02	0.00	NA
								63.60			

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BX107 CORE 4u CORE COMP 1

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Ct Err
			J924-6786	924-6889						
Sr-90	93.40	<1.97E-03	C 9.76E+00	1.02E+01	9.97E+00	4.10	92.30 91.50	2.00E-03	4.99E+03	2.00E-01
			J924-7787	J924-7877						
H-3	97.50	<2.29E-03	C 3.89E-04	4.02E-04	3.96E-04	3.29	92.80	2.20E-04	1.80	6.30
			J924-7788	J924-7888						
C-14	85.10	<1.13E-04	C 3.06E-04	1.33E-04	2.20E-04	78.82	87.80	1.10E-04	2.00	2.80
			J924-6789	J924-6889						
Se-79	NA	<1.34E-04	C <1.25E-04	<1.22E-04	NA	NA	90.20 92.10	1.20E-04	NA	4.50

	Analyte	Std #1 % Rec	PREP BLK (mg/L)	Result #1 (mg/L)	Result #2 (mg/L)	Average (mg/L)	RPD %	Spk Rec %	DET LIM (mg/L)	Ratio R/DL	TCLP Lim (mg/L)	Result/Lim
				J987-8750	J987-8850							
TCLP-ICP	Ag	30.20	<1.00E-02	U <1.00E-01	<1.00E-01	<1.00E-01	NA	1.16E+02	1.00E-01	1.00E+00	5.00E+00	2.00E-02
	Ba	87.80	<3.00E-03	J 1.03E-01	1.01E-01	1.02E-01	1.96	1.47E+02	3.00E-02	3.40E+00	1.00E+02	1.02E-03
	Cd	84.40	<7.00E-03	<7.00E-02	<7.00E-02	<7.00E-02		9.16E+01	7.00E-02	1.00E+00	1.00E+00	7.00E-02
	Cr	101.00	<1.20E-02	J 7.06E+00	7.16E+00	7.11E+00	1.41	9.63E+01	1.20E-01	5.92E+01	5.00E+00	1.42E+00
	Pb	100.30	<7.10E-02	<7.10E-01	<7.10E-01	<7.10E-01	NA	1.54E+02	7.10E-01	1.00E+00	1.00E+00	7.10E-01
				J994-8795								
TCLP-HYAA	As BEFORE H+	115.70	NA	U 2.04E+00		NA	NA	138.40	5.00E-02	0.00	5.00E+00	
				J987-8795	J987-8895							
	As AFTER H+	115.70	NA	<5.0E-02	5.27E-02	NA	NA	125.80	5.00E-02	0.00	5.00E+00	
				J994-8796								
	Se BEFORE H+	107.50	<2.5E-03	U 1.63E+00		NA	NA	110.50	<2.5E-03	NA	1.00	0.00
				J987-8796	J987-8896							
	Se AFTER H+	107.50	<2.5E-03	<2.5E-03	<2.5E-03	NA	NA	74.40	<2.5E-03	NA	1.00	0.00
				J995-5797								
TCLP-CVAA	Hg AFTER H+	95.00	<2.50E-3	U 4.97E-02	NA	NA	NA	149.10	2.50E-03	NA		
				J987-5797	J987-5897							
	Hg BEFORE H+	95.00	<2.50E-3	2.64E-02	2.51E-02	2.58E-02	5.05	87.20	2.50E-03	10.30	0.20	0.13

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

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BX107 CORE CORE COMP 2

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J926-8750	Result #2 (ug/g) J926-8850	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	120.90	3.50E+00	J	1.25E+04	1.22E+04	1.23E+04	2.90	NA	NA	3.50E+00	3.51E+03
	Sb	5000	88.80	3.66E+01	UJ	3.45E+01	3.52E+01	3.49E+01		NA	NA	3.66E+01	9.54E-01
	As	5000	94.10	3.00E+00	UJ	2.83E+00	2.88E+00	2.86E+00		NA	NA	3.00E+00	9.53E-01
	Ba	10000	105.60	3.00E-01	J	6.33E+00	6.42E+00	6.38E+00	1.50	NA	NA	3.00E-01	2.13E+01
	Be	10000	103.10	3.00E-01	UJ	2.83E-01	2.88E-01	2.86E-01		NA	NA	3.00E-01	9.53E-01
	Cd	10000	101.80	7.00E-01	J	2.03E+00	1.83E+00	1.93E+00	10.00	NA	NA	7.00E-01	2.76E+00
	Ca	10000	158.00	5.94E+01	J	3.65E+02	7.30E+02	5.47E+02	66.70	NA	NA	2.72E+01	2.01E+01
	Cr	5000	105.70	1.20E+00		8.77E+02	8.77E+02	8.77E+02	0.10	NA	NA	1.20E+00	7.31E+02
	Co	10000	103.20	1.00E+00	J	1.64E+00	1.75E+00	1.69E+00	6.30	NA	NA	1.00E+00	1.69E+00
	Cu	5000	105.30	1.65E+00	J	7.24E+01	7.27E+01	7.25E+01	0.40	NA	NA	4.00E-01	1.81E+02
	Fe	5000	108.20	1.50E+00		9.43E+03	9.42E+03	9.43E+03	0.10	NA	NA	1.50E+00	6.29E+03
	Pb	5000	102.50	7.10E+00	J	5.49E+01	4.61E+01	5.05E+01	17.40	NA	NA	7.10E+00	7.11E+00
	Mg	5000	111.50	1.50E+00	J	1.58E+02	1.43E+02	1.49E+02	8.50	NA	NA	7.00E-01	2.13E+02
	Mn	5000	99.60	3.00E-01		3.32E+01	3.35E+01	3.33E+01	0.90	NA	NA	3.00E-01	1.11E+02
	Ni	5000	102.70	1.40E+00	J	1.08E+01	9.93E+00	1.04E+01	8.40	NA	NA	1.40E+00	7.43E+00
	K	5000	75.60	-2.70E+01	J	1.99E+02	1.99E+02	1.99E+02	0.10	NA	NA	1.29E+01	1.54E+01
	Se	5000	154.50	-2.57E+01	J	2.90E+02	3.01E+02	2.95E+02	3.80	NA	NA	8.30E+00	3.55E+01
	Ag	5000	46.10	1.00E+00	UJ	9.43E-01	9.62E-01	9.52E-01		NA	NA	1.00E+00	9.52E-01
	Na	10000	154.60	2.26E+01	J	1.03E+05	1.02E+05	1.02E+05	1.30	NA	NA	2.80E+00	3.64E+04
	Zn	10000	102.10	5.84E+00	J	3.13E+01	3.97E+01	3.55E+01	23.50	NA	NA	2.50E+00	1.42E+01
	Bi	5000	70.00	5.80E+00	J	2.22E+04	2.20E+04	2.21E+04	1.10	NA	NA	5.80E+00	3.81E+03
	B	5000	142.50	1.83E+00	J	6.85E+01	5.61E+01	6.23E+01	19.80	NA	NA	1.00E+00	6.23E+01
	Ce	5000	96.40	-2.33E+01	J	1.69E+02	1.69E+02	1.69E+02	0.30	NA	NA	9.80E+00	1.72E+01
	La	5000	107.70	1.60E+00	UJ	1.51E+00	1.54E+00	1.52E+00		NA	NA	1.60E+00	9.50E-01
	P	10000	111.50	9.90E+00	J	2.21E+04	2.06E+04	2.13E+04	7.20	NA	NA	9.90E+00	2.15E+03
	Si	10000	404.80	9.18E+00	J	1.83E+03	1.61E+03	1.72E+03	10.40	NA	NA	4.30E+00	4.00E+02
	Sr	10000	105.60	4.00E-01	J	1.58E+02	1.57E+02	1.57E+02	0.40	NA	NA	4.00E-01	3.92E+02
	S	5000	132.70	1.75E+01	J	5.07E+03	4.94E+03	5.00E+03	2.60	NA	NA	4.50E+00	1.11E+03
	Sn	5000	104.30	2.30E+00	UJ	2.17E+00	1.04E+01	6.30E+00	200.00	NA	NA	2.30E+00	2.74E+00
	Ti	5000	102.10	-4.30E-01	J	3.72E+00	3.47E+00	3.59E+00	6.90	NA	NA	4.00E-01	8.97E+00
	Zr	10000	99.20	-1.02E+00	J	8.72E+01	9.71E+01	9.22E+01	10.80	NA	NA	8.00E-01	1.15E+02

Direct: Unhom.	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g) J926-5711	Result #2 (ug/g) J926-5811	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL		
	DSC	EXO	NA	NO EXO	NO EXO	NA	NA	NA	NA	NA		
				J926-5712	J926-5812							
	TGA	98.30	NA	63.30	63.70	63.5	0.63	NA	NA	NA		
				J933-5710	J934-5710							
	%WTH	100.60	NA	57.30	56.90	57.1	0.70	NA	1.00E-01	NA		0.571
				J926-8795	J926-8895							
HYAA	As	115.60	5.27E+00	J 4.33E-01	3.53E-01	3.93E-01	20.36	85.80	2.50E-01	1.57		
				J926-8796	J926-8896							
	Se	100.00	3.10E-01	1.76E+00	2.07E+00	1.92E+00	16.19	111.80	1.61E+01	1.19E-01	0.25	
CVAA	Hg	99.9	<1.25E-01	3.66E-01	3.83E-01	3.74E-01	4.54	107.30	1.25E-01	3.00E+00	0.13	
				J926-5776	J926-5876							
CN-Dir	CN	95.10	<2.00E+00	J 1.79E+00	1.06E+00	1.43E+00	51.00	91.30	<2.00E+00	NA		

BX107 CORE CORE COMP 2

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J926-7755	Result #2 (ug/g) J926-7855	Average (ug/g)	RPD %	Spk add (ug/L)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP Water	Al	5000	99.10	3.89E+01		8.00E+01	8.07E+01	8.04E+01	0.90	1250	103.10	3.50E+00	2.30E+01
	Sb	5000	101.70	3.66E+01		3.73E+01	3.73E+01	3.73E+01		1250	103.60	3.66E+01	1.02E+00
	As	5000	101.50	3.00E+00		3.05E+00	3.06E+00	3.06E+00		1250	100.70	3.00E+00	1.02E+00
	Ba	10000	98.50	3.00E-01	J	3.89E-01	6.73E-01	5.31E-01	53.60	2500	97.30	3.00E-01	1.77E+00
	Be	10000	100.20	3.00E-01		3.05E-01	3.06E-01	3.06E-01		2500	98.60	3.00E-01	1.02E+00
	Cd	10000	98.30	7.00E-01		7.13E-01	7.14E-01	7.13E-01		2500	96.50	7.00E-01	1.02E+00
	Ca	10000	98.60	1.13E+02	J	9.47E+02	4.60E+02	7.14E+02	65.50	2500	52.60	2.72E+01	2.62E+01
	Cr	5000	101.80	1.20E+00		1.31E+02	1.35E+02	1.33E+02	2.50	1250	99.60	1.20E+00	1.11E+02
	Co	10000	98.10	1.00E+00		1.02E+00	1.02E+00	1.02E+00		2500	96.30	1.00E+00	1.02E+00
	Cu	5000	96.80	4.00E-01		7.72E-01	7.80E-01	7.76E-01	1.10	1250	96.30	4.00E-01	1.94E+00
	Fe	5000	96.80	3.17E+00		4.27E+01	4.12E+01	4.20E+01	3.50	1250	95.60	1.50E+00	2.80E+01
	Pb	5000	101.70	7.10E+00	UJ	7.23E+00	7.24E+00	7.23E+00		1250	99.90	7.10E+00	1.02E+00
	Mg	5000	100.30	3.35E+00	J	4.41E+01	2.47E+01	3.44E+01	56.70	1250	97.10	7.00E-01	4.91E+01
	Mn	5000	94.10	3.00E-01	J	1.56E+00	9.12E-01	1.25E+00	53.80	1250	92.80	3.00E-01	4.16E+00
	Ni	5000	97.70	1.40E+00		1.43E+00	1.43E+00	1.43E+00		1250	97.50	1.40E+00	1.02E+00
	K	5000	99.30	1.20E+01		1.31E+02	1.43E+02	1.37E+02	8.30	1250	100.90	1.20E+01	1.06E+01
	Se	5000	106.40	8.30E+00	UJ	8.45E+00	8.47E+00	8.46E+00		1250	104.40	8.30E+00	1.02E+00
	Ag	5000	98.80	-2.17E+00	UJ	1.02E+00	1.02E+00	1.02E+00		1250	99.40	1.00E+00	1.02E+00
	Na	10000	97.90	1.38E+01	J	5.29E+04	8.11E+04	6.70E+04	42.20	2500	142.90	2.80E+00	2.39E+04
	V	10000	98.70	8.00E-01		8.14E-01	8.16E-01	8.15E-01		2500	99.20	8.00E-01	1.02E+00
	Zn	10000	100.10	2.50E+00	J	3.31E+01	1.46E+01	2.38E+01	77.70	2500	95.30	2.50E+00	9.53E+00
	Bi	5000	103.80	5.80E+00		7.83E+01	8.21E+01	8.02E+01	4.70	1250	98.80	5.80E+00	1.38E+01
	B	5000	98.70	1.21E+01		2.89E+01	2.85E+01	2.87E+01	1.40	1250	96.30	1.00E+00	2.87E+01
	Ce	5000	105.90	9.80E+00		9.98E+00	1.00E+01	9.99E+00		1250	111.50	9.80E+00	1.02E+00
	La	5000	104.30	1.60E+00		1.63E+00	1.63E+00	1.63E+00		1250	106.80	1.60E+00	1.02E+00
	P	10000	110.80	8.00E+00	J	5.26E+03	4.74E+03	5.00E+03	10.30	2500	86.20	8.00E+00	5.05E+02
	Si	10000	99.40	1.38E+01		3.68E+02	3.61E+02	3.64E+02	2.00	2500	134.50	4.30E+00	8.47E+01
	Sr	10000	98.60	4.00E-01	J	1.90E+00	1.43E+00	1.66E+00	28.30	2500	97.80	4.00E-01	4.16E+00
	S	5000	103.30	5.60E+00	J	4.69E+03	4.57E+03	4.63E+03	2.40	1250	85.70	4.50E+00	1.03E+03
	Sn	5000	98.70	2.30E+00		2.34E+00	2.35E+00	2.34E+00		1250	97.20	2.30E+00	1.02E+00
	Ti	5000	96.80	4.00E-01		4.07E-01	4.06E-01	4.06E-01		1250	100.00	4.00E-01	1.02E+00
	Zr	10000	110.70	8.00E-01	UJ	8.14E-01	1.40E+00	1.11E+00	200.00				

Ratio AA/ICP

As	0.1374
Se	0.0064

9

ASD
3-16-93

BX107 CORE 40 CORE COMP 2

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J926-7771	J926-7871					
IC-Water	F	103.00	<1.00E-01	J 8.50E+03	8.33E+03	8.42E+03	2.02	121.00	1.00E-01	84150.00
	Cl	105.00	2.36E-01	J 1.14E+03	1.21E+03	1.18E+03	5.96	107.00	2.36E-01	4978.81
	NO3	106.00	1.86E+01	J 1.46E+05	1.53E+05	1.50E+05	4.68	124.00	1.86E+01	8037.63
	NO2	103.00	<1.00	J 9.12E+03	9.19E+03	9.16E+03	0.76	109.00	1.00E+00	9155.00
	PO4	106.00	<1.00	J 1.48E+04	1.51E+04	1.50E+04	2.01	111.00	1.00E+00	14950.00
	SO4	105.00	<1.00	J 1.41E+04	1.42E+04	1.42E+04	0.71	108.00	1.00E+00	14150.00
	P ACID ICP/PO4 IC					4.37E+00				
	S ACID ICP/SO4 IC					1.06E+00				
				J926-7779	J926-7879					
Spec-water	NO2	103.0	<5.11E+1	1.00E+04	1.06E+04	1.03E+04	5.83	97.40	5.11E+03	2.02
	NO3 (C)/NO2 Spec.					14.51				
	NO2 (C)/NO2 (SPEC)					0.89				
				J926-5715	J926-5815					
pH	pH	101.0	NA	9.77	9.58	9.68	1.96	NA	NA	NA
				J926-7728	J926-7828					
NH3-Water	NH3	108.20	4.50E+01	<4.50E+03	<4.50E+03	NA	NA	100.90	4.50E+03	0.00
				J926-7726	J926-7826					
TOC-Water	TOC	96.70	<5.50E 02	L,J <5.50E+02	<5.50E+02	NA	NA	98.30	5.50E+02	0.00
	Acetate Eq		0.00							
				J926-7727	J926-7827					
TIC-water	CO3	106.0	3.40E-01	J 1.60E+03	6.99E+02	1.15E+03	78.10	103.90	5.00E+02	2.30

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

67

35

2

BX107 CORE 40 CORE COMP 2

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J926-6755	Result #2 (ug/g) J926-6855	Average (ug/g)	RPD % J926 RPD	Spk add (ug/L)	Spike % Rec J925SPK	DET LIM (ug/g) IDL/2	Ratio R/DL
ICP-Fusion	Al	5000	97.10	3.33E+01		1.12E+04	1.28E+04	1.20E+04	13.50	1.25E+03	117.90	1.75E+01	6.85E+02
	Sb	5000	102.80	1.83E+02	UJ	1.83E+02	1.83E+02	1.83E+02		1.25E+03	100.20	1.83E+02	9.99E-01
	As	5000	98.80	1.50E+01	UJ	1.50E+01	1.50E+01	1.50E+01		1.25E+03	100.20	1.50E+01	9.99E-01
	Ba	10000	98.20	1.50E+00	J	8.35E+00	7.78E+00	8.07E+00	7.20	2.50E+03	102.30	1.50E+00	5.38E+00
	Be	10000	96.00	1.50E+00	UJ	1.50E+00	1.50E+00	1.50E+00		2.50E+03	95.80	1.50E+00	9.99E-01
	Cd	10000	98.90	3.50E+00	UJ	3.49E+00	3.53E+00	3.51E+00	200.00	2.50E+03	97.00	3.50E+00	1.00E+00
	Ca	10000	96.30	1.36E+02		3.03E+02	3.10E+02	3.06E+02	2.10	2.50E+03	108.20	1.36E+02	2.25E+00
	Cr	5000	101.20	6.00E+00		7.87E+02	8.89E+02	8.38E+02	12.10	1.25E+03	101.90	6.00E+00	1.40E+02
	Co	10000	97.20	5.00E+00	UJ	4.99E+00	5.00E+00	5.00E+00		2.50E+03	97.00	5.00E+00	9.99E-01
	Cu	5000	98.80	3.58E+00		7.27E+01	7.05E+01	7.16E+01	3.10	1.25E+03	100.00	2.00E+00	3.58E+01
	Fe	5000	97.30	7.50E+00		8.35E+03	9.39E+03	8.87E+03	11.70	1.25E+03	108.30	7.50E+00	1.18E+03
	Pb	5000	102.80	3.55E+01	J	6.56E+01	6.48E+01	6.52E+01	1.20	1.25E+03	107.80	3.55E+01	1.84E+00
	Mg	5000	98.60	3.50E+00		8.55E+01	9.40E+01	8.98E+01	9.40	1.25E+03	99.50	3.50E+00	2.57E+01
	Mn	5000	94.10	1.50E+00	J	4.99E+01	5.89E+01	5.44E+01	16.60	1.25E+03	94.20	1.50E+00	3.63E+01
	Ni	5000	98.10	7.00E+00	J	2.46E+03	1.50E+03	1.99E+03	49.50	1.25E+03	87.20	7.00E+00	2.84E+02
	K	5000	102.50	0.00E+00				NA				6.45E+01	0.00E+00
	Se	5000	98.10	4.15E+01	UJ	4.14E+01	4.15E+01	4.15E+01		1.25E+03	105.10	4.15E+01	9.99E-01
	Ag	5000	102.90	1.44E+01	J	8.48E+00	5.57E+00	7.02E+00	41.50	1.25E+03	110.20	5.00E+00	1.40E+00
	Na	10000	98.70	2.28E+03		9.87E+04	1.02E+05	1.01E+05	2.10	2.50E+03	128.90	1.40E+01	7.19E+03
	V	10000	97.70	4.00E+00	J	7.33E+00	8.30E+00	7.81E+00	12.40	2.50E+03	101.20	4.00E+00	1.95E+00
	Zn	10000	98.90	1.68E+01	J	5.13E+01	4.49E+01	4.81E+01	13.30	2.50E+03	98.20	1.25E+01	3.85E+00
	Bi	5000	103.10	2.60E+01	J	1.83E+04	2.19E+04	2.06E+04	12.50	1.25E+03	84.90	2.90E+01	7.10E+02
	B	5000	98.80	6.08E+00	J	2.01E+01	1.75E+01	1.88E+01	13.60	1.25E+03	96.80	5.00E+00	3.76E+00
	Ce	5000	103.90	4.90E+01	J	2.11E+02	1.41E+02	1.76E+02	38.00	1.25E+03	119.40	4.90E+01	3.62E+00
	La	5000	100.80	8.00E+00	UJ	7.98E+00	8.00E+00	7.99E+00		1.25E+03	104.20	8.00E+00	9.99E-01
	P	10000	102.80	4.95E+01	J	1.94E+04	2.21E+04	2.08E+04	13.20	2.50E+03	145.70	4.95E+01	4.19E+02
	Si	10000	97.20	2.42E+02		5.63E+03	6.37E+03	6.00E+03	12.20	2.50E+03	110.00	2.15E+01	2.79E+02
	Sr	10000	98.10	2.00E+00	J	1.65E+02	1.55E+02	1.60E+02	5.90	2.50E+03	102.30	2.00E+00	8.00E+01
	S	5000	97.20	3.24E+01	J	4.65E+03	4.65E+03	4.65E+03	0.10	1.25E+03	113.80	2.25E+01	2.07E+02
	Sn	5000	98.50	1.15E+01	UJ	1.15E+01	1.15E+01	1.15E+01		1.25E+03	99.10	1.15E+01	9.99E-01
	Ti	5000	97.50	2.63E+00	J	6.35E+00	5.26E+00	5.80E+00	18.80	1.25E+03	101.60	2.00E+00	2.90E+00
	Zr	10000	111.10	5.79E+00	J	7.90E+01	5.34E+01	6.62E+01	38.70				

BX107 CORE 4 CORE COMP 2

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g) J926-6740	Result #2 (ug/g) J926-6840	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
Fluor	U	107.9	<2.33E+02	C 1.86E+03	2.18E+03	2.02E+03	15.84	94.10	2.30E+02	8.78
	U as uCi/g					5.27E-06				

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g) J926-6725	Result #2 (uCi/g) J926-6825	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
RAD-Fus.	AT	91.20	<3.58E-03	C 7.17E-02	7.28E-02	7.23E-02	1.52	87.40	3.60E-03	2.01E+01	7.40E+00
	AT/Pu+Am			7.35E-01	8.13E-01						
				J926-6720	J926-6820						
	TB	94.50	<1.31+00	C 3.88E+01	3.28E+01	3.58E+01	16.76		1.30E+00	2.75E+01	3.50E+00
	TB/Cs+Sr			1.01E+00	7.71E-01						
				J926-6730	J926-6830						
GEA	Cs-137	102.00	<7.75E-03	C 1.09E+01	1.16E+01	1.13E+01	6.66	NA	7.20E-03	1564.58	
	Eu-154	NA	<1.86E-02	C <1.81E-03	<1.94E-02	NA	NA	NA	2.04E-02	0.00	
	Eu-155	NA	<1.33E-02	C <2.90E-02	<3.02E-02	NA	NA	NA	1.26E-02	0.00	
	Am-241	NA	<2.83E-02	C <6.89E-02	<7.19E-02	NA	NA	NA	2.90E-02	0.00	
	Co-60	101.00	<6.00E-03	C <6.54E-03	<6.64E-03	NA	NA	NA	6.75E-03	0.00	
				J926-6781	J926-6881						
	PU239/	96.90	<3.26E-03	C 8.34E-02	7.57E-02	7.96E-02	9.68	87.00	3.30E-03	2.41E+01	9.00E-01
	PU-238	NA	NA	<4.50E-03	<4.50E-03	NA	NA	69.60	4.50E-03	0.00	2.60E+00

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g) J926-6782	Result #2 (uCi/g) J926-6882	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
Am-241	105.8	<1.08E-02	C 1.41E-02	1.38E-02	1.40E-02	2.00	5.50	8.10E-03	1.72E+00	2.83E+01
Cm-244			NONE DETECTED		NA	NA	8.00	NA	NA	NA
Am-241 (GEA)/Am-241 (ALPHA)					0.00E+00					
			J926-6783	J926-6883						
NP-237	81.50	<2.16E-02	<2.16E-02	<1.08E-02	NA	0.00	83.10	2.10E-02	0.00	7.42E+01
			J926-6784	J926-6884						
TC-99	94.4	<9.38E-04	C 2.83E-02	2.96E-02	2.90E-02	4.49	66.80 / 68.10	9.40E-04	30.80	
			J926-6785	J926-6885						
I-129	98.0	<1.47E-02	C <9.54E-03	<1.23E-02	NA	NA	86.90 / 80.70	1.40E-02	0.00	

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

WHC-SD-WM-DP-028
REV 0

ADDENDUM 1 REV 0

3-16-93

BX107 CORE 40 CORE COMP 2

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Ct Err
			J926-6786	J926-6886						
Sr-90	102.80	<2.29E-03	< 7.71E+00	8.79E+00	8.25E+00	13.09	87.90	2.30E-03	3587.0	0.30
							87.70			
			J926-7787	J926-7887						
H-3	103.40	<3.60E-04	< 7.79E-04	4.83E-04	6.31E-04	46.91		3.60E-04	1.75	4.90
			J926-7788	J926-7888						
C-14	85.10	1.10E-04	< 1.82E-04	4.21E-04	3.02E-04	79.27	87.80	1.10E-04	2.74	
			J926-6789	J926-6889						
Se-79	NA	<1.34E-04	< <1.23E-04	<1.22E-04	NA	NA	91.70	1.20E-04	0.00	4.50
							92.50			

CORE 40 HOMOGENIZATION

% WATER OF HOMOGENIZATION SEGMENTS

Analyte	LMCS Std (%)	PREP BLK (%)	Result #1 (%)	Result #2 (%)	Average (%)	RPD %
SEGMENT			J907-5710	J908-5710		
S2H	100.10	NA	55.20	54.70	54.95	0.91
			J902-5710	J903-5710		
S4H	100.10	NA	53.40	52.90	53.15	0.94
			J900-5710	J901-5710		
S5H	100.60	NA	57.70	56.60	57.15	1.92
			J854-5719	J855-5710		
S6H	100.60	NA	56.20	56.30	56.25	0.18
			J851-5710	J852-5710		
S7H	100.50	NA	44.30	43.00	43.65	2.98

CORE 41 DIRECT SEGEMENT ANALYSIS
WHC-SD-WM-DP-028 ADDENDUM 1 REV 0
REV 0

Segment 1

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	AVERAGE (ug/g)	RPD %
DSC	NO SAMPLE				NA	NA
TGA	NO SAMPLE				ND	NA
%WTR	NO SAMPLE				ND	NA

Segment 2

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J888-5711	J888-5811		
DSC	EXO	NA	NO EXO	NA	NA	NA
			J888-5712	J888-5812		
TGA	99.70	NA	49.10	39.60	44.35	21.42
%WTR	NO SAMPLE				ND	NA

Segment 3

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J887-5711	J887-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J887-5712	J887-5812		
TGA	99.70	NA	52.50	54.10	NA	NA
			J829-5710	J830-5710		
%WTR	100.13	NA	56.89	56.80	56.85	0.16

Segment 4

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
DSC	NO SAMPLE				NA	NA
J#:						
	NO SAMPLE				NA	NA
.R	NO SAMPLE				NA	NA

CORE 41 DIRECT SEGEMENT ANALYSIS

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0
REV 0

Segment 5

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J884-5711	J884-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J884-5712	J884-5812		
TGA	99.00	NA	39.40	36.40	37.90	7.92
			J869-5710			
%WTR	99.60	NA	27.90	NO SAMPLE	NA	NA

Segment 6

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J883-5711	J883-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J883-5712	J883-5812		
TGA	99.00	NA	38.40	44.00	41.20	13.59
			J809-5710	J810-5710		
TR	100.13	NA	48.72	50.16	49.44	2.91

Segment 7

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J882-5711	J882-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J882-5712	J882-5812		
TGA	99.00	NA	35.20	34.00	34.60	3.47
			J806-5710	J807-5710		
%WTR	100.13	NA	50.34	48.70	49.52	3.31

Core 41 Segment 2H-1

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J836-8755	Result #2 (ug/g) J836-8855	Average (ug/g)	RPD %	Spk add (ug/g) J836-8950	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	122.20	7.65E+00	1.62E+04	J 1.60E+04	1.61E+04	1.40	4.91E+01	-374.30	3.50E+00	4602.22
	Sb	5000	107.90	3.66E+01	3.44E+01	UJ 3.60E+01	3.52E+01		4.91E+01	168.60	3.66E+01	0.96
	As	5000	100.50	3.00E+00	7.53E+00	J 6.07E+00	6.80E+00	21.50	4.91E+01	89.10	3.00E+00	2.27
	Ba	10000	94.20	3.00E-01	1.62E+01	J 1.64E+01	1.63E+01	1.10	9.82E+01	93.90	3.00E-01	54.41
	Be	10000	89.00	3.00E-01	2.82E-01	UJ 2.95E-01	2.89E-01		9.82E+01	87.00	3.00E-01	0.96
	Cd	10000	94.10	7.00E-01	3.76E+00	J 3.85E+00	3.81E+00	2.30	9.82E+01	96.50	7.00E-01	5.44
	Ca	10000	153.90	1.68E+02	3.71E+02	R 3.88E+02	3.80E+02	4.50	9.82E+01	0.90	2.72E+01	13.96
	Cr	5000	99.00	1.20E+00	1.22E+03	1.17E+03	1.19E+03	4.00	4.91E+01	2.80	1.20E+00	994.54
	Co	10000	95.70	1.00E+00	1.35E+00	J 1.53E+00	1.44E+00	12.00	9.82E+01	93.50	1.00E+00	1.44
	Cu	5000	98.10	4.00E-01	2.21E+01	2.25E+01	2.23E+01	1.90	4.91E+01	95.20	4.00E-01	55.81
	Fe	5000	98.80	1.93E+00	1.74E+04	1.67E+04	1.71E+04	3.90	4.91E+01	-1836.50	1.50E+00	11380.4
	Pb	5000	98.60	7.10E+00	9.23E+01	9.45E+01	9.34E+01	2.40	4.91E+01	104.70	7.10E+00	13.16
	Mg	5000	98.90	4.13E+00	1.58E+02	J 1.78E+02	1.68E+02	11.90	4.91E+01	16.60	7.00E-01	239.61
	Mn	5000	92.40	3.00E-01	7.06E+01	6.79E+01	6.92E+01	3.90	4.91E+01	81.90	3.00E-01	231
	Ni	5000	97.60	1.40E+00	1.66E+01	J 1.65E+01	1.66E+01	0.30	4.91E+01	89.50	1.40E+00	11.84
	K	5000	97.00	1.29E+01	5.49E+02	5.68E+02	5.59E+02	3.50	4.91E+01	98.70	1.29E+01	43.30
	Se	5000	146.40	8.30E+00	3.78E+02	R 3.72E+02	3.75E+02	1.70	4.91E+01	105.00	8.30E+00	45.19
	Ag	5000	75.00	1.00E+00	9.39E-01	UJ 1.22E+00	1.08E+00	200.00	4.91E+01	66.70	1.00E+00	1.08
	Na	10000	117.70	2.31E+01	9.59E+04	J 9.71E+04	9.65E+04	1.30	9.82E+01	991.00	2.80E+00	34467.84
	V	10000	95.40	8.00E-01	5.88E+00	J 4.64E+00	5.26E+00	23.50	9.82E+01	94.80	8.00E-01	6.58
	Zn	10000	94.30	2.92E+00	1.20E+02	J 1.18E+02	1.19E+02	2.10	9.82E+01	89.20	2.50E+00	47.69
	Bi	5000	74.70	5.80E+00	3.10E+04	J 3.05E+04	3.08E+04	1.80	4.91E+01	-988.30	5.80E+00	5302.58
	B	5000	113.40	5.39E+00	3.19E+01	J 3.91E+01	3.55E+01	20.40	4.91E+01	38.30	1.00E+00	35.48
	Ce	5000	104.50	9.80E+00	2.53E+02	J 2.67E+02	2.60E+02	5.30	4.91E+01	129.80	9.80E+00	26.52
	La	5000	98.10	1.60E+00	1.50E+00	UJ 1.57E+00	1.54E+00		4.91E+01	75.80	1.60E+00	0.96
	P	10000	116.50	9.90E+00	2.63E+04	J 2.62E+04	2.62E+04	0.30	9.82E+01	1614.70	9.90E+00	2648.75
	Si	10000	293.90	4.02E+01	2.28E+03	J 2.17E+03	2.22E+03	4.80	9.82E+01	1686.60	4.30E+00	517.31
	Sr	10000	93.20	4.00E-01	2.18E+02	J 2.16E+02	2.17E+02	0.90	9.82E+01	89.50	4.00E-01	541.42
	S	5000	254.40	1.91E+02	4.25E+03	J 4.26E+03	4.25E+03	0.30	4.91E+01	287.60	4.50E+00	944.79
	Sn	5000	105.00	2.30E+00	9.43E+00	9.77E+00	9.60E+00	3.60	4.91E+01	97.40	2.30E+00	4.18
	Ti	5000	98.20	4.00E-01	5.47E+00	J 6.00E+00	5.74E+00	9.20	4.91E+01	97.00	4.00E-01	14.34
	Zr	10000	98.10	8.00E-01	1.46E+02	J 1.34E+02	1.40E+02	8.70	9.82E+01	180.50		-

	Analyte	LMCS Std (%)	PREP BLK (ug/g)	Result #1 (ug/g) J836-8725	Result #2 (ug/g) J836-8855	Average (ug/g)	RPD %	Spike % Rec	DET LIM (ug/L)	Ratio R/DL
RAD-Acid	AT	94.70	<5.13E-3	C 1.42E-01	1.55E-01	1.48E-01	8.80	101.7	0.0051	NA

				J836-8730	J836-8730					
GEA	Co-137	102.00	<7.37E-3	C 4.57E+01	4.59E+01	4.58E+01	0.40	NA	7.60E-03	NA
	Eu-154	N/A	<1.92E-2	C <1.70E-2	<1.90E-2	NA	NA	NA	1.50E-02	NA
	Eu-155	N/A	<1.25E-2	C <5.20E-2	<5.40E-2	NA	NA	NA	1.25E-02	NA
	Am-241	N/A	<2.79E-2	C <1.30E-1	<1.30E-1	NA	NA	NA	2.78E-02	NA
	Co-60	102.00	<7.20E-3	C <6.50E-3	<6.10E-3	NA	NA	NA	6.00E-03	NA

9 9

Core 41 Segment 2H-2

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J837-8755	Result #2 (ug/g) J837-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g) IDL/10	Ratio R/DL
ICP-Acid	Al	5000	122.20	7.65E+00	J 1.66E+04	1.62E+04	1.64E+04	2.20	4.91E+01	-374.30	3.50E+00	4680.47
	Sb	5000	107.90	3.66E+01	UJ 3.55E+01	3.51E+01	3.53E+01		4.91E+01	168.60	3.66E+01	0.96
	As	5000	100.50	3.00E+00	J 6.32E+00	6.12E+00	6.22E+00	3.30	4.91E+01	89.10	3.00E+00	2.07
	Ba	10000	94.20	3.00E-01	J 1.66E+01	1.60E+01	1.63E+01	3.40	9.82E+01	93.90	3.00E-01	54.29
	Be	10000	89.00	3.00E-01	UJ 2.91E-01	2.87E-01	2.89E-01		9.82E+01	87.00	3.00E-01	0.96
	Cd	10000	94.10	7.00E-01	J 4.03E+00	3.49E+00	3.76E+00	14.30	9.82E+01	98.50	7.00E-01	5.37
	Ca	10000	153.90	1.68E+02	R 3.66E+02	3.48E+02	3.57E+02	5.10	9.82E+01	0.90	2.72E+01	13.12
	Cr	5000	99.00	1.20E+00	1.25E+03	1.19E+03	1.22E+03	4.70	4.91E+01	2.80	1.20E+00	1016.58
	Co	10000	95.70	1.00E+00	UJ 9.71E-01	1.71E+00	1.34E+00	200.00	9.82E+01	93.50	1.00E+00	1.34
	Cu	5000	98.10	4.00E-01	2.24E+01	2.17E+01	2.20E+01	3.10	4.91E+01	95.20	4.00E-01	55.10
	Fe	5000	98.80	1.93E+00	1.78E+04	1.70E+04	1.74E+04	4.40	4.91E+01	-1836.50	1.50E+00	11587.67
	Pb	5000	98.60	7.10E+00	1.02E+02	9.43E+01	9.80E+01	7.60	4.91E+01	104.70	7.10E+00	13.80
	Mg	5000	98.90	4.13E+00	J 1.63E+02	1.48E+02	1.55E+02	9.70	4.91E+01	16.60	7.00E-01	221.91
	Mn	5000	92.40	3.00E-01	7.15E+01	6.83E+01	6.99E+01	4.50	4.91E+01	81.90	3.00E-01	233
	Ni	5000	97.60	1.40E+00	J 1.62E+01	1.61E+01	1.62E+01	0.40	4.91E+01	89.50	1.40E+00	11.56
	K	5000	97.00	1.29E+01	5.73E+02	5.61E+02	5.67E+02	2.10	4.91E+01	98.70	1.29E+01	43.96
	Se	5000	146.40	8.30E+00	R 3.99E+02	3.91E+02	3.95E+02	1.90	4.91E+01	105.00	8.30E+00	47.57
	Ag	5000	75.00	1.00E+00	UJ 9.71E-01	9.58E-01	9.64E-01		4.91E+01	66.70	1.00E+00	0.96
	Na	10000	117.70	2.31E+01	J 9.88E+04	9.67E+04	9.77E+04	2.10	9.82E+01	991.00	2.80E+00	34898.58
	V	10000	95.40	8.00E-01	J 5.99E+00	5.49E+00	5.74E+00	8.80	9.82E+01	94.80	8.00E-01	7.18
	Zn	10000	94.30	2.92E+00	J 1.26E+02	1.20E+02	1.23E+02	4.90	9.82E+01	89.20	2.50E+00	49.05
	Bi	5000	74.70	5.80E+00	J 3.20E+04	3.09E+04	3.15E+04	3.60	4.91E+01	-988.30	5.80E+00	5424.11
	B	5000	113.40	5.39E+00	J 2.57E+01	1.81E+01	2.19E+01	34.70	4.91E+01	38.30	1.00E+00	21.93
	Ce	5000	104.50	9.80E+00	J 2.61E+02	2.58E+02	2.59E+02	1.40	4.91E+01	129.80	9.80E+00	26.48
	La	5000	98.10	1.60E+00	UJ 1.55E+00	1.53E+00	1.54E+00		4.91E+01	75.80	1.60E+00	0.96
	P	10000	116.50	9.90E+00	J 2.67E+04	2.73E+04	2.70E+04	2.10	9.82E+01	1614.70	9.90E+00	2727.18
	Si	10000	293.90	4.02E+01	J 2.19E+03	2.33E+03	2.26E+03	5.90	9.82E+01	1686.60	4.30E+00	525.54
	Sr	10000	93.20	4.00E-01	J 2.25E+02	2.17E+02	2.21E+02	3.90	9.82E+01	89.50	4.00E-01	552.28
	S	5000	254.40	1.91E+02	J 4.43E+03	4.32E+03	4.37E+03	2.50	4.91E+01	287.60	4.50E+00	972.11
	Sn	5000	105.00	2.30E+00	1.11E+01	9.59E+00	1.03E+01	14.30	4.91E+01	97.40	2.30E+00	4.49
	Ti	5000	98.20	4.00E-01	J 5.84E+00	5.69E+00	5.77E+00	2.50	4.91E+01	97.00	4.00E-01	14.42
	Zr	10000	98.10	8.00E-01	J 1.37E+02	1.65E+02	1.51E+02	18.30	9.82E+01	180.50		–

	Analyte	LMCS Std (%)	PREP BLK (ug/g)	Result #1 (ug/g) J837-8725	Result #2 (ug/g) J837-8825	Average (ug/g)	RPD %	Spike % Rec	DET LIM (ug/L)	Ratio R/DL
RAD-Acid	AT	94.70	<5.13E-3	< 1.71E-01	1.55E-01	1.63E-01	10.20	101.70	5.10E-03	NA

	J#:837	J834	J835	J837-8730	J837-8830					
GEA	Cs-137	102.00	<7.37E-3	< 4.71E+01	4.72E+01	4.72E+01	0.21	NA	7.60E-03	NA
	Eu-154	N/A	<1.92E-2	< <1.80E-2	<1.95E-2	NA	NA	NA	1.50E-02	NA
	Eu-155	N/A	<1.25E-2	< <5.40E-2	<5.40E-2	NA	NA	NA	1.25E-02	NA
	Am-241	n/A	<2.79E-2	< <1.30E-1	<1.30E-1	NA	NA	NA	2.78E-02	NA
	Co-60	102.00	<7.20E-3	< <5.80E-3	<5.40E-3	NA	NA	NA	6.00E-03	NA

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

Core 41 Segme. H-1

	Analyte	LMCS Std add (ug/L)	LMCS Std % Rec	PREP BLK (ug/g)	Result #1 (ug/g) J814-8755	Result #2 (ug/g) J814-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	117.80	3.40E+00	J 1.71E+04	1.72E+04	1.71E+04	0.60	9.75E+01	414.80	3.40E+00	5.03E+03
	Sb	5000	98.50	3.56E+01	UJ 3.49E+01	3.46E+01	3.48E+01		9.75E+01	122.40	3.56E+01	9.78E-01
	As	5000	97.50	-3.43E+00	UJ 3.04E+00	3.02E+00	3.03E+00		9.75E+01	97.60	3.10E+00	9.77E-01
	Ba	10000	91.90	5.28E-01	J 8.38E+00	8.77E+00	8.57E+00	4.60	1.95E+02	96.50	3.00E-01	2.86E+01
	Be	10000	93.80	3.00E-01	UJ 2.94E-01	2.92E-01	2.93E-01		1.95E+02	94.80	3.00E-01	9.77E-01
	Cd	10000	89.90	7.00E-01	J 2.59E+00	2.17E+00	2.38E+00	17.50	1.95E+02	94.50	7.00E-01	3.40E+00
	Ca	10000	115.40	2.31E+01	J 2.77E+02	3.03E+02	2.90E+02	8.90	1.95E+02	67.10	2.40E+00	1.21E+02
	Cr	5000	94.60	1.40E+00	J 1.04E+03	1.02E+03	1.03E+03	1.70	9.75E+01	116.10	1.40E+00	7.36E+02
	Co	10000	89.20	1.20E+00	J 1.88E+00	1.17E+00	1.53E+00	200.00	1.95E+02	92.50	1.20E+00	1.28E+00
	Cu	5000	91.70	6.00E-01	J 1.83E+01	1.83E+01	1.83E+01	0.10	9.75E+01	93.70	6.00E-01	3.05E+01
	Fe	5000	92.10	2.00E+00	J 1.22E+04	1.21E+04	1.22E+04	0.80	9.75E+01	409.70	2.00E+00	6.10E+03
	Pb	10000	97.50	8.50E+00	J 6.48E+01	6.77E+01	6.62E+01	4.40	1.95E+02	100.00	8.50E+00	7.79E+00
	Mg	5000	101.70	3.70E+00	J 1.38E+02	1.45E+02	1.41E+02	4.80	9.75E+01	90.30	6.00E-01	2.35E+02
	Mn	5000	88.10	3.00E-01	J 4.01E+01	4.02E+01	4.02E+01	0.20	9.75E+01	92.70	3.00E-01	1.34E+02
	Ni	5000	92.60	1.80E+00	J 1.24E+01	1.30E+01	1.27E+01	4.70	9.75E+01	94.90	1.80E+00	7.06E+00
	K	5000	95.00	1.33E+01	J 9.47E+01	9.86E+01	9.67E+01	4.00	9.75E+01	110.30	1.33E+01	7.27E+00
	Se	5000	96.20	1.31E+01	J 1.43E+01	2.19E+01	1.81E+01	42.10	9.75E+01	106.20	1.31E+01	1.38E+00
	Ag	10000	10.30	1.00E+00	UJ 9.80E-01	9.73E-01	9.77E-01		1.95E+02	9.30	1.00E+00	9.77E-01
	Na	10000	130.40	2.64E+01	J 1.01E+05	1.01E+05	1.01E+05	0.70	1.95E+02	-1994.20	8.70E+00	1.16E+04
	Zn	10000	91.00	2.50E+00	J 4.45E+01	4.39E+01	4.42E+01	1.30	1.95E+02	93.60	2.50E+00	1.77E+01
	Bi	10000	83.80	8.50E+00	J 2.82E+04	2.82E+04	2.82E+04	0.10	1.95E+02	285.40	8.50E+00	3.32E+03
	B	5000	132.10	8.56E+00	J 2.56E+01	3.17E+01	2.87E+01	21.50	9.75E+01	93.00	1.90E+00	1.51E+01
	Ce	10000	104.40	8.60E+00	J 1.94E+02	1.90E+02	1.92E+02	2.00	1.95E+02	100.00	8.60E+00	2.23E+01
	La	10000	95.40	2.10E+00	UJ 2.06E+00	2.04E+00	2.05E+00		1.95E+02	84.70	2.10E+00	9.76E-01
	P	10000	98.90	8.00E+00	J 2.59E+04	2.55E+04	2.57E+04	1.40	1.95E+02	180.20	8.00E+00	3.21E+03
	Si	10000	375.70	1.52E+01	J 1.61E+03	1.67E+03	1.64E+03	3.70	1.95E+02	791.30	2.30E+00	7.13E+02
	Sr	10000	91.80	6.00E-01	J 1.74E+02	1.73E+02	1.73E+02	0.50	1.95E+02	97.80	6.00E-01	2.88E+02
	S	5000	105.40	6.04E+00	J 4.05E+03	3.92E+03	3.98E+03	3.40	9.75E+01	79.40	6.00E+00	6.63E+02
	Sn	5000	91.30	1.60E+00	J 9.41E+00	8.25E+00	8.83E+00	13.10	9.75E+01	94.60	1.60E+00	5.52E+00
	Ti	5000	94.70	5.00E-01	J 4.12E+00	4.18E+00	4.15E+00	1.50	9.75E+01	93.50	5.00E-01	8.30E+00
	Zr	10000	91.20	1.10E+00	J 1.08E+02	8.97E+01	9.89E+01	18.70	1.95E+02	66.40	1.10E+00	8.99E+01

	Analyte	LMCS Std (%)	PREP BLK (ug/g)	Result #1 (ug/g) J814-8725	Result #2 (ug/g) J814-8825	Average (ug/g)	RPD %	Spike % Rec	DET LIM (ug/L)	Ratio R/DL
RAD-Acid	AT	87.90	<5.33E-04	C 1.41E-01	1.40E-01	0.14	0.71	66.00	0.00053	265.09

				J814-8730	J814-8830					
GEA	Cs-137	101.40	<1.59E-3	C 7.26E+00	7.31E+00	7.29E+00	0.69	NA	<1.44E-3	NA
	Eu-154	NA	<3.80E-3	C <3.70E-3	<4.00E-3	NA	NA	NA	<4.10E-3	NA
	Eu-155	NA	<2.58E-3	C <1.00E-2	<9.90E-3	NA	NA	NA	<2.52E-3	NA
	Am-241	NA	<5.97E-3	C <2.40E-2	<2.40E-2	NA	NA	NA	<5.80E-3	NA
	Co-60	99.80	<1.27E-3	C <1.26E-3	<9.40E-4	NA	NA	NA	<1.35E-3	NA

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

3-16-93

Core 41 Segment 6H-2

DATE:	Analyte	LMCS Std added	LMCS Std % Rec	PREP BLK (ug/g)	Result #1 (ug/g) J815-8755	Result #2 (ug/g) J815-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5.00E+03	117.80	3.40E+00	J 1.70E+04	1.67E+04	1.69E+04	1.20	NA	NA	3.40E+00	4.97E+03
	Sb	5.00E+03	98.50	3.56E+01	UJ 3.36E+01	3.39E+01	3.38E+01		NA	NA	3.56E+01	9.49E-01
	As	5.00E+03	97.50	-3.43E+00	UJ 2.92E+00	2.96E+00	2.94E+00		NA	NA	3.10E+00	9.48E-01
	Ba	1.00E+04	91.90	5.28E-01	J 8.48E+00	8.42E+00	8.45E+00	0.80	NA	NA	3.00E-01	2.82E+01
	Be	1.00E+04	93.80	3.00E-01	UJ 2.83E-01	2.86E-01	2.84E-01		NA	NA	3.00E-01	9.47E-01
	Cd	1.00E+04	89.90	7.00E-01	J 2.47E+00	2.27E+00	2.37E+00	8.10	NA	NA	7.00E-01	3.39E+00
	Ca	1.00E+04	115.40	2.31E+01	J 2.76E+02	2.69E+02	2.73E+02	2.60	NA	NA	2.40E+00	1.14E+02
	Cr	5.00E+03	94.60	1.40E+00	J 1.03E+03	1.01E+03	1.02E+03	2.60	NA	NA	1.40E+00	7.29E+02
	Co	1.00E+04	89.20	1.20E+00	J 1.68E+00	1.14E+00	1.41E+00	200.00	NA	NA	1.20E+00	1.18E+00
	Cu	5.00E+03	91.70	6.00E-01	J 1.86E+01	1.80E+01	1.83E+01	3.60	NA	NA	6.00E-01	3.05E+01
	Fe	5.00E+03	92.10	2.00E+00	J 1.22E+04	1.18E+04	1.20E+04	2.90	NA	NA	2.00E+00	6.00E+03
	Pb	1.00E+04	97.50	8.50E+00	J 6.06E+01	6.90E+01	6.48E+01	13.10	NA	NA	8.50E+00	7.62E+00
	Mg	5.00E+03	101.70	3.70E+00	J 1.36E+02	1.30E+02	1.33E+02	4.20	NA	NA	6.00E-01	2.22E+02
	Mn	5.00E+03	88.10	3.00E-01	J 4.04E+01	3.93E+01	3.99E+01	2.70	NA	NA	3.00E-01	1.33E+02
	Ni	5.00E+03	92.60	1.80E+00	J 1.23E+01	1.21E+01	1.22E+01	1.40	NA	NA	1.80E+00	6.78E+00
	K	5.00E+03	95.00	1.33E+01	J 1.13E+02	1.04E+02	1.09E+02	7.90	NA	NA	1.33E+01	8.20E+00
	Se	5.00E+03	96.20	1.31E+01	J 2.61E+01	3.26E+01	2.93E+01	22.20	NA	NA	1.31E+01	2.24E+00
	Ag	1.00E+04	10.30	1.00E+00	UJ 9.43E-01	9.53E-01	9.48E-01		NA	NA	1.00E+00	9.48E-01
	Na	1.00E+04	130.40	2.64E+01	J 9.82E+04	9.59E+04	9.71E+04	2.30	NA	NA	8.70E+00	1.12E+04
	Zn	1.00E+04	91.00	2.50E+00	J 4.39E+01	4.35E+01	4.37E+01	1.00	NA	NA	2.50E+00	1.75E+01
	Bi	1.00E+04	83.80	8.50E+00	J 2.79E+04	2.75E+04	2.77E+04	1.40	NA	NA	8.50E+00	3.26E+03
	B	5.00E+03	132.10	8.56E+00	J 2.42E+01	2.23E+01	2.32E+01	7.90	NA	NA	1.90E+00	1.22E+01
	Ce	1.00E+04	104.40	8.60E+00	J 1.93E+02	1.86E+02	1.90E+02	3.90	NA	NA	8.60E+00	2.21E+01
	La	1.00E+04	95.40	2.10E+00	UJ 1.98E+00	2.00E+00	1.99E+00		NA	NA	2.10E+00	9.48E-01
	P	1.00E+04	98.90	8.00E+00	J 2.53E+04	2.50E+04	2.51E+04	1.30	NA	NA	8.00E+00	3.14E+03
	Si	1.00E+04	375.70	1.52E+01	R 1.15E+03	1.54E+03	1.34E+03	29.00	NA	NA	2.30E+00	5.83E+02
	Sr	1.00E+04	91.80	6.00E-01	J 1.74E+02	1.69E+02	1.72E+02	2.60	NA	NA	6.00E-01	2.87E+02
	S	5.00E+03	105.40	6.04E+00	J 4.13E+03	3.99E+03	4.06E+03	3.50	NA	NA	6.00E+00	6.77E+02
	Sn	5.00E+03	91.30	1.60E+00	J 7.51E+00	8.87E+00	8.19E+00	16.60	NA	NA	1.60E+00	5.12E+00
	Ti	5.00E+03	94.70	5.00E-01	J 4.30E+00	4.23E+00	4.26E+00	1.80	NA	NA	5.00E-01	8.52E+00
	Zr	1.00E+04	91.20	1.10E+00	J 7.66E+01	1.01E+02	8.89E+01	27.60	NA	NA	1.10E+00	8.08E+01

Date:	Analyte	LMCS Std (%)	PREP BLK (ug/g)	Result #1 (ug/g) J815-8725	Result #2 (ug/g) J815-8825	Average (ug/g)	RPD %	Spike % Rec	DET LIM (ug/L)	Ratio R/DL
RAD-Acid	AT	87.90	<5.33E-04	< 1.45E-01	1.44E-01	1.44E-01	0.69	NA	NA	NA

				J815-8730	J815-8830					
GEA	Cs-137	101.40	<1.59E-3	< 7.20E+00	7.34E+00	7.27E+00	1.93	NA	<1.44E-3	NA
	Eu-154	NA	<3.60E-3	< <3.60E-3	<2.70E-3	NA	NA	NA	<4.10E-3	NA
	Eu-155	NA	<2.58E-3	< <9.80E-3	<9.20E-3	NA	NA	NA	<2.52E-3	NA
	Am-241	NA	<5.97E-3	< <2.35E-2	<2.20E-2	NA	NA	NA	<5.80E-3	NA
	Co-60	99.80	<1.27E-3	< <1.20E-3	<1.00E-3	NA	NA	NA	<1.35E-3	NA

BX107 CORE 41 C1

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J925-8755	Result #2 (ug/g) J925-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	120.90	3.50E+00	J 1.62E+04	1.62E+04	1.62E+04	0.10	4.68E+01	5300.80	3.50E+00	4.63E+03
	Sb	5000	88.80	3.66E+01	UJ 3.47E+01	3.56E+01	3.52E+01		4.68E+01	0.00	3.66E+01	9.62E-01
	As	5000	94.10	3.00E+00	J 3.13E+00	2.92E+00	3.02E+00	6.90	4.68E+01	93.70	3.00E+00	1.01E+00
	Ba	10000	105.60	3.00E-01	J 1.01E+01	1.05E+01	1.03E+01	3.50	9.36E+01	101.30	3.00E-01	3.43E+01
	Be	10000	103.10	3.00E-01	UJ 2.85E-01	2.92E-01	2.88E-01		9.36E+01	95.10	3.00E-01	9.60E-01
	Cd	10000	101.80	7.00E-01	J 2.70E+00	2.77E+00	2.74E+00	2.60	9.36E+01	94.20	7.00E-01	3.91E+00
	Ca	10000	156.00	5.94E+01	J 4.16E+02	1.92E+03	1.17E+03	128.70	9.36E+01	134.40	2.72E+01	4.30E+01
	Cr	5000	105.70	1.20E+00	1.07E+03	1.07E+03	1.07E+03	0.60	4.68E+01	84.60	1.20E+00	8.92E+02
	Co	10000	103.20	1.00E+00	J 2.09E+00	2.55E+00	2.32E+00	19.60	9.36E+01	94.80	1.00E+00	2.32E+00
	Cu	5000	105.30	1.65E+00	J 1.86E+01	1.89E+01	1.87E+01	1.40	4.68E+01	177.00	4.00E-01	4.67E+01
	Fe	5000	108.20	1.50E+00	1.28E+04	1.29E+04	1.29E+04	0.90	4.68E+01	-439.20	1.50E+00	8.60E+03
	Pb	5000	102.50	7.10E+00	J 7.75E+01	7.67E+01	7.71E+01	1.10	4.68E+01	191.20	7.10E+00	1.09E+01
	Mg	5000	111.50	1.50E+00	J 1.62E+02	2.16E+02	1.89E+02	28.40	4.68E+01	80.50	7.00E-01	2.70E+02
	Mn	5000	99.60	3.00E-01	4.62E+01	4.82E+01	4.72E+01	4.20	4.68E+01	92.80	3.00E-01	1.57E+02
	Ni	5000	102.70	1.40E+00	J 1.36E+01	1.43E+01	1.40E+01	5.30	4.68E+01	168.20	1.40E+00	1.00E+01
	K	5000	75.60	-2.70E+01	J 2.99E+02	3.13E+02	3.06E+02	4.80	4.68E+01	142.80	1.20E+01	2.37E+01
	Se	5000	154.50	-2.57E+01	J 3.66E+02	3.72E+02	3.69E+02	1.70	4.68E+01	157.30	8.30E+00	4.45E+01
	Ag	5000	48.10	1.00E+00	UJ 9.49E-01	9.73E-01	9.61E-01		4.68E+01	31.40	1.00E+00	9.61E-01
	Na	10000	154.80	2.26E+01	J 1.04E+05	1.03E+05	1.04E+05	0.50	9.36E+01	-1593.70	2.80E+00	3.68E+04
	Zn	10000	102.10	5.64E+00	J 7.71E+01	8.50E+01	8.10E+01	9.80	9.36E+01	1355.10	2.50E+00	3.24E+01
	Bi	5000	70.00	5.80E+00	J 2.73E+04	2.70E+04	2.72E+04	1.10	4.68E+01	-1024.70	5.80E+00	4.67E+03
	B	5000	142.50	1.83E+00	J 5.76E+01	4.40E+01	5.08E+01	26.80	4.68E+01	105.00	1.00E+00	5.08E+01
	Ce	5000	86.40	-2.33E+01	J 1.92E+02	1.90E+02	1.91E+02	1.00	4.68E+01	132.90	9.80E+00	1.95E+01
	La	5000	107.70	1.60E+00	UJ 1.52E+00	1.56E+00	1.54E+00		9.36E+01	40.40	1.60E+00	9.63E-01
	P	10000	111.50	9.90E+00	J 2.44E+04	2.35E+04	2.40E+04	3.70	9.36E+01	588.10	9.90E+00	2.41E+03
	Si	10000	404.60	9.18E+00	J 1.63E+03	1.86E+03	1.74E+03	13.20	9.36E+01	158.90	4.30E+00	4.05E+02
	Sr	10000	105.60	4.00E-01	J 1.85E+02	1.85E+02	1.85E+02	0.00	9.36E+01	96.20	4.00E-01	4.62E+02
	S	5000	132.70	1.75E+01	J 4.52E+03	4.43E+03	4.48E+03	2.10	4.68E+01	-29.00	4.50E+00	9.93E+02
	Sn	5000	104.30	2.30E+00	J 5.34E+00	9.04E+00	7.19E+00	51.40	4.68E+01	102.90	2.30E+00	3.13E+00
	Ti	5000	102.10	-4.30E-01	J 4.23E+00	4.94E+00	4.59E+00	15.40	4.68E+01	93.60	4.00E-01	1.15E+01
	Zr	10000	99.20	-1.02E+00	J 8.64E+01	8.95E+01	8.80E+01	3.50	9.36E+01	-23.10	8.00E-01	1.10E+02

Direct: Unhom	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
	DSC	EXO	NA	J925-5711 NO EXO	NA	NA	NA	NA	NA	NA
	TGA %	98.30	NA	J925-5712 66.30	J925-5812 61.80	64.05	7.03	NA	NA	NA
	%WTR	100.60	NA	J935-5710 56.00	J936-5710 56.30	56.15	0.53	NA	1.00E-01	NA
HYAA	As	104.70	<2.50E-01	J925-8795 J 3.19E-01	J925-8695 4.03E-01	3.61E-01	23.27	87.60	2.50E-01	1.44
	Se	100.00	3.10E-01	2.01E+00	2.03E+00	2.02E+00	0.99	124.00	2.50E-01	8.08E+00
CVAA	Hg	99.9	<1.25E-01	J925-5796 J 5.39E-01	J925-5896 7.23E-01	6.31E-01	29.16	120.80	1.25E-01	5.05E+00
CN-Dir	CN	95.10	2.00E-02	J925-5778 2.88E+00	J925-5878 3.10E+00	2.99E+00	7.40	93.00	1.00E-01	2.99E+01

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

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BX107 CORE 4 C1

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J925-7755	Result #2 (ug/g) J925-7855	Average (ug/g)	RPD %	Spk add (ug/L)	Spike % Rec	DET LIM (ug/g)	Ratio H/DL
ICP-Water	Al	5000	94.20	1.07E+01	J 7.33E+01	6.99E+01	7.16E+01	4.70	1.25E+03	50.00	3.40E+00	2.11E+01
	Sb	5000	98.10	3.56E+01	U 3.63E+01	3.62E+01	3.63E+01		1.25E+03	101.20	3.56E+01	1.02E+00
	As	5000	87.20	3.10E+00	U 3.16E+00	3.16E+00	3.16E+00		1.25E+03	98.00	3.10E+00	1.02E+00
	Ba	10000	98.40	3.00E-01	U 3.06E-01	3.05E-01	3.06E-01		2.50E+03	99.90	3.00E-01	1.02E+00
	Be	10000	99.20	3.00E-01	U 3.06E-01	3.05E-01	3.06E-01		2.50E+03	99.10	3.00E-01	1.02E+00
	Cd	10000	93.50	7.00E-01	U 7.14E-01	7.13E-01	7.13E-01		2.50E+03	94.30	7.00E-01	1.02E+00
	Ca	10000	102.80	7.88E+01	J 1.41E+02	1.54E+02	1.47E+02	8.30	2.50E+03	63.40	2.40E+00	6.12E+01
	Cr	5000	87.20	1.40E+00	1.54E+02	1.58E+02	1.56E+02	2.50	1.25E+03	-2.40	1.40E+00	1.11E+02
	Co	10000	92.90	1.20E+00	U 1.22E+00	1.22E+00	1.22E+00		2.50E+03	93.20	1.20E+00	1.02E+00
	Cu	5000	94.60	-1.82E+00	U 6.12E-01	6.11E-01	6.11E-01		1.25E+03	95.50	6.00E-01	1.02E+00
	Fe	5000	93.60	2.00E+00	6.15E+01	5.52E+01	5.84E+01	10.80	1.25E+03	54.70	2.00E+00	2.92E+01
	Pb	5000	98.70	8.50E+00	U 8.67E+00	8.65E+00	8.66E+00		1.25E+03	98.20	8.50E+00	1.02E+00
	Mg	5000	99.90	3.43E+00	6.59E+00	6.43E+00	6.51E+00	2.40	1.25E+03	97.00	6.00E-01	1.08E+01
	Mn	5000	90.60	3.00E-01	U 3.06E-01	3.05E-01	3.06E-01		1.25E+03	92.00	3.00E-01	1.02E+00
	Ni	5000	93.60	1.80E+00	U 1.84E+00	1.83E+00	1.83E+00		1.25E+03	96.40	1.80E+00	1.02E+00
	K	5000	104.00	1.33E+01	1.51E+02	1.61E+02	1.56E+02	6.30	1.25E+03	16.20	1.33E+01	1.17E+01
	Se	5000	97.70	1.31E+01	U 1.34E+01	1.33E+01	1.33E+01		1.25E+03	108.80	1.31E+01	1.02E+00
	Ag	5000	92.90	1.00E+00	U 1.02E+00	1.02E+00	1.02E+00		1.25E+03	97.40	1.00E+00	1.02E+00
	Na	10000	97.50	3.60E+01	7.94E+04	8.08E+04	8.01E+04	1.80	2.50E+03	-25777.00	8.70E+00	9.21E+03
	Zn	10000	94.80	2.50E+00	U 2.55E+00	2.54E+00	2.55E+00		2.50E+03	96.00	2.50E+00	1.02E+00
	Bi	5000	99.80	8.50E+00	J 1.16E+02	1.11E+02	1.13E+02	4.00	1.25E+03	-14.60	8.50E+00	1.33E+01
	B	5000	102.50	3.04E+00	2.05E+01	2.09E+01	2.07E+01	1.90	1.25E+03	92.00	1.90E+00	1.09E+01
	Ce	5000	100.60	8.60E+00	U 8.77E+00	8.75E+00	8.76E+00		1.25E+03	108.10	8.60E+00	1.02E+00
	La	5000	95.00	2.10E+00	U 2.14E+00	2.14E+00	2.14E+00		1.25E+03	98.90	2.10E+00	1.02E+00
	P	10000	97.40	8.00E+00	4.58E+03	4.65E+03	4.60E+03	1.90	2.50E+03	-1399.40	8.00E+00	5.75E+02
	Si	10000	108.90	4.30E+00	J 1.33E+02	1.38E+02	1.36E+02	4.40	2.50E+03	69.00	2.30E+00	5.91E+01
	Sr	10000	101.10	6.00E-01	1.48E+00	1.44E+00	1.46E+00	2.80	2.50E+03	102.40	6.00E-01	2.43E+00
	S	5000	99.60	6.00E+00	4.35E+03	4.44E+03	4.39E+03	2.00	1.25E+03	-2748.80	6.00E+00	7.32E+02
	Sn	5000	93.70	1.60E+00	U 1.63E+00	1.63E+00	1.63E+00		1.25E+03	96.80	1.60E+00	1.02E+00
	Ti	5000	99.50	5.00E-01	U 5.10E-01	5.09E-01	5.10E-01		1.25E+03	99.90	5.00E-01	1.02E+00
	Zr	10000	94.60	1.21E+00	U 1.12E+00	1.30E+00	1.21E+00	200.00	2.50E+03	95.20	1.10E+00	1.10E+00

	Ratio AA/ICP
As	0.1183388
Se	0.0054742

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

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BX107 CORE 4[illegible] [illegible]1

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J925-7771	J925-7871					
IC-Water	F	103.00	1.00E+01	J 9.04E+03	8.72E+03	8.88E+03	3.60	114.00	1.00E+01	888.00
	Cl	105.0	2.36E+01	J 1.04E+03	1.08E+03	1.06E+03	3.77	108.00	2.36E+01	44.92
	NO3	106.00	1.86E+03	J 1.24E+05	1.31E+05	1.28E+05	5.49	125.00	1.86E+03	68.55
	NO2	103.00	1.00E+02	J 1.25E+04	1.24E+04	1.25E+04	0.80	103.00	1.00E+02	124.50
	PO4	106.00	1.00E+02	J 1.34E+04	1.34E+04	1.34E+04	0.00	108.00	1.00E+02	134.00
	SO4	105.00	1.00E+02	J 1.28E+04	1.32E+04	1.30E+04	3.08	106.00	1.00E+02	130.00
	P ACID ICP/PO4 IC					5.48E+00				
	S ACID ICP/SO4 IC					1.03E+00				
				J925-7779	J925-7879					
Spec-water	NO2	103.0	<5.11E+01	1.39E+04	1.26E+04	1.33E+04	9.81	106.00	5.11E+01	259.30
	NO3 (C)/NO2 Spec.					9.62E+00				
	NO2 (C)/NO2 (SPEC)					0.94				
				J925-5715	J925-5815					
pH	pH	101.0	NA	9.95	9.69	9.82	2.65	NA		NA
				J925-7728	J925-7828					
NH3-Water	NH3	108.20	<4.50E+01	<4.5E+03	<4.5E+03	NA	NA		8.92E+01	0.00
				UJ J925-7726	J925-7826					
TOC-Water	TOC	96.70	5.50E+02	<5.00E+02	<5.00E+02	NA	NA	94.70	5.50E+02	0.00
	Acetate Eq		0.00E+00							
				J925-7727	J925-7827					
TIC-water	CO3	106.0	3.40E-01	J 1.39E+03	1.10E+03	1.24E+03	23.54	102.40	5.00E+02	2.49

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

9 5

ADD
3-10-93

BX107 CORL CC1

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J925-6755	Result #2 (ug/g) J925-6855	Average (ug/g)	RPD %	Spk add (ug/L)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Fusion	Al	5000	97.10	6.65E+01	1.72E+04	1.73E+04	1.73E+04	0.40	1.25E+03	117.90	3.50E+01	493.06
	Sb	5000	102.80	3.66E+02	UJ 1.82E+02	1.82E+02	1.82E+02		1.25E+03	100.20	3.66E+02	0.50
	As	5000	98.80	3.00E+01	UJ 1.49E+01	1.49E+01	1.49E+01		1.25E+03	100.20	3.00E+01	0.50
	Ba	10000	98.20	3.00E+00	J 1.20E+01	1.16E+01	1.18E+01	3.00	2.50E+03	102.30	3.00E+00	3.94
	Be	10000	98.00	3.00E+00	UJ 1.49E+00	1.49E+00	1.49E+00		2.50E+03	95.80	3.00E+00	0.50
	Cd	10000	98.90	7.00E+00	J 4.73E+00	3.98E+00	4.35E+00	17.80	2.50E+03	97.00	7.00E+00	0.62
	Ca	10000	96.30	2.72E+02	3.65E+02	3.72E+02	3.69E+02	2.00	2.50E+03	108.20	2.72E+02	1.36
	Cr	5000	101.20	1.20E+01	1.08E+03	1.08E+03	1.08E+03	0.50	1.25E+03	101.90	1.20E+01	90.00
	Co	10000	97.20	1.00E+01	UJ 4.98E+00	4.98E+00	4.98E+00		2.50E+03	97.00	1.00E+01	0.50
	Cu	5000	98.80	7.16E+00	2.59E+01	2.71E+01	2.65E+01	4.40	1.25E+03	100.00	4.00E+00	6.62
	Fe	5000	97.30	1.50E+01	1.34E+04	1.32E+04	1.33E+04	1.20	1.25E+03	108.30	1.50E+01	885.38
	Pb	5000	102.80	7.10E+01	J 1.23E+02	7.58E+01	9.95E+01	47.80	1.25E+03	107.80	7.10E+01	1.40
	Mg	5000	98.60	7.00E+00	1.31E+02	1.32E+02	1.31E+02	0.40	1.25E+03	99.50	7.00E+00	18.75
	Mn	5000	94.10	3.00E+00	J 6.52E+01	8.16E+01	7.34E+01	22.30	1.25E+03	94.20	3.00E+00	24.48
	Ni	5000	98.10	1.40E+01	J 4.30E+03	1.42E+03	2.86E+03	100.80	1.25E+03	87.20	1.40E+01	204.03
	K	5000	102.50				NA				1.29E+02	0.00
	Se	5000	98.10	8.30E+01	UJ 4.13E+01	4.13E+01	4.13E+01		1.25E+03	105.10	8.30E+01	0.50
	Ag	5000	102.90	2.87E+01	J 7.59E+00	4.98E+00	6.29E+00	200.00	1.25E+03	110.20	1.00E+01	0.63
	Na	10000	98.70	4.57E+03	1.01E+05	1.03E+05	1.02E+05	2.00	2.50E+03	126.50	2.90E+01	3640.16
	V	10000	97.70	8.00E+00	J 1.05E+01	1.04E+01	1.05E+01	1.80	2.50E+03	101.20	8.00E+00	1.31
	Zn	10000	98.90	3.33E+01	J 9.28E+01	8.35E+01	8.82E+01	10.50	2.50E+03	98.20	2.50E+01	3.53
	Bi	5000	103.10	5.90E+01	J 2.82E+04	2.80E+04	2.81E+04	0.80	1.25E+03	84.90	5.90E+01	484.05
	B	5000	98.60	1.22E+01	J 8.32E+00	4.98E+00	6.65E+00	200.00	1.25E+03	98.60	1.00E+01	0.66
	Ce	5000	103.90	9.60E+01	J 2.30E+02	1.72E+02	2.01E+02	28.50	1.25E+03	119.40	9.60E+01	2.05
	La	5000	100.60	1.60E+01	UJ 7.97E+00	7.97E+00	7.97E+00		1.25E+03	104.20	1.60E+01	0.50
	P	10000	102.80	9.90E+01	J 2.59E+04	2.88E+04	2.74E+04	10.80	2.50E+03	145.70	9.90E+01	276.36
	Si	10000	97.20	4.84E+02	7.98E+03	7.99E+03	7.99E+03	0.20	2.50E+03	110.00	4.30E+01	185.72
	Sr	10000	98.10	4.00E+00	J 1.88E+02	1.86E+02	1.86E+02	0.20	2.50E+03	102.30	4.00E+00	46.94
	S	5000	97.20	6.48E+01	J 4.03E+03	4.26E+03	4.15E+03	5.60	1.25E+03	113.80	4.50E+01	92.18
	Sn	5000	98.50	2.30E+01	UJ 1.15E+01	1.15E+01	1.15E+01		1.25E+03	99.10	2.30E+01	0.50
	Ti	5000	97.50	5.98E+00	J 8.14E+00	6.40E+00	7.27E+00	23.90	1.25E+03	101.80	4.00E+00	1.82
	Zr	10000	111.10	1.16E+01	J 1.73E+02	6.92E+01	1.21E+02	85.60				-

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

9 6

BX107 CORE 41

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
		J922	J923	J925-6740	J925-6840					
Fluor	U	107.9	<2.33E+02	2.82E+03	2.82E+03	2.82E+03	0.00	119.70	2.30E+02	1.23E+01
	U as uCi/g					0.00				

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
				J925-6725	J925-6825						
RAD-Fun.	AT	91.2	<3.58E-03	1.23E-01	1.13E-01	1.18E-01	8.47	88.40	3.60E-03	3.28E+01	5.70E+00
	AT/Pu+Am			1.82E+00	1.56E+00						
				J925-6720	J925-6820						
	TB	94.50	<1.31E+00	5.24E+01	5.23E+01	5.24E+01	0.19	94.90	1.30E+00	4.03E+01	2.50E+00
	TB/Cs+Sr			8.22E-01	8.07E-01						
				J925-6730	J925-6830						
GEA	Cs-137	102.00	<7.75E-03	2.00E+01	2.04E+01	2.02E+01	1.78	NA	7.20E-03	2804.17	7.00E-01
	Eu-154	NA	<1.86E-02	<1.59E-02	<1.98E-02	NA	NA	NA	2.04E-02	0.00	NA
	Eu-155	NA	<1.33E-02	<3.76E-02	<3.77E-02	NA	NA	NA	1.26E-02	0.00	NA
	Am-241	NA	<2.83E-02	<8.96E-02	<9.12E-02	NA	NA	NA	2.90E-02	0.00	NA
	Co-60	101.00	<6.00E-03	<6.82E-03	<5.98E-03	NA	NA	NA	6.75E-03	0.00	NA
				J925-6781	J925-6881						
	PU239/40	97.80	<3.28E-03	5.49E-02	5.84E-02	5.56E-02	2.70	NA	NA	NA	NA
	PU-238	NONE DETECTED				NA	NA	NA	NA	NA	NA

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
Am-241	108.0	<3.28E-03	R 1.28E-02	1.62E-02	1.45E-02	23.45		1.80E-03	8.06E+00	8.80E+00
Cm-244					NA	NA	NA	NA	NA	NA
Am-241 (GEA)/Am-241 (ALPHA)					0.00E+00					
			J925-6783	J925-6883						
NP-237	81.50	<2.16E-02	<2.15E-02	<2.15E-02	NA	NA	92.30	2.10E-02	0.00	6.75E+01
			J925-6784	J925-6884						
TC-99	94.4	<9.38E-04	4.92E-02	4.23E-02	4.57E-02	15.08	65.60	9.40E-04	48.67	
							68.50			
			J925-6785	J925-6885						
I-129	98.0	<1.47E-02	<1.83E-02	<1.23E-02	NA	NA	51.80	1.40E-02	0.00	
							76.40			

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Ct Err
			J925-6786	J925-6886						
Sr-90	102.80	<2.29E-03	<1.18E+01	1.20E+01	1.19E+01	1.68E+00		2.30E-02	5.17E+02	3.00E-01
			J925-7787	J925-7877						
H-3	97.50	<2.25E-04	4.20E-04	3.66E-04	3.93E-04	13.74	99.70	2.25E-04	1.75	6.00
			J925-7788	J925-7888						
C-14	65.10	<1.13E04	3.49E-04	2.89E-04	3.19E-04	18.81	90.30	1.13E+04	0.00	
			J925-6789	J925-6889						
Se-79	NA	<1.34E-04	<1.26E-04	<1.25E-04	NA	NA	NA	1.20E-04	0.00	4.50E+00

9 7

ISD
3-15-93

BX107 CORE 41 CORE COMP 2

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J927-8755	Result #2 (ug/g) J927-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	220.30	2.06E+01	J	1.66E+04	1.65E+04	1.66E+04	1.00	NA	NA	3.50E+00	4.74E+03
	Sb	5000	126.90	3.66E+01	UJ	3.35E+01	3.41E+01	3.38E+01		NA	NA	3.66E+01	9.23E-01
	As	5000	96.90	3.00E+00	UJ	2.74E+00	2.80E+00	2.77E+00		NA	NA	3.00E+00	9.23E-01
	Ba	10000	101.30	3.08E-01	J	9.34E+00	9.27E+00	9.31E+00	0.70	NA	NA	3.00E-01	3.10E+01
	Be	10000	97.70	3.00E-01	UJ	2.74E-01	2.80E-01	2.77E-01		NA	NA	3.00E-01	9.23E-01
	Cd	10000	98.50	7.00E-01	J	2.69E+00	2.43E+00	2.56E+00	10.10	NA	NA	7.00E-01	3.66E+00
	Ca	10000	5552.00	7.57E+02	J	3.06E+02	2.86E+02	2.96E+02	6.80	NA	NA	2.72E+01	1.09E+01
	Cr	5000	105.30	1.20E+00		1.04E+03	1.02E+03	1.03E+03	2.40	NA	NA	1.20E+00	8.58E+02
	Co	10000	98.70	1.00E+00	UJ	9.14E-01	9.88E-01	9.51E-01	200.00	NA	NA	1.00E+00	9.51E-01
	Cu	5000	99.30	8.01E-01	J	1.72E+01	1.67E+01	1.70E+01	2.70	NA	NA	4.00E-01	4.25E+01
	Fe	5000	130.90	3.40E+00	J	1.25E+04	1.21E+04	1.23E+04	3.20	NA	NA	1.50E+00	8.20E+03
	Pb	5000	108.40	7.10E+00	J	6.92E+01	6.94E+01	6.93E+01	0.30	NA	NA	7.10E+00	9.76E+00
	Mg	5000	417.30	1.70E+01	J	1.25E+02	1.27E+02	1.26E+02	1.10	NA	NA	7.00E-01	1.80E+02
	Mn	5000	105.90	5.41E-01	J	4.39E+01	4.23E+01	4.31E+01	3.80	NA	NA	3.00E-01	1.44E+02
	Ni	5000	101.80	1.40E+00	J	1.39E+01	1.33E+01	1.36E+01	4.00	NA	NA	1.40E+00	9.71E+00
	K	5000	161.80	2.06E+01	J	2.78E+02	2.86E+02	2.82E+02	2.90	NA	NA	1.29E+01	2.19E+01
	Se	5000	110.70	8.30E+00	UJ	7.59E+00	7.74E+00	7.66E+00		NA	NA	8.30E+00	9.23E-01
	Ag	5000	76.00	1.00E+00	UJ	9.14E-01	9.33E-01	9.23E-01		NA	NA	1.00E+00	9.23E-01
	Na	10000	146.00	3.90E+01	J	1.00E+05	1.00E+05	1.00E+05	0.50	NA	NA	2.80E+00	3.57E+04
	Zn	10000	166.00	1.06E+01	J	6.65E+01	6.45E+01	6.55E+01	3.10	NA	NA	2.50E+00	2.62E+01
	Bi	5000	73.60	5.80E+00	J	2.64E+04	2.60E+04	2.62E+04	1.80	NA	NA	5.80E+00	4.52E+03
	B	5000	135.30	1.14E+01	J	2.12E+01	2.95E+01	2.53E+01	32.60	NA	NA	1.00E+00	2.53E+01
	Ce	5000	96.20	9.80E+00	J	2.05E+02	2.01E+02	2.03E+02	1.60	NA	NA	9.80E+00	2.07E+01
	La	5000	98.80	1.60E+00	UJ	1.46E+00	1.49E+00	1.48E+00		NA	NA	1.60E+00	9.25E-01
	P	10000	108.00	9.90E+00	J	2.69E+04	2.75E+04	2.72E+04	2.20	NA	NA	9.90E+00	2.75E+03
	Si	10000	368.90	2.82E+01	J	1.77E+03	1.54E+03	1.66E+03	13.80	NA	NA	4.30E+00	3.86E+02
	Sr	10000	104.00	6.20E-01	J	1.72E+02	1.68E+02	1.70E+02	1.90	NA	NA	4.00E-01	4.25E+02
	S	5000	144.00	1.42E+01	J	4.03E+03	4.03E+03	4.03E+03	0.00	NA	NA	4.50E+00	8.96E+02
	Sn	5000	107.00	5.54E+00	J	1.07E+01	1.17E+01	1.12E+01	8.50	NA	NA	2.30E+00	4.87E+00
	Ti	5000	100.40	4.00E-01	J	4.08E+00	4.05E+00	4.06E+00	0.80	NA	NA	4.00E-01	1.01E+01
	Zr	10000	111.50	8.00E-01		1.15E+02	1.05E+02	1.10E+02	9.20	NA	NA	8.00E-01	1.38E+02

Direct/Unhom.	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
	DSC	EXO	NA	J927-5711 NO EXO	J927-5811 NO EXO	NA	NA	NA	NA	NA
	TGA	99.00	NA	J927-5712 50.70	J927-5812 54.30	52.5	6.86	NA	NA	NA
	%WTR	100.60		J937-5710 55.90	J938-5710 56.00	55.95	0.18	NA	NA	NA
HYAA	As	114.30	<2.50E-01	J927-8795 5.17E-01	J927-8895 5.54E-01	5.36E-01	6.91	87.60	2.50E-01	2.14
	Se	87.30	<2.50E-01	J 5.96E-01	7.04E-01	6.50E-01	16.62	124.00	2.50E-01	2.60
CVAA	Hg	107.7	<1.25E-01	J927-5798 J 6.27E-01	J927-5898 6.57E-01	6.42E-01	4.67	120.80	1.25E-01	5.14
CN-Dir	CN	94.60	<2.00E-01	J927-5778 2.07E+00	J927-5878 2.78E+00	2.43E+00	29.20	NA	1.00E-01	24.30
	CsNiFeCN6					NA				

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

BX107 CORE 41 CORE COMP 2

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J927-6755	Result #2 (ug/g) J927-6855	Average (ug/g)	RPD %	Spk add (ug/L) NO SPIKE	Spike % Rec NO SPIKE	DET LIM (ug/g)	Ratio R/DL
ICP-Water	Al	5000	93.50	2.33E+01	J	3.50E+02	2.09E+02	2.79E+02	50.70			3.50E+00	79.83
	Sb	5000	97.00	3.66E+01	UJ	3.72E+01	3.72E+01	3.72E+01				3.66E+01	1.02
	As	5000	94.80	3.00E+00	UJ	3.05E+00	3.05E+00	3.05E+00				3.00E+00	1.02
	Ba	10000	91.90	3.00E-01	J	6.36E-01	4.69E-01	5.53E-01	30.30			3.00E-01	1.84
	Be	10000	90.30	3.17E-01	UJ	3.05E-01	3.05E-01	3.05E-01				3.00E-01	1.02
	Cd	10000	91.80	7.00E-01	UJ	7.11E-01	7.11E-01	7.11E-01				7.00E-01	1.02
	Ca	10000	92.40	8.73E+01	J	1.36E+02	1.05E+02	1.21E+02	25.60			2.72E+01	4.45
	Cr	5000	95.60	1.20E+00	J	1.71E+02	1.48E+02	1.59E+02	14.80			1.20E+00	132.85
	Co	10000	92.70	1.00E+00	J	1.17E+00	1.02E+00	1.09E+00	200.00			1.00E+00	1.09
	Cu	5000	96.50	4.00E-01	J	1.07E+00	6.70E-01	8.70E-01	46.00			4.00E-01	2.18
	Fe	5000	90.20	1.62E+00	J	4.22E+02	2.14E+02	3.18E+02	65.40			1.50E+00	212.15
	Pb	5000	96.30	7.10E+00	J	7.49E+00	8.04E+00	7.77E+00	7.10			7.10E+00	1.09
	Mg	5000	92.00	3.79E+00	J	9.57E+00	7.25E+00	8.41E+00	27.60			7.00E-01	12.02
	Mn	5000	88.40	3.00E-01	J	1.72E+00	8.88E-01	1.30E+00	63.60			3.00E-01	4.34
	Ni	5000	91.50	1.40E+00	UJ	1.42E+00	1.42E+00	1.42E+00				1.40E+00	1.02
	K	5000	94.70	1.29E+01	J	1.28E+02	1.31E+02	1.30E+02	2.80			1.29E+01	10.04
	Se	5000	101.60	1.39E+01	R	7.45E+01	6.20E+01	6.82E+01	18.30			8.30E+00	8.22
	Ag	5000	96.30	1.00E+00	UJ	1.02E+00	1.02E+00	1.02E+00				1.00E+00	1.02
	Na	10000	92.30	1.39E+01	J	7.26E+04	7.14E+04	7.20E+04	1.50			2.80E+00	25713.8
	Zn	10000	93.40	2.50E+00	J	5.28E+00	4.95E+00	5.12E+00	6.40			2.50E+00	2.05
	Bi	5000	98.00	5.80E+00	J	8.39E+02	4.31E+02	6.35E+02	64.30			5.80E+00	109.44
	B	5000	95.00	7.90E+00	J	2.32E+01	2.25E+01	2.28E+01	3.30			1.00E+00	22.84
	Ce	5000	105.00	9.80E+00	UJ	9.96E+00	9.96E+00	9.96E+00				9.80E+00	1.02
	La	5000	98.80	1.60E+00	UJ	1.63E+00	1.63E+00	1.63E+00				1.60E+00	1.02
	P	10000	100.10	9.90E+00	J	4.81E+03	4.81E+03	4.81E+03	0.10			9.90E+00	486.08
	Si	10000	92.40	1.15E+01	J	2.71E+02	2.53E+02	2.62E+02	7.20			4.30E+00	60.95
	Sr	10000	91.70	4.00E-01	J	6.50E+00	3.51E+00	5.00E+00	59.80			4.00E-01	12.51
	S	5000	100.90	5.30E+00	J	4.17E+03	4.13E+03	4.15E+03	1.00			4.50E+00	922.58
	Sn	5000	90.70	2.30E+00	UJ	2.34E+00	2.34E+00	2.34E+00				2.30E+00	1.02
	Ti	5000	93.50	4.00E-01	UJ	4.06E-01	4.06E-01	4.06E-01				4.00E-01	1.02
	Zr	10000	97.10	8.00E-01	J	7.85E+00	4.33E+00	6.09E+00	57.80			8.00E-01	

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

9 9

3-16-93

BX107 CORE 41 CORE COMP 2

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J927-7771	J927-7871					
IC-Water	F	100.00	1.00E+00	1.09E+04	1.10E+04	1.09E+04	0.91	114.00	1.00E+00	1.09E+04
	Cl	105	2.34E+01	1.20E+03	1.15E+03	1.18E+03	4.26	108.00	2.34E+01	5.02E+01
	NO3	103.00	1.00E+02	1.28E+05	1.31E+05	1.30E+05	2.32	119.00	1.00E+02	1.30E+03
	NO2	103.00	1.00E+02	1.21E+03	1.18E+03	1.20E+03	2.51	103.00	1.00E+02	1.19E+01
	PO4	103.00	1.00E+02	J 1.43E+04	1.41E+04	1.42E+04	1.41	108.00	1.00E+02	1.42E+02
	SO4	102.00	1.00E+02	J 1.22E+04	1.23E+04	1.23E+04	0.82	106.00	1.00E+02	1.23E+02
	P ACID ICP/PO4 IC					5.87E+00				
	S ACID ICP/SO4 IC					9.86E-01				
				J927-7779	J927-7879					
Spec-water	NO2	98.4	5.00E-01	1.24E+04	1.25E+04	1.25E+04	0.80	106.00	5.00E-01	2.49E+04
	NO3 (IC)/NO2 Spec.					10.40				
	NO2 (IC)/NO2 (SPEC)					0.10				
				J927-5715	J927-5815					
pH	pH	100.8	NA	9.72	9.71	9.72	0.10	NA	NA	NA
				J927-7728	J927-7828					
NH3-Water	NH3	100.40	<4.50E+03	<4.50E+03	<4.50E+03	NA	NA	NA	NA	NA
				J927-7726	J927-7826					
TOC-Water	TOC	97.00	5.50E+02	J 7.96E+02	9.97E+02	8.97E+02	22.42	94.70	5.50E+02	NA
	Acetate Eq		4.41E+03							
				J927-7727	J927-7827					
TIC-water	CO3	101.5	2.70E-01	J 1.10E+03	1.10E+03	1.10E+03	0.00	102.40	5.00E+02	2.20E+00

WHC-SD-WM-DP-028
REV_0
ADDENDUM 1 REV 0

3-16-93

BX107 CORE 41 CORE COMP 2

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J927-6755	Result #2 (ug/g) J927-6855	Average (ug/g)	RPD %	Spk add (ug/L) NO SPIKE	Spike % Rec	DET LIM (ug/g) IDL/2	Ratio R/DL
ICP-Fusion	Al	5000	90.50	5.52E+01	J	1.33E+04	1.49E+04	1.41E+04	11.60			1.75E+01	803.91
	Sb	5000	93.20	1.83E+02	R	1.83E+02	1.83E+02	1.83E+02				1.83E+02	1.00
	As	5000	94.60	1.50E+01		1.50E+01	1.50E+01	1.50E+01				1.50E+01	1.00
	Ba	10000	98.30	1.50E+00		1.06E+01	1.05E+01	1.06E+01	1.20			1.50E+00	7.04
	Be	10000	97.30	1.50E+00		1.50E+00	1.50E+00	1.50E+00				1.50E+00	1.00
	Cd	10000	97.70	3.50E+00	J	4.30E+00	6.22E+00	5.26E+00	36.60			3.50E+00	1.50
	Ca	10000	94.50	1.36E+02		5.20E+02	5.78E+02	5.49E+02	10.60			1.36E+02	4.04
	Cr	5000	100.80	6.00E+00	J	9.58E+02	1.01E+03	9.83E+02	5.00			6.00E+00	163.84
	Co	10000	98.80	5.00E+00	J	9.68E+00	1.59E+01	1.28E+01	48.60			5.00E+00	2.56
	Cu	5000	98.80	2.00E+00	J	5.33E+01	2.91E+01	4.12E+01	58.70			2.00E+00	20.60
	Fe	5000	97.40	7.50E+00		1.05E+04	1.17E+04	1.11E+04	11.40			7.50E+00	1479.11
	Pb	5000	102.90	3.55E+01	J	1.01E+02	7.51E+01	8.82E+01	29.80			3.55E+01	2.49
	Mg	5000	96.80	3.50E+00		1.07E+02	1.24E+02	1.16E+02	14.70			3.50E+00	33.08
	Mn	5000	93.90	1.50E+00		6.60E+01	6.92E+01	6.76E+01	4.70			1.50E+00	45.08
	Ni	5000	97.20	7.00E+00	J	7.64E+03	1.37E+04	1.07E+04	56.60			7.00E+00	1522.50
	K	5000	100.80	6.00E+00				NA				6.45E+01	0.00
	Se	5000	101.90	4.15E+01	R	3.16E+02	3.45E+02	3.30E+02	8.80			4.15E+01	7.96
	Ag	5000	100.80	5.00E+00	J	5.82E+00	4.99E+00	5.46E+00	200.00			5.00E+00	1.09
	Na	10000	94.60	2.30E+03	J	9.45E+04	9.56E+04	9.50E+04	1.10			1.40E+01	6787.20
	Zn	10000	97.30	1.25E+01		1.11E+02	1.33E+02	1.22E+02	18.10			1.25E+01	9.74
	Bi	5000	101.20	3.80E+01	J	1.89E+04	1.83E+04	1.86E+04	3.20			2.90E+01	640.99
	B	5000	101.40	9.08E+01	UJ	1.68E+01	1.35E+01	1.62E+01	33.00			5.00E+00	3.23
	Ce	5000	96.10	4.90E+01	J	2.52E+02	2.08E+02	2.29E+02	20.30			4.90E+01	4.67
	La	5000	101.20	8.00E+00		8.00E+00	7.99E+00	7.99E+00				8.00E+00	1.00
	P	10000	92.60	4.65E+01		2.09E+04	2.20E+04	2.15E+04	4.80			4.65E+01	433.34
	Si	10000	93.60	6.88E+02		6.10E+03	6.97E+03	6.54E+03	13.30			2.15E+01	303.98
	Sr	10000	98.20	2.20E+00	J	1.44E+02	1.66E+02	1.55E+02	14.30			2.00E+00	77.65
	S	5000	97.80	2.25E+01	J	4.20E+03	4.06E+03	4.13E+03	3.20			2.25E+01	183.60
	Sn	5000	94.10	1.15E+01		1.15E+01	1.15E+01	1.15E+01				1.15E+01	1.00
	Ti	5000	97.20	2.00E+00	J	6.89E+00	1.12E+01	9.05E+00	47.90			2.00E+00	4.52
	Zr	10000	94.40	1.03E+01	J	1.35E+02	1.97E+02	1.66E+02	36.90			4.00E+00	-

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

9

RJS
3-18-93

BX107 CORE 41 CORE COMP 2

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J927-6740	J927-6840					
	U	94.10	2.29E+04	J 2.29E+04	2.52E+04	2.41E+04	9.60	119.70	2.30E+03	
Fluor	U as uCi/g					NA	NA			NA

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
				J927-6725	J927-6825						
RAD-Fus.	AT	109.8	<1.79E-03	R 1.15E-01	1.01E-01	1.08E-01	12.96	88.40	1.80E-03	60.00	5.30
	AT/Pu+Am			1.98E+00	1.50E+00						
				J927-6720	J927-6820						
	TB	98.00	1.14E-02	C 4.58E+01	5.12E+01	4.85E+01	11.13	94.90	2.10E-02	2309.52	0.20
	TB/Cs+Sr			7.45E-01	7.74E-01						
				J927-6730	J927-6830						
GEA	Cs-137	102.00	8.20E-03	C 2.43E+01	2.51E+01	2.47E+01	3.24	NA	7.20E-03	3430.56	0.50
	Eu-154	NA	<1.90E-02	C <2.10E-02	<2.10E-02	NA	NA	NA	2.00E-02	0.00	N/A
	Eu-155	NA	<1.20E-02	C <3.90E-02	<4.10E-02	NA	NA	NA	1.30E-02	0.00	N/A
	Am-241	NA	<2.90E-02	C <9.70E-02	<9.80E-02	NA	NA	NA	2.90E-02	0.00	N/A
	Co-60	100.00	<6.0E-03	C <6.60E-03	<7.50E-03	NA	NA	NA	6.70E-03	0.00	N/A
				J927-6781	J927-6881						
	PU239/40	85.30	<3.38E-03	C 4.49E-02	5.41E-02	4.95E-02	18.50	34.40	3.40E-03	14.56	3.20
	PU-238	NA	NA	C <4.50E-03	<4.50E-03	NA	NA	80.40	4.50E-03	0.00	4.30

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
			J927-6782	J927-6882						
Am-241	91.4	<5.69E-03	R 1.31E-02	1.34E-02	1.33E-02	2.60	15.30	5.60E-03	2.37	16.30
Cm-244					NA	NA	13.60		NA	
Am-241 (GEA)/Am-241 (ALPHA)					NA					
			J927-6783	J927-6883						
NP-237	89.50	<3.24E-02	C <3.24E-03	<3.24E-02	NA	NA	76.40	3.20E-02	0.00	177.00
			J927-6784	J927-6884						
TC-99	105.9	<7.69E-04	C 3.74E-02	3.24E-02	3.49E-02	14.33	70.40	7.70E-04	45.32	2.20
							71.10			
			J927-6785	J927-6885						
I-129	88.8	<1.37E-02	R <5.04E-02	<6.74E-02	NA	NA	18.00	1.40E-02	0.00	
							15.40			

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Ct Err
			J927-6786	J927-6886						
Sr-90	97.60	3.37E-03	C 8.74E+00	9.96E+00	9.35E+00	13.05		4.10E-03	2280.5	0.30
			J927-7787	J927-7887						
H-3	88.60	<3.60E-04	C 6.97E-04	1.08E-03	8.89E-04	43.11	99.70	3.60E-04	2.47	5.00
			J927-7788	J927-7888						
C-14	90.10	<2.25E-04	C <2.24E-04	<2.99E-04	NA	NA	NA	2.24E-04	0.00	
			J927-6789	J927-6889						
Se-79	NA	<1.77E-04	C <1.47E-04	<1.44E-04	NA	NA	NA	1.40E-04	0.00	4.90

87

55

BX107 BLANKS

FIELD BLANK

	Analyte	Std #1 % Rec	PREP BLK (ug/mL)	Result #1 (ug/mL)	Result #2 (ug/mL)	Average (ug/mL)	RPD %	Spk Rec %	DET LIM (ug/mL)	Ratio R/DL	RELATIVE COUNT ERR
		J997-5595	J998-5695	J1000-5795	J1000-5895			J1000-5995			
CVAA	As	93.80	<2.50E-03	<1.00E-02	<1.00E-02	NA	NA	107.40	1.00E-02		
		J997-5597	J998-5697	J1000-797	J1000-5897						
CVAA	Hg	105.50	<5.00E-03	UJ <5.00E-03	<5.00E-03	NA	NA	NA	5.00E-03	NA	
		J997-5596	J998-5696	J1000-5796	J1000-5896						
	Se	99.10	<2.50E-03	UJ <1.00E-02	<1.00E-02	NA	NA	101.50	1.00E-02		
		J997-5526	J998-5626	J1000-5726	J1000-5826			J999-5926			
TOC-Water	TOC	95.30	1.70E+01	UJ <5.50E+00	<5.50E+00	NA	NA	98.30		NA	

	Analyte	Std #1 % Rec	PREP BLK (uCi/mL)	Result #1 (uCi/mL)	Result #2 (uCi/mL)	Average (uCi/mL)	RPD %	Spk Rec %	DET LIM (ug/mL)	Ratio R/DL	Relative Count Err
		J997-5525	J998-5625	J1000-5725	J1000-5825			J999-5920			
RAD-Water	AT	93.10	<1.13E-06	C <1.13E-06	<1.13E-06	NA	NA	96.80	1.10E-06	NA	5.54E+01
		J999-5520	J998-5620	J1000-5720	J1000-5820						
	TB	92.90	<5.00E-06	C 1.36E-04	1.52E-04	1.44E-04	10.80	111.50	5.00E-06	NA	5.00E-01

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec (ug/g)	DET LIM %	Ratio (ug/g)	Relative R/DL
		J997-5571	J998-5671	J1000-5771	J1000-5871						
IC WATER	F	107.00	<1.00E-01	J 4.87E-01	4.91E-01	4.89E-01	0.82	NO SPIKE	1.00E-01	NA	0.70
	CL	105.00	<1.00E-01	J 6.62E-01	5.63E-01	6.13E-01	16.16	NO SPIKE	1.00E-01	NA	NA
	NO3	108.00	<1.00E+00	J 2.95E+00	2.95E+00	2.95E+00	0.00	NO SPIKE	1.00E+00	NA	NA
	NO2	105.00	<1.00E+00	J 3.52E-01	3.95E-01	3.73E-01	11.51	NO SPIKE	1.00E+00	NA	NA
	PO4	90.20	<1.00E+00	J 9.26E-01	8.39E-01	8.83E-01	9.86	NO SPIKE	1.00E+00	NA	NA
	SO4	103.00	<1.00E+00	J 1.12E+00	8.88E-01	1.00E+00	23.11	NO SPIKE	1.00E+00	NA	NA

	Analyte	Std #1 % Rec	PREP BLK (uCi/mL)	Result #1 (uCi/mL)	Result #2 (uCi/mL)	Average (uCi/mL)	RPD %	Spk Rec %	DET LIM (ug/mL)	Ratio R/DL	Relative Count Err
		J997-5530	998-5630	J1000-5730	J1000-55830						
GEA	CS-137	98.00	<6.52E-07	1.76E-04	INSUFF SAM	NA	NA	NA	7.00E-07	NA	NA
	EU-154	NA	<1.50E-06	<1.79E-06		NA	NA	NA	2.30E-06	NA	NA
	EU-155	NA	<1.16E-06	<1.53E-06		NA	NA	NA	1.18E-06	NA	NA
	AM-241	NA	<2.48E-06	<3.36E-06		NA	NA	NA	2.19E-06	NA	NA
	CO-60	99.00	<6.19E-04	<5.45E-07		NA	NA	NA	6.47E-07	NA	NA

BX107 BLAN..S

HOT CELL

	ANALYTE	STD ADDED	Std % Rec J997-5550	PREP BLK ug/L J998-5650		RESULT #1 ug/L J999-5750	RESULT #2 ug/L J999-5850	AVERAGE ug/L	RPD %	SPK ADD ug/L %	SPIKE % J999-5950	DET LIM ug/L	RATIO R/DL
ICP	Al	5000	91.6	3.40E+01	R	2.04E+02	2.04E+02	2.04E+02		7500.0	93.8	3.40E+01	6.00E+00
	Sb	5000	101.3	3.56E+02		2.14E+03	2.14E+03	2.14E+03		7500.0	112.8	3.56E+02	6.01E+00
	As	5000	99.9	3.10E+01		1.86E+02	1.86E+02	1.86E+02		7500.0	95.8	3.10E+01	6.00E+00
	Ba	10000	96.9	3.00E+00		1.80E+01	1.80E+01	1.80E+01		15000.0	95.9	3.00E+00	6.00E+00
	Be	10000	101.8	3.78E+00		1.80E+01	1.80E+01	1.80E+01		15000.0	97.9	3.00E+00	6.00E+00
	Cd	10000	101.2	7.00E+00		4.20E+01	4.20E+01	4.20E+01		15000.0	99.2	7.00E+00	6.00E+00
	Ca	10000	96.0	2.40E+01		2.54E+03	2.48E+03	2.51E+03	2.40	15000.0	96.6	2.40E+01	1.05E+02
	Cr	50000	102.6	1.40E+01		8.40E+01	8.40E+01	8.40E+01		7500.0	102.1	1.40E+01	6.00E+00
	Co	10000	97.7	1.20E+01		7.20E+01	7.20E+01	7.20E+01		15000.0	96.0	1.20E+01	6.00E+00
	Cu	5000	97.5	6.00E+00		3.60E+01	3.60E+01	3.60E+01		7500.0	97.2	6.00E+00	6.00E+00
	Fe	5000	97.8	2.00E+01		1.20E+02	1.20E+02	1.20E+02		7500.0	100.7	2.00E+01	6.00E+00
	Pb	5000	105.4	8.50E+01	UJ	5.10E+02	5.10E+02	5.10E+02		7500.0	103.2	8.50E+01	6.00E+00
	Mg	5000	96.6	6.00E+00	J	1.08E+02	8.53E+01	9.56E+01	21.60	7500.0	95.8	6.00E+00	1.59E+01
	Mn	5000	96.0	3.00E+00		8.82E+01	8.02E+01	8.42E+01	9.50	7500.0	94.9	3.00E+00	2.81E+01
	Ni	5000	99.4	1.80E+01		1.08E+02	1.08E+02	1.08E+02		7500.0	99.7	1.80E+01	6.00E+00
	K	5000	101.7	1.83E+02	UJ	7.98E+02	1.11E+03	9.55E+02	200.00	7500.0	119.6	1.33E+02	7.18E+00
	Se	5000	96.6	1.31E+02	UJ	7.86E+02	7.86E+02	7.86E+02		7500.0	96.2	1.31E+02	6.00E+00
	Ag	5000	104.6	1.14E+01	R	6.00E+01	6.00E+01	6.00E+01		7500.0	98.0	1.00E+01	6.00E+00
	Na	10000	93.9	8.70E+01		4.63E+03	4.61E+03	4.62E+03	.40	15000.0	95.3	8.70E+01	5.31E+01
	Zn	10000	100.1	5.12E+01		1.50E+02	1.50E+02	1.50E+02		15000.0	99.3	2.50E+01	6.00E+00
	Bi	5000	101.2	8.50E+01	UJ	5.10E+02	5.10E+02	5.10E+02		7500.0	72.3	8.50E+01	6.00E+00
	B	5000	102.7	1.90E+01		1.13E+03	1.10E+03	1.11E+03	2.50	7500.0	101.9	1.90E+01	5.84E+01
	Ce	5000	99.5	8.60E+01		5.16E+02	5.16E+02	5.16E+02		7500.0	105.3	8.60E+01	6.00E+00
	La	5000	101.3	2.10E+01		1.26E+02	1.26E+02	1.26E+02		7500.0	99.8	2.10E+01	6.00E+00
	P	10000	97.0	8.00E+01		4.80E+02	4.80E+02	4.80E+02		15000.0	96.0	8.00E+01	6.00E+00
	Si	10000	109.1	8.50E+01	J	3.36E+03	3.20E+03	3.28E+03	4.90	15000.0	153.4	2.30E+01	1.43E+02
	Sr	10000	96.6	6.00E+00		3.60E+01	3.60E+01	3.60E+01		15000.0	95.7	6.00E+00	6.00E+00
	S	5000	94.8	8.00E+01	J	5.68E+02	3.78E+02	4.74E+02	40.30	7500.0	90.1	6.00E+01	7.90E+00
	Sn	5000	97.8	1.60E+01		9.60E+01	9.60E+01	9.60E+01		7500.0	97.5	1.60E+01	6.00E+00
	Ti	5000	99.3	5.00E+00		3.00E+01	3.00E+01	3.00E+01		7500.0	96.6	5.00E+00	6.00E+00
	Zr	10000	96.2	1.10E+01		6.60E+01	6.60E+01	6.60E+01		15000.0	93.0	1.10E+01	6.00E+00

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

BX107 BLANKS

HOT CELL BLANK

	Analyte	Std #1 % Rec	PREP BLK (ug/mL)		Result #1 (ug/mL)	Result #2 (ug/mL)	Average (ug/mL)	RPD %	Spk Rec %	DET LIM (ug/mL)	Ratio R/DL
		J997-5595	J998-5695		J999-5795	J999-5895					
CVAA	As	93.80	<2.50E-03		<1.00E-02	<1.00E-02	NA	NA	107.40	1.00E-02	NA
		J997-5597	J998-5697		J999-5797	J999-5897					
CVAA	Hg	105.50	<5.00E-03	U J	<5.00E-03	<5.00E-03	NA	NA	136.30	5.00E-03	NA
		J997-5596	J998-5696		J999-5796	J999-5896					
	Se	99.10	<2.50E-03	U J	<1.00E-02	<1.00E-02	NA	NA	101.50	1.00E-02	NA
		J997-5526	J998-5626		J999-5726	J999-5826			J999-5926		
TOC-Water	TOC	95.30	1.70E+01	J	7.10E+00	<5.50E+00	NA	NA	98.30	5.50E+00	NA

	Analyte	Std #1 % Rec	PREP BLK (uCi/mL)		Result #1 (uCi/mL)	Result #2 (uCi/mL)	Average (uCi/mL)	RPD %	Spk Rec %	DET LIM (ug/mL)	Ratio R/DL	Relative Count Err
		J997-5525	J998-5625		J999-5725	J999-5825			J999-5925			
RAD-Water	AT	93.10	<1.13E-06	U J	<1.13E-06	<1.13E-06	NA	NA	96.80	1.10E-05	NA	5.54E+01
		J999-5520	J998-5620		J999-5720	J999-5820			J999-58920			
	TB	92.90	<5.00E-06	J	7.82E-04	7.46E-04	7.64E-04	4.71	91.20	1.10E-05	NA	5.54E+01
		J997-5571	J998-5671		J999-5771	J999-5871			J999-5971			
IC WATER	F	107.00	<1.00E-01	J	2.94E-01	2.83E-01	2.88E-01	3.81	118.00	1.00E-01	NA	NA
	CL	105.00	<1.00E-01	J	9.35E-01	7.76E-01	8.56E-01	18.59	116.00	1.00E-01	NA	NA
	NO3	108.00	<1.00E+00	J	1.41E+00	1.30E+00	1.35E+00	8.12	96.70	1.00E+00	NA	NA
	NO2	105.00	<1.00E+00	J	3.39E-01	3.42E-01	3.41E-01	0.88	109.00	1.00E+00	NA	NA
	PO4	90.20	<1.00E+00	U J	NA	NA	NA	NA	86.40	1.00E+00	NA	NA
	SO4	103.0[illegible]	<1.00E+00	J	1.05E+00	9.66E-01	1.01E+00	8.33	97.90	1.00E+00	NA	NA
		J997-5530	998-5630		J999-5730	J999-5830						
GEA	CS-137	98.00	<6.52E-07	J	4.12E-04	NA*	NA	NA		7.00E-07	NA	0.70
	EU-154	NA	<1.50E-06	U J	<1.62E-06	NA	NA	NA		2.30E-06	NA	NA
	EU-155	NA	<1.16E-06	U J	<1.86E-06	NA	NA	NA		1.18E-06	NA	NA
	AM-241	NA	<2.48E-06	U J	<4.31E-06	NA	NA	NA		2.19E-06	NA	NA
	CO-60	99.00	<6.19E-04	U J	<5.45E-07	NA	NA	NA		6.47E-07	NA	NA

*=INSUFFICIENT SAMPLE

ADDENDUM 1 REV 0

WHC-SD-WM-DP-028
REV 0

90

58

BX107 BLANkS

FIELD BLANK

	ANALYTE	STD ADDED	Std % Rec J997-5550	PREP BLK (ug/g) J998-5650	RESULT #1 (ug/g) J1000-5750	RESULT #2 (ug/g) J1000-5850	AVERAGE (ug/g)	RPD %	SPK ADD (ug/g)	SPIKE % F#:2223	DET LIM (ug/g)	RATIO R/DL
ICP	Al	5000	91.6	3.40E+01	2.04E+02 R	2.04E+02	2.04E+02		7500.0	93.8	3.40E+01	6.00E+00
	Sb	5000	101.3	3.56E+02	2.14E+03	2.14E+03	2.14E+03		7500.0	112.8	3.56E+02	6.01E+00
	As	5000	99.9	3.10E+01	1.86E+02	1.86E+02	1.86E+02		7500.0	95.8	3.10E+01	6.00E+00
	Ba	10000	96.9	3.00E+00	1.80E+01	1.80E+01	1.80E+01		15000.0	95.9	3.00E+00	6.00E+00
	Be	10000	101.8	3.75E+00	1.80E+01	1.80E+01	1.80E+01		15000.0	97.9	3.00E+00	6.00E+00
	Cd	10000	101.2	7.00E+00	4.20E+01	4.20E+01	4.20E+01		15000.0	99.2	7.00E+00	6.00E+00
	Ca	10000	96.0	2.40E+01	2.37E+02	2.02E+02	2.19E+02	16.10	15000.0	96.8	2.40E+01	9.12E+00
	Cr	5000	102.6	1.40E+01	8.40E+01	8.40E+01	8.40E+01		7500.0	102.1	1.40E+01	6.00E+00
	Co	10000	97.7	1.20E+01	7.20E+01	7.20E+01	7.20E+01		15000.0	96.0	1.20E+01	6.00E+00
	Cu	5000	97.5	6.00E+00	3.60E+01	3.60E+01	3.60E+01		7500.0	97.2	6.00E+00	6.00E+00
	Fe	5000	97.9	2.00E+01	1.20E+02	1.20E+02	1.20E+02		7500.0	100.7	2.00E+01	6.00E+00
	Pb	5000	105.4	8.50E+01	5.10E+02 UJ	5.10E+02	5.10E+02		7500.0	103.2	8.50E+01	6.00E+00
	Mg	5000	96.6	6.00E+00	3.60E+01	3.60E+01	3.60E+01		7500.0	95.8	6.00E+00	6.00E+00
	Mn	5000	98.6	3.00E+00	1.80E+01	1.80E+01	1.80E+01		7500.0	94.9	3.00E+00	6.00E+00
	Ni	5000	99.4	1.80E+01	1.08E+02	1.08E+02	1.08E+02		7500.0	99.7	1.80E+01	6.00E+00
	K	5000	101.7	1.33E+02	9.87E+02 J	7.98E+02	8.92E+02	200.00	7500.0	119.6	1.33E+02	6.71E+00
	Se	5000	96.6	1.31E+02	7.86E+02 UJ	7.86E+02	7.86E+02		7500.0	96.2	1.31E+02	6.00E+00
	Ag	5000	104.6	1.14E+01	6.00E+01 R	6.00E+01	6.00E+01		7500.0	98.0	1.00E+01	6.00E+00
	Na	10000	93.9	8.70E+01	4.61E+03	4.52E+03	4.57E+03	1.90	15000.0	95.3	8.70E+01	5.25E+01
	Zn	10000	100.1	5.12E+01	1.50E+02	1.50E+02	1.50E+02		15000.0	99.3	2.50E+01	6.00E+00
	Bi	5000	101.2	8.50E+01	5.10E+02 UJ	5.10E+02	5.10E+02		7500.0	72.3	8.50E+01	6.00E+00
	B	5000	102.7	1.90E+01	8.88E+02	8.55E+02	8.72E+02	3.80	7500.0	101.9	1.90E+01	4.59E+01
	Ce	5000	99.5	8.60E+01	5.16E+02	5.16E+02	5.16E+02		7500.0	105.3	8.60E+01	6.00E+00
	La	5000	101.3	2.10E+01	1.26E+02	1.26E+02	1.26E+02		7500.0	99.8	2.10E+01	6.00E+00
	P	10000	97.0	8.00E+01	4.96E+02 J	4.80E+02	4.88E+02	200.00	15000.0	96.0	8.00E+01	6.10E+00
	Si	10000	109.1	8.50E+01	5.34E+02 J	3.58E+02	4.46E+02	39.30	15000.0	153.4	2.30E+01	1.94E+01
	Sr	10000	96.6	6.00E+00	3.60E+01	3.60E+01	3.60E+01		15000.0	95.7	6.00E+00	6.00E+00
	S	5000	94.6	6.00E+01	3.60E+02	3.60E+02	3.60E+02		7500.0	90.1	6.00E+01	6.00E+00
	Sn	5000	97.6	1.60E+01	9.60E+01	9.60E+01	9.60E+01		7500.0	97.5	1.60E+01	6.00E+00
	Ti	5000	99.3	5.00E+00	3.00E+01	3.00E+01	3.00E+01		7500.0	96.6	5.00E+00	6.00E+00
	Zr	10000	98.2	1.10E+01	6.60E+01	6.60E+01	6.60E+01		15000.0	93.0	1.10E+01	6.00E+00

ADDENDUM 1 REV 0

WHC-SD-WM-DP-028 REV 0

9 6

Comparison of Water, Fusion and Acid Digest ICP Results for BX-107

			ICP WATER	ICP WATER	ICP WATER	ICP WATER	ICP Fusion	ICP Fusion	ICP Fusion	ICP Fusion	ICP Acid	ICP Acid	ICP Acid	ICP Acid	Atomic Absorption	Atomic Absorption	Atomic Absorption	Atomic Absorption
	Acid/Water Digest Det. Lim (ug/g)	Fusion Digest Det. Lim (ug/g)	Core 40 Comp 1 (ug/g)	Core 40 Comp 2 (ug/g)	Core 41 Comp 1 (ug/g)	core 41 Comp2 (ug/g)	Core 40 Comp 1 (ug/g)	Core 40 Comp 2 (ug/g)	Core 41 Comp 1 (ug/g)	core 41 Comp2 (ug/g)	Core 40 Comp 1 (ug/g)	Core 40 Comp 2 (ug/g)	Core 41 Comp 1 (ug/g)	core 41 Comp2 (ug/g)	Core 40 Comp 1 (ug/g)	Core 40 Comp 2 (ug/g)	Core 41 Comp 1 (ug/g)	Core 41 Comp 2 (ug/g)
J#:			J924	J926	J925	J927	J924	J926	J925	J927	J924	J926	J925	J927	K175	K176	K179	K180
ANALYTE																		
Al	3.4	17	105	80.4	71.6	279	13900	12000	17300	14100	11900	12300	16200	16600				
Sb	35.6	178	37.3	37.3	36.3	37.2	183	183	182	183	34.1	34.9	35.2	33.8				
As	3.1	15.5	3.06	3.06	3.16	3.05	15	15	14.9	15	2.8	2.86	3.03	2.77	0.430	0.393	0.361	0.536
Ba	0.3	1.5	0.379	0.531	0.306	0.553	6.07	8.07	11.8	10.6	6.75	6.38	10.3	9.31				
Be	0.3	1.5	0.306	0.306	0.306	0.305	1.5	1.5	1.49	1.5	0.28	0.286	0.288	0.277				
Cd	0.7	3.5	0.713	0.713	0.713	0.711	3.68	3.51	4.35	5.26	1.86	1.93	2.74	2.56				
Ca	2.4	12	752	714	147	121	360	306	369	549	2140	547	1170	296				
Cr	1.4	7	157	133	156	159	972	838	1080	983	854	877	1070	1030				
Co	1.2	6	1.02	1.02	1.22	1.09	4.99	5	4.98	12.8	2.08	1.69	2.32	0.951				
Cu	0.6	3	0.726	0.776	0.611	0.87	67.3	71.6	26.5	41.2	62.7	72.5	18.7	17				
Fe	2	10	54.7	42	58.4	318	11000	8870	13300	11100	9450	9430	12900	12800				
Pb	8.5	42.5	7.23	7.23	8.46	7.77	45	65.2	99.5	88.2	54.3	50.5	77.1	69.3				
Mg	0.6	3	16.5	34.4	6.51	8.41	111	89.8	131	116	170	149	189	126				
Mn	0.3	1.5	1.08	1.25	0.306	1.3	62.8	54.4	73.4	67.6	35.4	33.3	47.2	43.1				
Ni	1.8	9	1.43	1.43	1.83	1.42	7200	1990	2860	10700	10.9	10.4	14	13.6				
K	13.3	66.5	167	137	156	130	NA	NA	NA	NA	264	199	306	282				
Se	13.1	65.5	8.46	8.46	13.3	68.2	41.4	41.5	41.5	330	312	295	369	7.46	1.500	1.915	2.020	0.623
Ag	1	5	1.02	1.02	1.02	1.02	4.99	7.02	6.29	5.46	0.932	0.952	0.961	0.923				
Na	8.7	43.5	53300	67000	80100	72000	104000	101000	102000	95000	100000	102000	103000	100000				
Zn	2.5	12.5	25.6	23.8	2.55	5.12	75.3	48.1	88.2	122	56.1	35.5	81	65.5				
Bi	8.5	42.5	106	80.2	113	635	21900	20600	28100	18600	21200	22100	27300	26200				
B	1.9	9.5	27.9	28.7	20.7	22.8	18.4	18.8	6.65	16.2	49.8	62.3	50.8	25.3				
Cr	8.6	43	9.99	9.99	8.76	9.96	92.1	178	201	229	151	169	191	203				
La	2.1	10.5	1.63	1.63	2.14	1.63	7.98	7.99	7.97	7.99	1.49	1.52	1.54	1.48				
P	8	40	4750	5000	4600	4810	24200	20800	27400	21500	19700	21300	23900	27200				
Si	2.3	11.5	414	364	136	262	6600	6000	7990	6540	1540	1720	1740	1660				
Sr	0.6	3	1.7	1.66	1.46	5	171	160	188	155	154	157	185	170				
S	6	30	4560	4630	4390	4150	4830	4650	4150	4130	4760	5000	4470	4030				
Sn	1.6	8	2.34	2.34	1.63	2.34	11.5	11.5	11.5	11.5	3.28	6.3	7.19	11.2				
Ti	0.5	2.5	0.408	0.408	0.51	0.406	3.25	5.8	7.27	9.05	3.18	3.59	4.59	4.06				
Zr	1.1	5.5	1.54	1.11	1.21	6.09	189	66.2	121	166	94.6	92.2	87.9	110				
Hg															0.611	0.375	0.631	0.642

92

60

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

Evaluation and Comparison of BX-107 Analytical Results
For Determination of Material and Charge Balance

Analyte	Acid/Water Digest Det. Lim (ug/g)	Fusion Digest Det. Lim (ug/g)	prep Type	Core 40 Comp 1 (ug/g)	Core 40 Comp 2 (ug/g)	Core 41 Comp 1 (ug/g)	Core 41 Comp 2 (ug/g)	Notes
Al	3.4	17	W	105	80.4	71.6	279	Speciation of Al as H2O soluble Aluminate
Al	3.4	17	F	13900	12000	17300	14100	Compare with Acid for insoluble refractory oxides
Al	3.4	17	A	11900	12300	16200	16600	Normally Used unless Fusion is much greater
Sb	35.6	178	A	34.1	34.1	34.9	35.2	
As	3.1	15.5	AA	0.43	0.393	0.3610	0.5355	
Ba	0.3	1.5	A	6.75	6.38	10.3	9.31	
Be	0.3	1.5	A	0.28	0.286	0.288	0.277	
Cd	0.7	3.5	A	1.86	1.93	2.74	2.56	
Ca	2.4	12	A	2140	547	1170	296	
Cr	1.4	7	W	157	133	156	159	Speciation of H2O soluble Chromate (VI)
Cr	1.4	7	A	854	877	1070	1030	Use for evaluation
Co	1.2	6	A	1.02	1.02	1.22	1.09	
Cu	0.6	3	A	0.726	0.776	0.611	0.87	
Fe	2	10	W	54.7	42	58.4	318	Speciation of H2O soluble Fe complexes
Fe	2	10	F	11000	8870	13300	11100	Compare with Acid for insoluble refractory oxides
Fe	2	10	A	9450	9430	12900	12300	Normally Used unless Fusion is much greater
Pb	8.5	42.5	A	54.3	50.5	77.1	69.3	
Mg	0.6	3	A	170	149	189	126	
Mn	0.3	1.5	W	1.08	1.25	0.306	1.3	Speciation of H2O soluble manganate (VII)
Mn	0.3	1.5	A	35.4	33.3	47.2	43.1	
Ni	1.8	9	A	10.9	10.4	14	13.6	
K	13.3	66.5	A	264	199	306	282	
Se	13.1	65.5	AA	1.5	1.915	2.02	0.623	
Ag	1	5	A	0.932	0.952	0.961	0.923	
Na	8.7	43.5	W	53300	67000	80100	72000	Indicates H2O digest efficiency by sodium solubility
Na	8.7	43.5	F	104000	101000	102000	95000	Compare with acid for insoluble refractory oxides
Na	8.7	43.5	A	100000	102000	103000	100000	Normally Used unless Fusion is much greater
Zn	2.5	12.5	A	56.1	35.5	81	65.5	
Bi	8.5	42.5	F	21900	20600	28100	18600	Compare with acid for insoluble refractory oxides
Bi	8.5	42.5	A	21200	22100	27100	26200	
B	1.9	9.5	A	49.8	62.3	50.8	25.3	
Ce	8.6	43	A	151	169	191	203	
La	2.1	10.5	A	1.49	1.52	1.54	1.48	
P	8	40	W	4750	5000	4600	4810	Compare to IC Phosphate Results
P	8	40	F	24200	20800	27400	21500	Compare with acid for insoluble refractory oxides
P	8	40	A	19700	21300	23900	27200	Normally Used unless Fusion is much greater
Si	2.3	11.5	W	414	364	136	262	Indication of H2O soluble silicates
Si	2.3	11.5	F	6600	6000	7990	6540	Always use Fusion
Sr	0.6	3	A	154	157	185	170	
S	6	30	W	4560	4630	4390	4150	Compare to IC Sulfate Results
S	6	30	A	4760	5000	4470	4030	
Sn	1.6	8	A	3.28	6.3	7.19	11.2	
Ti	0.5	2.5	A	3.18	3.59	4.59	4.06	
Zr	1.1	5.5	A	94.6	92.2	87.9	110	
Hg			AA	0.6105	0.3745	0.631	0.642	
F			IC	8510	8415	8880	10950	
Cl			IC	1155	1175	1040	1175	
NO3			IC	142000	149500	126000	129500	
NO2			IC	9685	9155	12450	1195	
PO4			IC	14400	14950	13400	14200	
SO4			IC	14050	14150	13000	12250	
Calc'd PO4			ICP Water	14564	15330	14104	14747	* Use H2O soluble P from water digest mult. by 3.066
Calc'd SO4			ICP Water	13662	13871	13152	12433	* Use H2O soluble P from water digest mult. by 2.996
TOC			TOC/TIC	7.00E+02	550	550	8.97E+02	
Acetate Equiv.			TOC/TIC	3441.2	2703.8	2703.8	4407.194	
TIC			TOC/TIC	1.15E+03	1.15E+03	1.24E+03		
Carbonate Equiv.			TOC/TIC	5745.4	5732.91	6217.522	0	
U ug/g			Flourimetry	1.82E+03	2.02E+03	2.82E+03	2.41E+04	
U (Calc'd uCi/g)			Fluorimetry	0.00060984	0.00067872	0.00094752	0.0080976	
Water (%)			% water	57.75	57.1	56.25	55.95	
pH			Electrode	9.63E+00	9.68E+00	9.82E+00	9.72E+00	
Calc'd [OH-] (M)			From pH	0.000042	0.000047	0.000066	0.000052	
CN- (ug/g)			Direct CN	3.11E+00	1.43E+00	2.99E+00	2.43E+00	

WHC-SD-WM-DP-0
REV 0
ADDENDUM 1 REV

BX-107 Material Balance

Analyte	Atomic / Molecular Weight	Oxide Form	Method	No. Main Atoms	No. Oxygens	Element Wt. to Oxide Wt. Conv. Factor	Wt. Percent Core 40 Comp 1	Wt. Percent Core 40 Comp 2	Wt. Percent Core 41 Comp 1	Wt. Percent Core 41 Comp 2
Al	26.98	Al2O3	ICP Acid	2	3	1.889	2.25	2.32	3.06	3.14
Sb	121.75	Sb2O5	ICP Acid	2	5	1.529				
As	74.92	As2O5	Direct AA	2	5	1.534				
Ba	137.34	BaO	ICP Acid	1	1	1.116				
Be	9.01	BeO	ICP Acid	1	1	2.776				
Cd	112.4	CdO	ICP Acid	1	1	1.142				
Ca	40.08	CaO	ICP Acid	1	1	1.399	0.30		0.16	
Cr	52	CrO3	ICP Acid	1	3	1.923	0.16	0.17	0.21	0.20
Co	58.93	CoO	ICP Acid	1	1	1.271				
Cu	63.55	CuO	ICP Acid	1	1	1.252				
Fe	55.85	Fe3O4	ICP Acid	3	4	1.382	1.31	1.30	1.78	1.70
Pb	207.2	PbO	ICP Acid	1	1	1.077				
Mg	24.31	MgO	ICP Acid	1	1	1.658				
Mn	54.94	MnO2	ICP Acid	1	2	1.582				
Ni	58.71	NiO	ICP Acid	1	1	1.273				
K	39.1	K	ICP Acid	1	0	1.000				
Se	78.96	SeO3	Direct AA	1	3	1.608				
Ag	107.87	Ag2O	ICP Acid	2	1	1.074				
Na	22.99	Na	ICP Acid	1	0	1.000	10.00	10.20	10.30	10.00
Zn	65.37	ZnO	ICP Acid	1	1	1.245				
Bi	208.98	Bi2O3	ICP Acid	2	3	1.115	2.36	2.46	3.02	2.92
B	10.81	B2O3	ICP Acid	2	3	3.220				
Ce	140.12	Ce2O3	ICP Acid	2	3	1.171				
La	138.91	La2O3	ICP Acid	2	3	1.173				
Si	28.09	SiO2	ICP Fusion	1	2	2.139	1.41	1.28	1.71	1.40
Sr	87.62	SrO	ICP Acid	1	1	1.183				
Ti	47.9	TiO2	ICP Acid	1	2	1.668				
Zr	91.22	ZrO2	ICP Acid	1	2	1.351				
F	19	F	Direct IC	1	0	1.000	0.85	0.84	0.89	1.10
Cl	35.45	Cl	Direct IC	1	0	1.000	0.12	0.12	0.10	0.12
NO3	62	NO3	Direct IC	1	0	1.000	14.20	14.95	12.60	12.95
NO2	46	NO2	Direct IC	1	0	1.000	0.97	0.92	1.25	0.12
P	30.97	PO4	ICP Acid	1	4	3.066	4.47	4.70	4.32	4.52
S	32.06	SO4	ICP Acid	1	4	2.996	4.09	4.16	3.94	3.73
CN	26.01	CN	Direct CN	1	0	1.000				
Org. Carbon	59.04	Acetate	TOC	1	0	4.916				0.44
Inorg. Carbon	60.01	Carbonate	TIC	1	0	4.997	0.57	0.57	0.62	
% Water		Water	% Water				57.75	57.10	56.25	55.95
U	238.029	UO2	Fluorimetry	1	2	1.134	0.21	0.23	0.32	2.73
						TOTAL %	101.02	101.33	100.54	101.01

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

BX-107 Charge Balance

ADDENDUM 1 REV 0

Analyte	Atomic / Molecular Weight	Prep Type	Oxidation State Used For Calc's.	Oxidation Number	meq Wt. (g/meq)	miliequivalents Core 40 Comp 1	miliequivalents Core 40 Comp 2	miliequivalents Core 41 Comp 1	miliequivalen Core 41 Comp 2
Al	26.98	ICP Acid	Al+3	3	0.00899	1.323	1.368	1.801	1.
Sb	121.75	ICP Acid	Sb+3	5	0.02435				
As	74.92	AA	As+3	5	0.01498				
Ba	137.34	ICP Acid	Ba+2	2	0.06867				
Be	9.01	ICP Acid	Be+2	2	0.00451				
Cd	112.4	ICP Acid	Cd+2	2	0.05620				
Ca	40.08	ICP Acid	Ca+2	2	0.02004	0.107		0.058	
Cr	52	ICP Acid	Cr+3	3	0.01733	0.049	0.051	0.062	0.
Co	58.93	ICP Acid	Co+2	2	0.02946				
Cu	63.55	ICP Acid	Cu+2	2	0.03178				
Fe	55.85	ICP Acid	Fe+3	3	0.01862	0.508	0.507	0.693	0.
Pb	207.2	ICP Acid	Pb+2	2	0.10360				
Mg	24.31	ICP Acid	Mg+2	2	0.01216				
Mn	54.94	ICP Acid	Mn+4	4	0.01373				
Ni	58.71	ICP Acid	Ni+2	2	0.02936				
K	39.1	ICP Acid	K+	1	0.03910				
Se	78.96	AA	Se+4	6	0.01316				
Ag	107.87	ICP Acid	Ag+	1	0.10787				
Na	22.99	ICP Acid	Na+	1	0.02299	4.350	4.437	4.480	4.
Zn	65.37	ICP Acid	Zn+2	2	0.03269				
Bi	208.98	ICP Acid	Bi+3	3	0.06966	0.304	0.317	0.389	0.
B	10.81	ICP Acid	B+3	3	0.00360				
Ce	140.12	ICP Acid	Ce+3	3	0.04671				
La	138.91	ICP Acid	La+3	3	0.04630				
Sr	87.62	ICP Acid	Sr+2	2	0.04381				
Sn	118.69	ICP Acid	Sn+4	4	0.02967				
Ti	47.9	ICP Acid	Ti+4	4	0.01198				
Zr	91.22	ICP Acid	Zr	4	0.02281				
Hg	200.59	AA	Hg+2	2	0.10030				
U ug/g	238.02	Fluorimetry	UO2+2	2	0.11901	0.015	0.017	0.024	0.
F	19	Direct IC	F−	−1	0.01900	0.448	0.443	0.467	0.
Cl	35.45	Direct IC	Cl−	−1	0.03545	0.033	0.033	0.029	0.
NO3	62	Direct IC	NO3−	−1	0.06200	2.290	2.411	2.032	2.
NO2	46	Direct IC	NO2−	−1	0.04600	0.211	0.199	0.271	0.
P	30.97	Acid ICP	PO4−3	−3	0.01032	1.908	2.063	2.315	2.
S	32.06	Acid ICP	SO4−2	−2	0.01603	0.297	0.312	0.279	0.
Si	28.09	Fusion ICP	SiO3=	−2	0.01405	0.470	0.427	0.569	0.
TOC	59.02	TOC/TIC	Acetate	−1	0.05902				0.
TIC	60	TOC/TIC	CO3=	−2	0.03000	0.038	0.038	0.041	
CN−	26.02	Direct CN	CN−	−1	0.02602				
					TOTAL CATIONS				
					(meq)	6.641	6.679	7.484	7.
					TOTAL ANIONS				
					(meq)	5.695	5.927	6.004	6.
					Ratio	1.166	1.127	1.246	1.

WHC-SD-WM-DP-028

ADDENDUM 1 REV 0

ICP Acid Digest

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P.O. Box 1970 Richland, WA 99352

ADDENDUM 1 REV 0

MAR 1993
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J922A
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J924 BX107-C40-C1
J925 BX107-C41-C1
J926 BX107-C40-C2

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:

Aluminum in CCV-1 (82.0%) and CCV-3 (89.5%).
Antimony in the ICV (54.1%), CCV-1 (79.7%), CCV-2 (73.2%), CCV-3 (73.2%) and CCV-4 (73.2%).
Lead in CCV-1 (87.6%).
Selenium in the ICV (141.2%), CCV-1 (131.2%), CCV-2 (145.8%), CCV-3 (136.2%) and CCV-4 (113.9%).
Silver in the ICV (116.4%).
Sodium in CCV-3 (112.1%) and CCV-4 (120.2%).

INITIAL AND CONTINUING CALIBRATION BLANKS
RCRA Elements - All ICB and CCB analytical measurements were within the CRDL or IDL with the exception of Arsenic in CCB-4, Chromium in CCB-3, Selenium in the ICB and CCB-2 and Silver in CCB-2.

Non-RCRA Elements - All analytical measurements were within the IDL with the exception of Bismuth in CCB-2, Cerium in all calibration blanks, Lanthanum in CCB-1, Phosphorus in CCB-1, Sulfur in CCB-1, CCB-2 and CCB-4, Tin in CCB-1 and CCB-2, Titanium in CCB-2 and CCB-3 and Zirconium in all calibration blanks.

PREPARATION BLANK
RCRA Elements - All analytical measurements were within the CRDL or IDL with the exception of Selenium and Zinc.

Non-RCRA Elements - All analytical measurements were within the IDL with the exception of Boron, Cerium, Silicon, Sulfur, Titanium and Zirconium.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification with the exception of Lead in ICSAB-I (79.8%) and ICSAB-F (77.0%).

54-7800-075

Hanford Operations and Engineering Contractor for the US Department of Energy

J924 BX107-C40-C1
J925 BX107-C41-C1
J926 BX107-C40-C2

ADDENDUM 1 REV 0

SPIKE SAMPLE RECOVERIES

Spike recovery failures were noted as follows:

For J924: Silver (49.0%), Cerium (128.2%), Lanthanum (42.0%) and Zirconium (38.9%).

For J925: Antimony (0.0%), Copper (177.0%), Lead (191.2%), Nickel (168.2%), Silver (31.4%), Zinc (1355.1%), Lanthanum (40.4%) and Zirconium (-23.1%).

DUPLICATE ANALYSES

Duplicate precision failures were noted as follows:

For J924: Calcium (126.6%), Zinc (67.3%) and Zirconium (36.7%).

For J925: Calcium (128.7%), Boron (26.8%) and Tin (51.4%).

For J926: Zinc (23.5%) and Tin (200.0%).

LABORATORY CONTROL SAMPLE

Failures were noted for Aluminum, Calcium, Potassium, Selenium, Silver, Sodium, Bismuth, Boron, Silicon and Sulfur.

SERIAL DILUTION

Serial dilution failures were noted for Phosphorus and Sulfur.

RECOMMENDATIONS

Antimony, Selenium, Cerium and Zirconium were out of calibration; data are not reliable. Hydride AA data for Selenium should be preferred.

Significant contamination with Calcium is present in the Preparation Blank. Sample data may be usable if the level of contamination is considered. Conversion of units from µg/L to MG/KG is required before data can be compared.

Low Silver recoveries are often due to the precipitation of AgCl. Data are not reliable.

Low Bismuth recoveries are frequently observed for acid-digested samples. Loss of Bismuth during preparation is indicated. Data should be considered suspect.

Spike recovery failures for Copper, Lead, Nickel, Zinc and Lanthanum are attributed to matrix interferences. Data should be considered suspect.

A physical or chemical interferent is indicated for Phosphorus and Sulfur; data are not reliable.

The duplicate failures for Calcium, Zinc and Boron are attributed to sample heterogeneity. Data should be considered suspect. Failures for Tin are attributed to the low concentration in the sample. Data are usable.

ABBREVIATIONS

* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels

Brian Wels 1-4-93
Senior Scientist, WHCPAL

WHC-SD-WM-DP-028
REV 0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00924

Lab Name: WHC PAL Contract:
Lab Code: BX107 Case No.: C40 SAS No.: C1 SDG No.: J922A
Matrix (soil/water): SOIL Lab Sample ID: J924
Level (low/med): LOW Date Received: 08/05/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

ADDENDUM 1 REV 0

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12300			P
7440-36-0	Antimony	34.8	U	N	P
7440-38-2	Arsenic	2.8	U		P
7440-39-3	Barium	7.3	B		P
7440-41-7	Beryllium	0.28	U		P
7440-43-9	Cadmium	2.0			P
7440-70-2	Calcium	3500		*	P
7440-47-3	Chromium	889			P
7440-48-4	Cobalt	2.2	B		P
7440-50-8	Copper	65.1		N	P
7439-89-6	Iron	9860			P
7439-92-1	Lead	55.5		N	P
7439-95-4	Magnesium	202	B		P
7439-96-5	Manganese	37.8			P
7440-02-0	Nickel	11.6		N	P
7440-09-7	Potassium	273	B		P
7782-49-2	Selenium	326			P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	102000			P
7440-66-6	Zinc	75.0		N*	P
7440-69-9	Bismuth	21900			P
7440-42-8	Boron	47.0		*	P
7440-45-1	Cerium	154		N	P
7439-91-0	Lanthanum	1.5	U	N	P
7723-14-0	Phosphoru	19500		E	P
7440-21-3	Silicon	1660			P
7440-24-6	Strontium	161			P
7704-34-9	Sulfur	4760		E	P
7440-31-5	Tin	3.3		*	P
7440-32-6	Titanium	3.2			P
7440-67-7	Zirconium	112		N*	P

Color Before: BROWN Clarity Before: OPAQUE Texture:
Color After: YELLOW Clarity After: CLEAR Artifacts

Comments:

99

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00925

Lab Name: WHC PAL Contract:
Lab Code: BX107 Case No.: C40 SAS No.: C1 SDG No.: J922A
Matrix (soil/water): SOIL Lab Sample ID: J925
Level (low/med): LOW Date Received: 08/05/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16200			P
7440-36-0	Antimony	34.7	U	N	P
7440-38-2	Arsenic	3.1			P
7440-39-3	Barium	10.1	B		P
7440-41-7	Beryllium	0.28	U		P
7440-43-9	Cadmium	2.7			P
7440-70-2	Calcium	416	B	*	P
7440-47-3	Chromium	1070			P
7440-48-4	Cobalt	2.1	B		P
7440-50-8	Copper	18.6		N	P
7439-89-6	Iron	12800			P
7439-92-1	Lead	77.5		N	P
7439-95-4	Magnesium	162	B		P
7439-96-5	Manganese	46.2			P
7440-02-0	Nickel	13.6		N	P
7440-09-7	Potassium	299	B		P
7782-49-2	Selenium	366			P
7440-22-4	Silver	0.95	U	N	P
7440-23-5	Sodium	104000			P
7440-66-6	Zinc	77.1		N*	P
7440-69-9	Bismuth	27300			P
7440-42-8	Boron	57.6		*	P
7440-45-1	Cerium	192		N	P
7439-91-0	Lanthanum	1.5	U	N	P
7723-14-0	Phosphoru	24400		E	P
7440-21-3	Silicon	1630			P
7440-24-6	Strontium	185			P
7704-34-9	Sulfur	4520		E	P
7440-31-5	Tin	5.3		*	P
7440-32-6	Titanium	4.2			P
7440-67-7	Zirconium	86.4		N*	P

Color Before: BROWN Clarity Before: OPAQUE Texture:
Color After: YELLOW Clarity After: CLEAR Artifacts:

C ıts:

U.S. EPA - CLP

ADDENDUM 1 REV 0

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00926

Lab Name: WHC PAL Contract: _____
Lab Code: BX107 Case No.: C40 SAS No.: C1 SDG No.: J922A
Matrix (soil/water): SOIL Lab Sample ID: J926
Level (low/med): LOW Date Received: 08/05/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12500			P
7440-36-0	Antimony	34.5	U		P
7440-38-2	Arsenic	2.8	U		P
7440-39-3	Barium	6.3	B		P
7440-41-7	Beryllium	0.28	U		P
7440-43-9	Cadmium	2.0			P
7440-70-2	Calcium	365	B		P
7440-47-3	Chromium	877			P
7440-48-4	Cobalt	1.6	B		P
7440-50-8	Copper	72.4			P
7439-89-6	Iron	9430			P
7439-92-1	Lead	54.9			P
7439-95-4	Magnesium	156	B		P
7439-96-5	Manganese	33.2			P
7440-02-0	Nickel	10.8			P
7440-09-7	Potassium	199	B		P
7782-49-2	Selenium	290			P
7440-22-4	Silver	0.94	U		P
7440-23-5	Sodium	103000			P
7440-66-6	Zinc	31.3		*	P
7440-69-9	Bismuth	22200			P
7440-42-8	Boron	68.5			P
7440-45-1	Cerium	169			P
7439-91-0	Lanthanum	1.5	U		P
7723-14-0	Phosphoru	22100			P
7440-21-3	Silicon	1630			P
7440-24-6	Strontium	158			P
7704-34-9	Sulfur	5070			P
7440-31-5	Tin	2.2	U	*	P
7440-32-6	Titanium	3.7			P
7440-67-7	Zirconium	87.2			P

Color Before: BROWN Clarity Before: OPAQUE Texture: _____
Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J924

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	12300 mg/kg				J									
Sb	34.8 U				UJ	U		UJ						
As	2.8 U							UJ						
Ba	7.3							J						
Be	0.28 U					U		UJ						
Cd	2.0					J		J						
Ca	3500						J		J					
Cr	889													
Co	2.2					J		J						
Cu	65.1						J							
Fe	9860													
Pb	55.5				J	J								
Mg	202						J							
	37.8													
Ni	11.6					J		J						
K	273						J		J					
Se	326				J		J		J					
Ag	0.95 U				UJ	U		UJ	UJ					
Na	102000				J				J					
Zn	75.0						J	J						
Bi	21900							J	J					
B	47.0						J	J	J					
Ce	154						J	J						
La	1.5 U					U		UJ						
P	19500							J						
Si	1660						J		J					
Sr	161							J						
S	4760						J	J	J					
	3.3					J		J						
Ti	3.2					J		J						
Zr	112						J							

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C1 SAMPLE ID J925

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

NALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	16200 mg/kg				J									
Sb	34.7 U				UJ	U		UJ			UJ			
As	3.1							J						
Ba	10.1							J						
Be	0.28 U					U		UJ						
Cd	2.7					J		J						
Ca	416						J		J	J	J			
Cr	1070													
Co	2.1					J		J						
Cu	18.6						J				J			
Fe	12800													
Pb	77.5				J						J			
Mg	162						J			J				
[illegible]	46.2													
Ni	13.6					J		J			J			
K	299						J		J		J			
Se	366				J		J		J		J			
Ag	0.95 U				UJ	U		UJ	UJ		UJ			
Na	104000				J				J					
Zn	77.1						J	J	J		J			
Bi	27300							J	J					
B	57.6						J	J	J	J				
Ce	192						J	J	J	J				
La	1.5 U					U		UJ			UJ			
P	24400							J						J
Si	1630						J		J					
Sr	185							J						
S	4520						J	J	J					
[illegible]	5.3					J		J		J				
Ti	4.2					J		J						
Zr	86.4						J				J			

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C2 SAMPLE ID J926

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	12500 mg/kg				J									
Sb	34.5 U				UJ	U		UJ						
As	2.8 U							UJ						
Ba	6.3							J						
Be	0.28 U					U		UJ						
Cd	2.0					J		J						
Ca	365						J		J					
Cr	877													
Co	1.6					J		J						
Cu	72.4						J							
Fe	9430													
Pb	54.9				J	J								
Mg	156						J							
n	33.2													
Ni	10.8					J		J						
K	199						J		J					
Se	260						J		J					
Ag	0.94 U				UJ	U		UJ	UJ					
Na	103000				J				J					
Zn	31.3						J	J						
Bi	22200							J	J					
B	68.5						J	J	J					
Ce	169						J	J						
La	1.5 U					U		UJ						
P	22100							J						
Si	1630						J		J					
Sr	158							J						
S	5070						J	J	J					
ı	2.2 U					U		UJ						
Ti	3.7					J		J						
Zr	87.2						J							

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-8-93

REVIEWED BY A.T. DiCenso

LABORATORY 222-S/WHC

CASE # 55T BX107

SDG #

SAMPLES/MATRIX J924 C40-C1
J925 C41-C1
J926 C40-C2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	ICP-AC10	DIGEST	
1. Holding Times		O		
2. Inst. Calibration		~~X~~O		
3. ICV		X		
4. CCV		X		
5. Blanks		X		
6. ICS		X		
7. LCS		X		
8. Duplicates		X		
9. Matrix Spikes		X		
10. Serial Dilution		X		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

Dr 105

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date _____

QC Check: _____

COMMENTS: The interference check sample did not contain Uranium.

ACTION: _____

sample #	constituent	value/qual
~~J924 C40-C6 and~~	~~All Data~~	~~J3/UJ3~~
~~J926 C40-C6~~	~~All Data~~	~~J7/UJ7~~
	~~Al~~	~~J4~~

	J924	J925	J926
All Data	J7/UJ7	J7/UJ7	J7/UJ7
Al	J4	J4	J4
Sb	UJ4/U5	UJ4, UJ10, U5	UJ4, U5
~~Ba~~	~~U5~~	~~U5~~	~~U5~~
Be	U5	U5	U5
Cd	U5	U5	U5
Ca	J6, J8	~~U5~~ UJ8, UJ9, UJ10, UJ6	~~U5~~ UJ8, UJ6
Co	U5	U5	U5
Cu	UJ6	~~U5~~ UJ10, UJ6	UJ6
Pb	UJ4, U5 UJ7	~~UJ4~~, ~~U5~~ ~~UJ7~~, ~~UJ10~~ J10	UJ4, U5, UJ7

sample #	constituent	value/qual	
	J924	J925	J926
Mg	J6	J6, J9	J6
Ni	U5	U5, UJ10	U5
K	J6, J8	J6, J8, J10	J6, J8
Se	~~UJ4, U5, UJ8~~ J4, J6, J8	~~UJ4~~, ~~U5~~ J6 ~~UJ8~~, ~~UJ10~~	~~UJ4, U5, UJ~~ J6, J6, J8
Ag	UJ4, U5, UJ8	UJ4, U5, UJ8, UJ10	UJ4, U5, U
Na	J4, J8	J4, J8	J4, J8
Zn	~~U5~~ UJ6	UJ6 ~~U5, UJ10~~ UJ10	~~U5~~ UJ6
Bi	J8	J8	J8
B	J6, J8	J6, J8, J9	J6, J8
Ce	J6	J6, J8, J9	J6
La	U5	U5, UJ10	U5
P		~~UJ~~ J13	
Si	J6, J8	J6, J8	J6, J8
S	J6, J8	J6, J8	J6, J8
Sn	U5	U5, UJ9	U5
Ti	U5	U5	U5
Zr	J6	J6, J10	J6

OSM RCRA LEVEL C DATA ASSESSMENT

DATE: 3-9-93 SAMPLES/MATRIX: See Attached Sheets

REVIEWED BY: STROUP

LABORATORY: 222-S

CASE #: BX 107 C40C1, C41C1, C40C2

SDG #: J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS: ICP
Chain of Custody	O
Holding Times	O
Instrument Calibration	O
Initial Calibration (ICV)	X
Continuing Calibration (CCV)	
Analytical Blanks	X
Preparation Blanks	
Interference Check Sample	X
Laboratory Control Sample	X
Duplicate Analysis	X
Matrix Spike	X
Contract Required Detection Limit Standard (CRDL)	O
Serial Dilution	X

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems. Some data may be unusable

OVERALL ASSESSMENT:

NOTES:

RCRA LEVEL C QC

Name: Stroup Date: 3-9-93

QC Check: ICP BX-107 J924 C40C1, 925 C41C1, 926 C40C2

Comments:

Action:

Sample #	Constituent	Value/Qual	QC Check
J924, 925, 926	Antimony	54.1%/J4	ICV
	Selenium	141.2%/	
	Silver	116.4%/	
	Aluminum	82.0%/J4	CCV1
	Antimony	79.7%/	
	Lead	87.6%/	
	Selenium	131.2%/	
	Antimony	73.2%/J4	CCV2
	Selenium	145.8%/	
	Antimony	73.2%/J4	CCV3
	Aluminum	89.5%/	
	Selenium	136.2%/	
	Antimony	73.2%/J4	CCV4
	Selenium	113.9%/	
	Sodium	120.2%/	
	Calcium	593.945/J6	Anal/Prep Blank
	Copper	16.47/	
	Magnesium	14.975/	
	Zinc	56.445/	
	Potassium	-270.196/	*
	Selenium	-256.567/	*
	Sodium	226.204/	
	Boron	18.345/	
	Cerium	-232.998/	*
	Silicon	91.773/	
	Zirconium	- 10.202/	*
	Sulfur	175.316/	
	Titanium	- 4.302/	
	Potassium	- 253.5/J4	ICV *
	Selenium	- 186.7/	*
	Cerium	- 164.2/	*
	Zirconium	- 9.3/	*

* Negative >IDL

Sample #	Constituent	Value/Qual	QC Check
J924, 925, 926	Potassium	- 263.0/J4	CCB1 *
	Cerium	- 222.4/	*
	Lanthanum	- 17.0/	*
	Phosphorus	107.0/	
	Sulfur	70.3/	
	Tin	- 31.4/	
	Zirconium	- 10.6/	*
	Aluminum	- 68.1/J4	CCB2 *
	Barium	- 3.6/	*
	Copper	- 7.0/	*
	Iron	- 15.4/	*
	Potassium	- 303.7/	*
	Selenium	- 112.6/	*
	Silver	- 11.5/	*
	Bismuth	- 136.9/	*
	Cerium	- 317.7/	*
	Sulfur	64.5/	
	Tin	- 33.4/	*
	Titanium	- 7.4/	*
	Zirconium	- 18.0/	*
	Cobalt	12.7/J4	CCB3
	Copper	- 5.5/	*
	Potassium	- 243.9/	*
	Sodium	30.2/	
	Cerium	- 225.9/	*
	Titanium	- 5.3/	*
	Zirconium	- 12.3/	*
	Aluminum	- 37.4/J4	CCB4 *
	Arsenic	- 30.3/	*
	Copper	- 4.5/	*
	Potassium	- 198.4/	*
	Sodium	30.7/	
	Cerium	- 240.1/	*
	Sulfur	88.3/	
	Zirconium	- 11.1/	*
	Magnesium	77.4%/J7	Int ICS
	Lead	79.8%/	Int ICS
	Calcium	77.0%/	Fin ICS
	Lead	77.0%/	Fin ICS
	Magnesium	77.5%/	Fin ICS
	Calcium	156.0%/J8	LCS
	Potassium	75.5%/	
	Selenium	154.5%/	
	Boron	142.5%/	
	Sulfur	132.7%/	
	Silver	48.1%/	No Control Limit
	Sodium	154.8%/	
	Bismuth	70.0%/	
	Silicon	404.6%/	

* Negative >IDL

Sample #	Constituent	Value/Qual	QC Check
J924	Calcium	126.6RPD/UJ9	Dupl Anal
	Magnesium	38.2RPD/	
	Zinc	67.3RPD/	
	Zirconium	36.7RPD/	
J925	Calcium	128.7RPD/UJ9	Dupl Anal
	Magnesium	28.4RPD/	
	Boron	26.8RPD/	
	Tin	51.4RPD/	
J926	Calcium	66.7RPD/UJ9	Dupl Anal
	Zinc	23.5RPD/	
	Tin	200.0RPD/	
J924	Aluminum	-431.5/J10	Matrix Spike **
	Calcium	-182.4/	**
	Chromium	24.9/	**
	Iron	-964.6/	**
	Magnesium	48.4/	**
	Selenium	72.9	**
	Silver	49.0/	
	Sodium	-236.7/	**
	Bismuth	-924.5/	**
	Cerium	128.2/	
	Lanthanum	42.0/	
	Phosphorus	2499.7/	**
	Silicon	989.1/	**
	Sulfur	453.4/	**
	Zirconium	38.9/	
	Magnesium	48.4/	**
J925	Aluminum	5300.8/J10	**
	Antimony	0.0/	
	Calcium	134.4/	**
	Chromium	64.6/	**
	Copper	177.0/	
	Iron	-439.2/	**
	Lead	191.2/	
	Nickel	168.2/	
	Phosphorus	588.1/	**
	Silicon	158.9/	**
	Potassium	142.8/	**
	Selenium	157.3/	**
	Silver	31.4/	
	Sodium	-1593.7/	**
	Zinc	1355.1/	
	Bismuth	-1024.7/	**
	Cerium	132.9/	**
	Lanthanum	40.4	
	Sulfur	- 29.0/	**
	Zirconium	- 23.1/	
J924, 925, 926	Phosphorus	18.3 %R/J13	Ser Dil
	Sulfur	11.0 %R/	

** Sample Conc exceed Spike Conc >4x

J927A
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J927 BX107-C41-C12
MH 1/27/93

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:

Antimony in the ICV (116.3%), CCV-2 (110.6%), CCV-3 (80.2%).
Manganese in CCV-3 (89.7%).
Selenium in CCV-1 (112.6%).
Silver in the ICV (120.4%).

INITIAL AND CONTINUING CALIBRATION BLANKS
RCRA Elements - All ICB and CCB analytical measurements were within the CRDL or IDL with the exception of Silver in the ICB.

Non-RCRA Elements - All analytical measurements were within the IDL.

PREPARATION BLANK
RCRA Elements - All analytical measurements were within the CRDL or IDL with the exception of Aluminum, Calcium and Zinc.

Non-RCRA Elements - All analytical measurements were within the IDL with the exception of Boron, Silicon, Strontium, Sulfur and Tin.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification.

DUPLICATE ANALYSES
Duplicate precision failures were noted for Boron (32.6%).

LABORATORY CONTROL SAMPLE
Failures were noted for Aluminum, Antimony, Calcium, Iron, Magnesium, Potassium, Silver, Sodium, Zinc, Bismuth, Boron, Silicon and Sulfur.

SERIAL DILUTION
Serial dilution failures were noted for Sodium.

RECOMMENDATIONS

Antimony was out of calibration; data are not reliable.

Significant contamination with Calcium, Magnesium, Zinc, Boron and Tin is present in the Preparation Blank. Sample data may be usable if the level of contamination is considered. Conversion of units from µg/L to MG/KG is required before data can be compared.

Low Silver recoveries are often due to the precipitation of AgCl. Data are not reliable.

Low Bismuth recoveries are frequently observed for acid-digested samples. Loss of Bismuth during preparation is indicated. Data should be considered suspect.

The serial dilution data for Sodium was used to report results on Forms I, and VI. The serial dilution failure should be ignored.

The duplicate failure for Boron may be influenced by the level of contamination. Data should be considered suspect.

Laboratory control sample (LCS) failures for Iron, Potassium, Sodium, Boron and Sulfur can be correlated with the contamination levels in the Preparation Blank. Data are usable. Calcium, Magnesium, Zinc and Silicon are also present in the Preparation Blank; however, the levels do not correlate with the LCS percent recovery. Data should be considered suspect.

ABBREVIATIONS
* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels
1-4-93

Brian Wels
Senior Scientist, WHCPAL

U.S. EPA - CLP

1

EPA SAMPLE NO.

INORGANIC ANALYSES DATA SHEET

J927

Lab Name: WHC PAL Contract: 12/13 PK
Lab Code: BX107 Case No.: C41 SAS No.: CF2 SDG No.: J927A
Matrix (soil/water): SOIL Lab Sample ID: J927
Level (low/med): LOW Date Received: 08/05/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16600			P
7440-36-0	Antimony	33.5	U		P
7440-38-2	Arsenic	2.7	U		P
7440-39-3	Barium	9.3	B		P
7440-41-7	Beryllium	0.27	U		P
7440-43-9	Cadmium	2.7			P
7440-70-2	Calcium	306	B		P
7440-47-3	Chromium	1040			P
7440-48-4	Cobalt	0.91	U		P
7440-50-8	Copper	17.2			P
7439-89-6	Iron	12500			P
7439-92-1	Lead	69.2			P
7439-95-4	Magnesium	125	B		P
7439-96-5	Manganese	43.9			P
7440-02-0	Nickel	13.9			P
7440-09-7	Potassium	278	B		P
7782-49-2	Selenium	7.6	U		P
7440-22-4	Silver	0.91	U		P
7440-23-5	Sodium	100000		E	P
7440-66-6	Zinc	66.5			P
7440-69-9	Bismuth	26400			P
7440-42-8	Boron	21.2		*	P
7440-45-1	Cerium	205			P
7439-91-0	Lanthanum	1.5	U		P
7723-14-0	Phosphoru	26900			P
7440-21-3	Silicon	1770			P
7440-24-6	Strontium	172			P
7704-34-9	Sulfur	4030			P
7440-31-5	Tin	10.7			P
7440-32-6	Titanium	4.1			P
7440-67-7	Zirconium	115			P

Color Before: BROWN Clarity Before: OPAQUE Texture:
Color After: YELLOW Clarity After: CLEAR Artifacts:

nts:

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C2 SAMPLE ID J927

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	16600 mg/kg						J		J					
Sb	33.5 U				UJ	U		UJ	UJ					
As	2.7 U					U		UJ						
Ba	9.3							J						
Be	0.27 U					U		UJ						
Cd	2.7					J		J						
Ca	306						J		J					
Cr	1040													
Co	0.91 U					U		UJ						
Cu	17.2								J					
Fe	12500								J					
Pb	69.2					J								
Mg	125						J		J					
Mn	43.9						J							
Ni	13.9							J						
K	278						J		J					
Se	7.6 U				UJ	U		UJ						
Ag	0.91 U				UJ	U		UJ	J					
Na	100000						J		J					J
Zn	66.5						J	J	J					
Bi	26400							J	J					
B	21.2						J	J	J	J				
Ce	205							J						
La	1.5 U					U		UJ						
P	26900							J						
Si	1770						J		J					
Sr	172						J	J						
S	4030						J	J	J					
Sn	10.7					J								
Ti	4.1							J						
Zr	115													

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-8-93 SAMPLES/MATRIX J927

REVIEWED BY A.T. D'Censo

LABORATORY 222-S/WHC

CASE # SST ~~BX10~~ BX107

SDG # C41 C2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	ICP - Acid Digest		
1. Holding Times		O		
2. Inst. Calibration		O		
3. ICV		X		
4. CCV		X		
5. Blanks		X		
6. ICS		X		
7. LCS		X		
8. Duplicates		X		
9. Matrix Spike		X~~O~~		
10. Serial Dilution		X		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date _____

QC Check: _____

COMMENTS: Matrix spike data was not reported.

The interference check sample did not contain Uranium.

ACTION: _____

sample #	constituent	value/qual
J927	All Data	J7/UJ7
	Al	J6, J8
	Sb	UJ4, U5, UJ8
	As	U5
	~~Ba~~	~~U5~~
	Be	U5
	Cd	U5
	Co	J6, ~~U5~~, J8
	Co	U5
	Cu	~~U5~~ UJ6
	Fe	J8
	Pb	~~U5~~ J5
	Mg	J6, ~~J8~~ J8
	Mn	J6
	~~Ni~~	~~U5~~ U5
	K	J6, ~~U5~~ J8

sample #	constituent	value/qual
J927	Se	UJ4, U5
	Ag	UJ4, U5, UJ8
	Na	J8, J13
	Zn	UJ6, ~~U5~~, UJ8
	Bi	J8 ~~U5~~ ~~UJ8~~
	B	UJ6, ~~U5~~, UJ8, UJ9, J5
	~~Ca~~	~~U5~~
	La	U5
	Si	J6, J8
	Sr	J6
	S	J6, J8
	Sn	U5
	~~Ti~~	~~U5~~

P.O. Box 1970 Richland, WA 99352

ADDENDUM 1 REV 0

J812AR
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J814 BX107-C41-S6H
J815 BX107-C41-S6H

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:

Aluminum in CCV-1 (80.0%), CCV-2 (82.6%) and CCV-3 (85.2%).
Antimony in the ICV (111.3%), CCV-2 (119.4%) and CCV-3 (131.3%).
Lead in CCV-1 (88.6%).
Selenium in CCV-1 (86.0%).
Sodium in CCV-2 (111.1%).

INITIAL AND CONTINUING CALIBRATION BLANKS
RCRA Elements - All ICB and CCB analytical measurements were within the CRDL or IDL with the exception of Aluminum in CCB-1, Arsenic in CCB-1, Cadmium in CCB-1, Chromium in CCB-1, Copper in CCB-1, Lead in CCB-1 and Silver in CCB-1.

Non-RCRA Elements - All analytical measurements were within the IDL with the exception of Bismuth in CCB-1, Cerium in CCB-1, Lanthanum in CCB-1, Phosphorus in CCB-1, Silicon in CCB-1, Tin in all calibration blanks, Titanium in CCB-1 and Zirconium in CCB-1.

PREPARATION BLANK
RCRA Elements - All analytical measurements were within the CRDL or IDL with the exception of Arsenic.

Non-RCRA Elements - All analytical measurements were within the IDL with the exception of Boron, Silicon and Sulfur.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification with the exception of Lead in ICSAB-I (76.7%) and ICSAB-F (77.6%)

J814 BX107-C41-S6H
J815 BX107-C41-S6H

ADDENDUM 1 REV 0

SPIKE SAMPLE RECOVERIES
Spike recovery failures were noted for Silver (9.3%) and Zirconium (66.4%).

DUPLICATE ANALYSES
Duplicate precision failures were noted as follows:
For J814: Potassium (42.1%) and Boron (21.5%).
For J815: Selenium (22.2%), Silicon (29.0%) and Zirconium (27.6%).

LABORATORY CONTROL SAMPLE
Failures were noted for Silver (10.3%), Sodium (132.1%) and Silicon (375.7%).

SERIAL DILUTION
A serial dilution failure was noted for Sodium.

RECOMMENDATIONS
Aluminum CCV recoveries were low. Sample results are thirty times higher than the CCV levels. The accuracy of the Aluminum results are questionable. CCV-2 recoveries were low for most elements and many CCB-2 values were below the -IDL. This may be caused by a temporary obstruction in the sample nebulizer. Laboratory Control Sample (LCS) recoveries did not indicate a continuing condition.

Significant contamination with Boron is present in the Preparation Blank. Sample data may be usable if the presence of the contamination is considered. Conversion of units from µg/L to MG/KG is required before data can be compared.

Low Silver recoveries are often due to the precipitation of AgCl.

A low spike recovery for Zirconium is attributed to matrix effects. Data should be considered suspect.

The Serial Dilution failure for Sodium is a result of its high concentration in the sample. The serial dilution result has been used to report Sodium on Form I, J814.

The duplicate failure for Silicon and Zirconium cannot be readily explained. Duplicate failures for Selenium can be attributed to their low concentration in the samples and the failure for Boron may be influenced by the level of contamination. Data should be considered suspect.

These results have been rerun after initially failing to meet numerous duplicate, spike and laboratory control sample recovery control limits.

ABBREVIATIONS
* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels
12-10-92

Brian Wels
Senior Scientist, WHCPAL

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00814

Lab Name: WHC_PAL Contract: _____
Lab Code: BX107 Case No.: C41 SAS No.: S6H SDG No.: J812AR
Matrix (soil/water): SOIL Lab Sample ID: J814
Level (low/med): LOW Date Received: 07/16/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17100			P
7440-36-0	Antimony	34.9	U		P
7440-38-2	Arsenic	3.0	U		P
7440-39-3	Barium	8.4	B		P
7440-41-7	Beryllium	0.29	U		P
7440-43-9	Cadmium	2.6			P
7440-70-2	Calcium	277	B		P
7440-47-3	Chromium	1040			P
7440-48-4	Cobalt	1.9	B		P
7440-50-8	Copper	18.3			P
7439-89-6	Iron	12200			P
7439-92-1	Lead	64.8			P
7439-95-4	Magnesium	138	B		P
7439-96-5	Manganese	40.1			P
7440-02-0	Nickel	12.4			P
7440-09-7	Potassium	94.7	B		P
7782-49-2	Selenium	14.3		*	P
7440-22-4	Silver	0.98	U	N	P
7440-23-5	Sodium	101000		E	P
7440-66-6	Zinc	44.5			P
7440-69-9	Bismuth	28200			P
7440-42-8	Boron	25.6		*	P
7440-45-1	Cerium	194			P
7439-91-0	Lanthanum	2.1	U	N	P
7723-14-0	Phosphoru	25900			P
7440-21-3	Silicon	1610		*	P
7440-24-6	Strontium	174			P
7704-34-9	Sulfur	4050			P
7440-31-5	Tin	9.4			P
7440-32-6	Titanium	4.1			P
7440-67-7	Zirconium	108		N*	P

Color Before: BROWN Clarity Before: OPAQUE Texture: _____
Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00815

Lab Name: WHC_PAL Contract: _____
Lab Code: BX107 Case No.: C41 SAS No.: S6H SDG No.: J812AR
Matrix (soil/water): SOIL Lab Sample ID: J815
Level (low/med): LOW Date Received: 07/16/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17000			P
7440-36-0	Antimony	33.6	U		P
7440-38-2	Arsenic	2.9	U		P
7440-39-3	Barium	8.5	B		P
7440-41-7	Beryllium	0.28	U		P
7440-43-9	Cadmium	2.5			P
7440-70-2	Calcium	276	B		P
7440-47-3	Chromium	1030			P
7440-48-4	Cobalt	1.7	B		P
7440-50-8	Copper	18.6			P
7439-89-6	Iron	12200			P
7439-92-1	Lead	60.6			P
7439-95-4	Magnesium	136	B		P
7439-96-5	Manganese	40.4			P
7440-02-0	Nickel	12.3			P
7440-09-7	Potassium	113	B		P
7782-49-2	Selenium	26.1		*	P
7440-22-4	Silver	0.94	U	N	P
7440-23-5	Sodium	98200		E	P
7440-66-6	Zinc	43.9			P
7440-69-9	Bismuth	27900			P
7440-42-8	Boron	24.2		*	P
7440-45-1	Cerium	193			P
7439-91-0	Lanthanum	2.0	U	N	P
7723-14-0	Phosphoru	25300			P
7440-21-3	Silicon	1150		*	P
7440-24-6	Strontium	174			P
7704-34-9	Sulfur	4130			P
7440-31-5	Tin	7.5			P
7440-32-6	Titanium	4.3			P
7440-67-7	Zirconium	76.6		N*	P

Color Before: BROWN Clarity Before: OPAQUE Texture:
Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT S6H SAMPLE ID J814

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

NALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	17100 mg/kg				J	J								
Sb	34.9 U				UJ	UJ		UJ						
As	3.0 U					UJ		UJ						
Ba	8.4					J		J						
Be	0.29 U					UJ		UJ						
Cd	2.6					J		J						
Ca	277					J	J							
Cr	1040					J								
Co	1.9					J		J						
Cu	18.3					J								
Fe	12200					J								
Pb	64.8				J	J								
Mg	138					J	J							
[illegible]n	40.1					J		J						
[illegible]i	12.4					J		J						
K	94.7					J		J						
Se	14.3				J	J		J		J				
Ag	0.98 U					UJ		UJ	J					
Na	101000				J	J	J		J					J
Zn	44.5					J		J						
Bi	28200					J		J						
B	25.6					J	J	J	J	J				
Ce	194					J		J						
La	2.1 U					UJ		UJ						
P	25900					J		J						
Si	1610 R					J	J		R		J			
Sr	174					J		J						
S	4050					J		J						
[illegible]	9.4					J								
[illegible]i	4.1					J		J						
Zr	108					J	J				J			

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT S6H SAMPLE ID J815

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	17000 mg/kg				J	J								
Sb	33.6 U				UJ	UJ		UJ						
As	2.9 U					UJ		UJ						
Ba	8.5					J		J						
Be	0.28 U					UJ		UJ						
Cd	2.5					J		J						
Ca	276					J	J							
Cr	1030					J								
Co	1.7					J		J						
Cu	18.6					J								
Fe	12200					J								
Pb	60.6				J	J								
Mg	136					J	J							
ı	40.4					J								
Ni	12.3					J		J						
K	113					J								
Se	26.1				J	J		J		J				
Ag	0.94 U					UJ		UJ	UJ					
Na	98200				J	J	J		J					J
Zn	43.9					J		J						
Bi	27900					J		J						
B	24.2					J	J	J	J					
Ce	193					J		J						
La	2.0 U					UJ		UJ						
P	25300					J		J						
Si	1150 R					J	J		R	J	J			
Sr	174					J		J						
S	4130					J		J						
	7.5					J								
Ti	4.3					J		J						
Zr	76.6					J				J	J			

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/6/93 SAMPLES/MATRIX J814

REVIEWED BY D. S. DeLorenzo J815

LABORATORY 222-S/WHC

CASE # SST Bx. 107

SDG # C41SCH, C41SCH

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	/ CP - Acid Digest		
1. CALIBRATION		O		
2. ICV		X		
3. CCV		X		
4. BLANKS		X		
5. PREP BLANK		X		
6. CRA		X		
7. ICS		X		
8. MATRIX SPIKE		X		
9. DUPLICATES		X		
10. LCS		M		
11. SERIAL DILUTION		X		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Numerous recovery failures in CCB-1, Silicon data not reliable.

NOTES:

123

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/8/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual
J814 C41SGH	ALL DATA	J5/UJ5
		J7/UJ7
	Si	R8, J6, J10
	Sb	UJ4, UJ6
	Al	J4
	Pb	J4
	Se	J4, J9, J7
	Na	J4, J6, J8, J13
	Ca	J6
	Mg	J6
	B	J7, J6, J9, J8
	Zr	J10
	~~Se~~	~~J9~~
	Ag	UJ7, UJ8

sample #	constituent	value/qual
J815 C41JGH	ALL DATA	J5/UJ5
		J7/UJ7
	Si	R8, J6, J10, J9
	Sb	UJ4
	Al	J4
	Pb	J4
	Se	J4, J9
	Na	J4, J6, J8, J13
	Ca	J6
	Mg	J6
	B	J6, J8
	Zr	J10, J9
	Ag	UJ8

P.O. Box 1970 Richland, WA 99352

ADDENDUM 1 REV 0

J834A
CASE NARRATIVE - ICP

WHCPAL LABORATORIES

WHCPAL/CUSTOMER SAMPLE NOS:			
	J836	RSA539	BX107-C41-~~C1~~-S2H
	J837	RSA539	BX107-C41-~~C1~~-S2H

BW
12-3-92

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:

Antimony in CCV-1 (144.5%) and CCV-3 (119.4%).
Selenium in the ICV (157.9%), CCV-1 (143.4%), CCV-2 (144.0%) and CCV-3 (160.0%).
Silver in the ICV (193.0%).
Sodium in CCV-3 (88.8%).

INITIAL AND CONTINUING CALIBRATION BLANKS
RCRA Elements - All ICB and CCB analytical measurements were below the CRDL or IDL with the exception of Chromium in CCB-2.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Bismuth in the ICB, Sulfur in the ICB and CCB-2 and Tin in CCB-3.

PREPARATION BLANK
RCRA Elements - All analytical measurements were below the CRDL or IDL with the exception of Zinc.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Boron, Silicon and Sulfur.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification with the exception of Lead in ICSAB-F (79.6%).

J836 RSA539 BX107-C41-~~C1~~ 52H
J837 RSA539 BX107-C41-~~C1~~ 52H

ADDENDUM 1 REV 0
BW 12-3-92

SPIKE SAMPLE RECOVERIES
Spike recovery failures were noted for Antimony (168.6%), Calcium (0.9%), Magnesium (16.6%), Silver (66.7%), Boron (38.3%) and Zirconium (180.5%).

DUPLICATE ANALYSES
Duplicate precision failures were noted as follows:
For J836: Arsenic (21.5%), Silver (200.0%) and Boron (20.4%).
For J837: Boron (34.7%).

LABORATORY CONTROL SAMPLE
Failures were noted for Aluminum (122.2%), Calcium (153.9%), Selenium (146.4%), Silver (75.0%), Bismuth (74.7%), Silicon (293.9%) and Sulfur (254.4%).

SERIAL DILUTION
Serial dilution failures were noted for Zinc.

RECOMMENDATIONS
Selenium was out of calibration; data are not reliable. Hydride AA data should be preferred.

Significant contamination with Calcium is present in the Preparation Blank. Sample data may be usable if adjustment is made for the presence of the contamination. Conversion of units from µg/L to MG/KG is required before data can be adjusted.

Low Silver recoveries are often due to the precipitation of AgCl.

The low spike recovery for Calcium can be attributed to the level of contamination indicated in the Preparation Blank. Errant spike recoveries for Boron, Magnesium and Zirconium cannot be readily explained. Data should be considered suspect.

A physical or chemical interferent is indicated for Zinc; data are not reliable.

The duplicate failures for Arsenic and Silver (J836) can be attributed to their low concentration in the sample. The duplicate failures for Boron may be influenced by the level of contamination indicated in the Preparation Blank.

ABBREVIATIONS
* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels 12-1-92
Brian Wels
Senior Scientist, WHCPAL

U.S. EPA - CLP

ADDENDUM 1 REV 0

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00836

Lab Name: WHC_PAL Contract: _____
Lab Code: BX107 Case No.: C41 SAS No.: S2H SDG No.: J834A
Matrix (soil/water): SOIL Lab Sample ID: J836
Level (low/med): LOW Date Received: 07/16/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16200			P
7440-36-0	Antimony	34.4	U	N	P
7440-38-2	Arsenic	7.5		*	P
7440-39-3	Barium	16.2	B		P
7440-41-7	Beryllium	0.28	U		P
7440-43-9	Cadmium	3.8			P
7440-70-2	Calcium	371	B	N	P
7440-47-3	Chromium	1220			P
7440-48-4	Cobalt	1.4	B		P
7440-50-8	Copper	22.1			P
7439-89-6	Iron	17400			P
7439-92-1	Lead	92.3			P
7439-95-4	Magnesium	158	B	N	P
7439-96-5	Manganese	70.6			P
7440-02-0	Nickel	16.6			P
7440-09-7	Potassium	549			P
7782-49-2	Selenium	378			P
7440-22-4	Silver	0.94	U	N*	P
7440-23-5	Sodium	95900			P
7440-62-2	Vanadium	5.9			P
7440-66-6	Zinc	120		E	P
7440-69-9	Bismuth	31000			P
7440-42-8	Boron	31.9		N*	P
7440-45-1	Cerium	253			P
7439-91-0	Lanthanum	1.5	U		P
7723-14-0	Phosphoru	26300			P
7440-21-3	Silicon	2280			P
7440-24-6	Strontium	218			P
7704-34-9	Sulfur	4250			P
7440-31-5	Tin	9.4			P
7440-32-6	Titanium	5.5			P
7440-67-7	Zirconium	146		N	P

Color Before: BROWN Clarity Before: OPAQUE Texture: _____
Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00837

Lab Name: WHC_PAL_____ Contract: _____

Lab Code: BX107_ Case No.: C41__ SAS No.: S2H___ SDG No.: J834A_

Matrix (soil/water): SOIL_ Lab Sample ID: J837_____

Level (low/med): LOW__ Date Received: 07/16/92

% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	16600	_		P_
7440-36-0	Antimony_	35.5	U	N	P_
7440-38-2	Arsenic__	6.3	_	*	P_
7440-39-3	Barium___	16.6	B		P_
7440-41-7	Beryllium	0.29	U		P_
7440-43-9	Cadmium__	4.0	_		P_
7440-70-2	Calcium__	366	B	N	P_
7440-47-3	Chromium_	1250	_		P_
7440-48-4	Cobalt___	0.97	U		P_
7440-50-8	Copper___	22.4	_		P_
7439-89-6	Iron____	17800	_		P_
7439-92-1	Lead____	102	_		P_
7439-95-4	Magnesium	163	B	N	P_
7439-96-5	Manganese	71.5	_		P_
7440-02-0	Nickel___	16.2	_		P_
7440-09-7	Potassium	573	_		P_
7782-49-2	Selenium_	399	_		P_
7440-22-4	Silver___	0.97	U	N*	P_
7440-23-5	Sodium___	98800	_		P_
7440-62-2	Vanadium_	6.0	_		P_
7440-66-6	Zinc____	126	_	E	P_
7440-69-9	Bismuth__	32000	_		P_
7440-42-8	Boron___	25.7	_	N*	P_
7440-45-1	Cerium___	261	_		P_
7439-91-0_	Lanthanum	1.6	U		P_
7723-14-0_	Phosphoru	26700	_		P_
7440-21-3_	Silicon__	2190	_		P_
7440-24-6_	Strontium	225	_		P_
7704-34-9_	Sulfur___	4430	_		P_
7440-31-5_	Tin_____	11.1	_		P_
7440-32-6_	Titanium_	5.8	_		P_
7440-67-7_	Zirconium	137	_	N	P_

Color Before: BROWN____ Clarity Before: OPAQUE Texture: _____

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT S2H SAMPLE ID J836

PREPARATION ACID DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	16200 mg/kg								J					
Sb	34.4 U				UJ			UJ			UJ			
As	7.5							J		J				
Ba	16.2							J						
Be	0.28 U							UJ						
Cd	3.8							J						
Ca	371 R						J		J		R			
Cr	1220													
Co	1.4							J						
Cu	22.1													
Fe	17400													
Pb	92.3													
Mg	158										J			
[illegible]	70.6													
Ni	16.6							J						
K	549													
Se	378 R				R				J					
Ag	0.94 U				UJ			UJ			UJ			
Na	95900				J									
V	5.9							J		J				
Zn	120							J						J
Bi	31000							J						
B	31.9							J		J	J			
Ce	253							J						
La	1.5 U							UJ						
P	26300							J	J					
Si	2280								J					
Sr	218							J						
[illegible]	4250						J	J						
Sn	9.4													
Ti	5.5							J						
Zr	146				[illegible]						J			

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT S2H SAMPLE ID J837

PREPARATION ACID DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	16600 mg/kg								J					
Sb	35.3 U				UJ			UJ			UJ			
As	6.3							J						
Ba	16.6							J						
Be	0.29 U							UJ						
Cd	4.0							J						
Ca	366 R						J		J		R			
Cr	1250													
Co	0.97 U							UJ		UJ				
Cu	22.4													
Fe	17800													
Pb	102													
Mg	163										J			
[illegible]	71.5													
Ni	16.2							J						
K	573													
Se	399 R				R				J					
Ag	0.97 U				UJ			UJ			UJ			
Na	98800				J									
V	6.0							J						
Zn	126							J						J
Bi	32000							J						
B	25.7							J		J	J			
Ce	261							J						
La	1.6 U							UJ						
P	26700							J	J					
Si	2190								J					
Sr	225							J						
[illegible]	4430						J	J						
Sn	11.1													
Ti	5.8							J						
Zr	137										J			

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/5/93

REVIEWED BY D.S. DeLorenzo

LABORATORY 222-S/WHC

CASE # SST BX107

SDG # C41S2H C41S2H

SAMPLES/MATRIX J836
J837

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS: ICP-ACID DIGEST		
1. INST CAL	O		
2. ICV	M		
3. CCV	X		
4. CRA	O		
5. BLANKS	O		
6. PREP BLANK	X		
7. ICS	X		
8. MATRIX SPIKE	M		
9. DUPLICATES	X		
10. CCS	X		
11. SERIAL DILUTION	X		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Se never in calibration significant Ca contamination indicated in prep blank, numerous matrix spike recovery failures.

~~NOTES:~~

131

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/5/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual
J836 C41S24	ACC DATA	J7/UJ7
	Sc	R4, J8
	Ca	R10, J6, J8
	Ag	UJ4, UJ10
	Sb	UJ4, UJ10
	Na	J4
	S	J6
	Zn	J13
	Mg	J10
	Si	J8
	B	J10, J9
	P	J8
	Zr	J10
	As	J9
	V	J9
	Al	J8

sample #	constituent	value/qual
J837 C41S24	ACC DATA	J7/UJ7
	Sc	R4, J8
	Ca	R10, J6, J8
	Ag	UJ4, UJ10
	Sb	UJ4, UJ10
	Na	J4
	S	J6
	Mg	J10
	B	J10, J9
	Si	J8
	Zr	J10
	P	J8
	Co	J9
	Al	J8
	Zn	J13

WHC-SD-WM-DP-028

ADDENDUM 1 REV 0

ICP Water Digest

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MAR 1993
RECEIVED
OSM DMO

ADDENDUM 1 REV 0

J922W
CASE NARRATIVE - ICP

WHCPAL LABORATORIES

WHCPAL/CUSTOMER SAMPLE NOS:	J924	BX107-C40-C1	
	J925	BX107-C41-C1	(not included; rerunning)
	J926	BX107-C40-C2	

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:
Antimony in the ICV (112.8%), CCV-3 (120.8%) and CCV-4 (86.9%).
Selenium in the ICV (112.9%) and CCV-1 (110.7%).

INITIAL AND CONTINUING CALIBRATION BLANKS
RCRA Elements - All ICB and CCB analytical measurements were below the CRDL or IDL with the exception of Silver in all calibration blanks.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Bismuth in CCB-2.

PREPARATION BLANK
RCRA Elements - All analytical measurements were below the CRDL or IDL with the exception of Aluminum and Silver.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Boron, Silicon and Sulfur.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification with the exception of Lead in ICSAB-I (77.3%) and ICSAB-F (75.6%).

POST DIGEST SPIKE SAMPLE RECOVERIES
No control limits have been defined by EPA for post digested spike recoveries. Unusual recoveries were noted for Calcium (52.6%), Bismuth (68.6%) and Silicon (134.5%).

J924 BX107-C40-C1
J926 BX107-C40-C2

DUPLICATE ANALYSES

Duplicate precision failures were noted as follows:

For J924: Calcium (101.2%), Magnesium (94.3%), Manganese (83.4%), Sodium (101.4%), Zinc (138.0%), Silicon (53.3%) and Strontium (33.9%).

For J926: Barium (53.6%), Calcium (65.5%), Magnesium (56.7%), Manganese (53.8%), Sodium (42.2%), Zinc (77.7%), Strontium (28.3%) and Zirconium (200.0%).

LABORATORY CONTROL SAMPLE

No failures were noted.

SERIAL DILUTION

Serial dilution failures were noted for Sodium, Phosphorus and Silicon.

RECOMMENDATIONS

Antimony and Silver were out of calibration; data are not reliable.

Significant contamination with Aluminium and Boron is present in the Preparation Blank. Sample data may be usable if adjustment is made for the presence of the contamination. Conversion of units from µg/L to MG/KG is required before data can be adjusted.

Errant spike recoveries for Bismuth and Silicon are attributed to matrix effects. The failure for Calcium may be influenced by the level of contamination indicated in the preparation blank. Data should be considered suspect.

A physical or chemical interferent is indicated for Sodium, Phosphorus and Silicon; data are not reliable.

The duplicate failures for Barium, Manganese, Strontium and Zirconium are attributed to the low concentration in the sample. Failures for Calcium, Magnesium, Sodium, Zinc and Silicon are attributed to sample heterogeneity. Data should be considered suspect.

ABBREVIATIONS

* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels
1-29-93

Brian Wels
Senior Scientist, WHCPAL

WHC-SD-WM-DP-028
REV 0
ADDENDUM 1 REV 0

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: WHC_PAL_____ Contract: _____

Lab Code: BX107_ Case No.: C40__ SAS No.: C1/C2_ SDG No.:J922W_

SOW No.: 3/90_

EPA Sample No.	Lab Sample ID
_J00924_____	__J924_____
_J00924D_____	__J924D_____
_J00926_____	__J926_____
_J00926D_____	__J926D_____

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: John H. Tillman Name: John H. Tillman

Date: 2/16/93 Title: Manager, Inorganic Chemistry

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00924

Lab Name: WHC PAL Contract: _____
Lab Code: BX107 Case No.: C40 SAS No.: C1/C2 SDG No.: J922W
Matrix (soil/water): SOIL Lab Sample ID: J924
Level (low/med): LOW Date Received: 08/05/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	115			P
7440-36-0	Antimony	37.3	U		P
7440-38-2	Arsenic	3.1	U		P
7440-39-3	Barium	0.45	B		P
7440-41-7	Beryllium	0.31	U		P
7440-43-9	Cadmium	0.71	U		P
7440-70-2	Calcium	1130		*	P
7440-47-3	Chromium	158			P
7440-48-4	Cobalt	1.0	U		P
7440-50-8	Copper	0.69	B		P
7439-89-6	Iron	51.6			P
7439-92-1	Lead	7.2	U		P
7439-95-4	Magnesium	24.3	B		P
7439-96-5	Manganese	1.5			P
7440-02-0	Nickel	1.4	U		P
7440-09-7	Potassium	170	B		P
7782-49-2	Selenium	8.5	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	26300		E*	P
7440-66-6	Zinc	43.3		*	P
7440-69-9	Bismuth	99.6			P
7440-42-8	Boron	27.9			P
7440-45-1	Cerium	10.0	U		P
7439-91-0	Lanthanum	1.6	U		P
7723-14-0	Phosphoru	4770		E	P
7440-21-3	Silicon	524		E*	P
7440-24-6	Strontium	2.0		*	P
7704-34-9	Sulfur	4540			P
7440-31-5	Tin	2.3	U		P
7440-32-6	Titanium	0.41	U		P
7440-67-7	Zirconium	1.5			P

Color Before: BROWN Clarity Before: OPAQUE Texture: _____
Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

ADDENDUM 1 REV 0 WHC-SD-WM-DP-028 REV 0

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00926

Lab Name: WHC_PAL Contract: _____

Lab Code: BX107 Case No.: C40 SAS No.: C1/C2 SDG No.: J922W

Matrix (soil/water): SOIL Lab Sample ID: J926

Level (low/med): LOW Date Received: 08/05/92

% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	80.0			P
7440-36-0	Antimony	37.3	U		P
7440-38-2	Arsenic	3.1	U		P
7440-39-3	Barium	0.39	B		P
7440-41-7	Beryllium	0.31	U		P
7440-43-9	Cadmium	0.71	U		P
7440-70-2	Calcium	947			P
7440-47-3	Chromium	131			P
7440-48-4	Cobalt	1.0	U		P
7440-50-8	Copper	0.77	B		P
7439-89-6	Iron	42.7			P
7439-92-1	Lead	7.2	U		P
7439-95-4	Magnesium	44.1	B		P
7439-96-5	Manganese	1.6			P
7440-02-0	Nickel	1.4	U		P
7440-09-7	Potassium	131	B		P
7782-49-2	Selenium	8.4	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	52900		E*	P
7440-66-6	Zinc	33.1		*	P
7440-69-9	Bismuth	78.3			P
7440-42-8	Boron	28.9			P
7440-45-1	Cerium	10	U		P
7439-91-0	Lanthanum	1.6	U		P
7723-14-0	Phosphoru	5260			P
7440-21-3	Silicon	368		E	P
7440-24-6	Strontium	1.9		*	P
7704-34-9	Sulfur	4690			P
7440-31-5	Tin	2.3	U		P
7440-32-6	Titanium	0.41	U		P
7440-67-7	Zirconium	0.81	U	*	P

Color Before: BROWN Clarity Before: OPAQUE Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

534.5

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J924

PREPARATION Water Digest

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

NALYTE	SAMPLE RESULTS		QUALIFIERS												
			1	2	3	4	5	6	7	8	9	10	11	12	13
Al	115 mg/kg														
Sb	37.3	U				UJ									
As	3.1	U													
Ba	0.45														
Be	0.31	U													
Cd	0.71	U													
Ca	1130							J			J				
Cr	158														
Co	1.0	U													
Cu	0.69														
Fe	51.6							J							
Pb	7.2	U							UJ						
Mg	24.3	U						J			J				
'n	1.5										J				
Ni	1.4	U													
K	170														
Se	8.5	U				UJ									
Ag	1.0	U					UJ	UJ							
Na	26300							J			J				J
Zn	43.3										J				
Bi	99.6														
B	27.9							J							
Ce	10.0	U													
La	1.6	U													
P	4770														J
Si	524							J			J				
Sr	2.0										J				
S	4540							J							J
ı	2.3	U													
ı i	0.41	U													
Zr	1.5														

138.1

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C2 SAMPLE ID J926

PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

NALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	80.0 mg/kg													
Sb	37.3 U													
As	3.1 U													
Ba	0.39									J				
Be	0.31 U													
Cd	0.71 U													
Ca	947									J				
Cr	131													
Co	1.0 U													
Cu	0.77													
Fe	42.7													
Pb	7.2 U							UJ						
Mg	44.1									J				
[illegible]n	1.6									J				
[illegible]i	1.4 U													
K	131													
Se	8.4 U				UJ									
Ag	1.0 U					UJ								
Na	52900									J				J
Zn	33.1									J				
Bi	78.3													
B	28.9													
Ce	10 U													
La	1.6 U													
P	5260													J
Si	368													
Sr	1.9									J				
S	4690													J
[illegible]	2.3 U													
[illegible]i	0.41 U													
Zr	0.81 U									UJ				

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E
OSM INORGANIC DATA ASSESSMENT

DATE 2/27/93 SAMPLES/MATRIX J924/WATER DIGESTS

REVIEWED BY D. Smith J926/WATER DIGESTS

LABORATORY 2225/WHC

CASE # BX-107

SDG # CORE 40 COMP 1,2

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CN
1. Calibrations (Form II)	X			
2. Blanks (III)	X			
3. ICS (IV)	X			
4. Matrix Spike (V)	N/A			
5. Duplicate Analysis (VI)	X			
6. LCS (VII)	O			
7. Serial Dilution (IX)	X			
8. GFAA				
9. Holding Times (XIV)	O			
10. Other QC				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSMENT: Overall, the quality of the data is acceptable.

NOTES: Need to obtain documentation on the preparation of the ICP/CV standards used by lab.

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E
INORGANIC QC - CALIBRATIONS

Name D. SMITH Date 3/11 (revised)

COMMENTS: 1st sample run in LP284 - no calibration blank or standard present

ACTION:

Sample #	Constituent	Value/Qual
J924 BX107-C40 C1	Sb	37.3 U J4
J926 BX107-C40 C2	Se	8.5 U J4
J924 BX107-C40 C1	Ag	1.0 U J5
J926 BX107-C40C2	Ag	1.0 U J5
J924 BX107-C40 C1	Se	8.50 J4
J924 BX107-C40 C2	Sb	37.3 U J4
J924 BX107-C40 C1	Ca	1130 J6
	Fe	51.6
	Mg	24.3
	Ag	1.0
	Na	26,300
	B	27.9
	Si	524
	S	4540

Sample #	Constituent	Value/Qual
J924 BX107 C40 C2	Ca	947
	Fe	42.7
	Mg	44.1
	Ag	1.0
	Na	52,900
	B	28.9
	Si	368
	S	4690
~~J924~~	~~ALL~~	~~J3 (no initial calib)~~
~~J926~~	~~ALL~~	~~J3 (no initial calib)~~
J924	Pb	7.2 U J7
J926	Pb	7.2 U J7
J924	Ca	J9
	Mg	
	Mn	
	Na	
	Zn	
	Si	
	Sr	
J926	Ba	
	Ca	
	Mg	
	Mn	
	Na	
	Zn	
	Sr	
	Zr	
J924	Na	J13
J926	B	
	Mo	
	S	

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ADDENDUM 1 REV 0

J922WR
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J925 BX107-~~C40~~ C41 -C1 JM 1/27/93

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:

Aluminum in CCV-2 (87.5%).
Antimony in CCV-1 (73.8%) and CCV-2 (86.3%).
Copper in CCV-2 (88.9%).
Manganese in CCV-2 (88.8%).
Selenium in the ICV (111.2%), CCV-1 (117.0%) and CCV-3 (120.7%).

INITIAL AND CONTINUING CALIBRATION BLANKS
RCRA Elements - All ICB and CCB analytical measurements were within the CRDL or IDL with the exception of Silver in the ICB.

Non-RCRA Elements - All analytical measurements were within the IDL.

PREPARATION BLANK
RCRA Elements - All analytical measurements were within the CRDL or IDL.

Non-RCRA Elements - All analytical measurements were within the IDL with the exception of Boron, Silicon and Zirconium.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification.

POST DIGEST SPIKE SAMPLE RECOVERIES
No control limits have been defined by EPA for post digested spike recoveries. Low recoveries were noted for Aluminum (50.0%), Calcium (63.4%), Chromium (-2.4%), Iron (54.7%), Potassium (16.2%), Bismuth (-14.6%) and Silicon (69.0%).

54-7600-075

Hanford Operations and Engineering Contractor for the US Department of Energy

DUPLICATE ANALYSES
A duplicate precision failure was noted for Zirconium (200.0%).

LABORATORY CONTROL SAMPLE
No failures were noted.

SERIAL DILUTION
Serial dilution failures were noted for Calcium and Silicon.

RECOMMENDATIONS

Selenium was out of calibration; data are not reliable. Hydride AA data should be preferred.

Significant contamination with Aluminum, Calcium, Magnesium and Zirconium is present in the Preparation Blank. Sample data may be usable if the presence of the contamination is considered. Conversion of units from µg/L to MG/KG is required before data can be compared.

Low spike recoveries are attributed to matrix interferences. Data should be considered suspect.

A physical or chemical interferent is indicated for Calcium and Silicon; data are not reliable.

The duplicate failure for Zirconium can be attributed to its low concentration in the sample.

This sample has been rerun after initially failing to meet numerous duplicate precision control limits.

ABBREVIATIONS
* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels

Brian Wels 12-11-92
Senior Scientist, WHCPAL

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00925

Lab Name: WHC_PAL Contract: _____
Lab Code: BX107 Case No.: ~~C40~~ C41 jm 1/21/93 SAS No.: C1 SDG No.: J922WR
Matrix (soil/water): SOIL Lab Sample ID: J925
Level (low/med): LOW Date Received: 08/05/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	73.3			P
7440-36-0	Antimony	36.3	U		P
7440-38-2	Arsenic	3.2	U		P
7440-39-3	Barium	0.31	U		P
7440-41-7	Beryllium	0.31	U		P
7440-43-9	Cadmium	0.71	U		P
7440-70-2	Calcium	141	B	E	P
7440-47-3	Chromium	154			P
7440-48-4	Cobalt	1.2	U		P
7440-50-8	Copper	0.61	U		P
7439-89-6	Iron	61.5			P
7439-92-1	Lead	8.7	U		P
7439-95-4	Magnesium	6.6	B		P
7439-96-5	Manganese	0.31	U		P
7440-02-0	Nickel	1.8	U		P
7440-09-7	Potassium	151	B		P
7782-49-2	Selenium	13.4	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	79400			P
7440-66-6	Zinc	2.6	U		P
7440-69-9	Bismuth	116			P
7440-42-8	Boron	20.5			P
7440-45-1	Cerium	8.8	U		P
7439-91-0	Lanthanum	2.1	U		P
7723-14-0	Phosphoru	4560			P
7440-21-3	Silicon	133		E	P
7440-24-6	Strontium	1.5			P
7704-34-9	Sulfur	4350			P
7440-31-5	Tin	1.6	U		P
7440-32-6	Titanium	0.51	U		P
7440-67-7	Zirconium	1.1	U	*	P

Color Before: BROWN Clarity Before: OPAQUE Texture: _____
Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C1 SAMPLE ID J925

PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS		QUALIFIERS												
			1	2	3	4	5	6	7	8	9	10	11	12	13
Al	73.3 mg/kg					J		J							
Sb	36.3	U				UJ									
As	3.2	U													
Ba	0.31	U													
Be	0.31	U													
Cd	0.71	U													
Ca	141							J							J
Cr	154														
Co	1.2	U													
Cu	0.61	U					UJ	UJ							
Fe	61.5														
Pb	8.7	U													
Mg	6.6							J							
[illegible]	0.31	U				UJ									
Ni	1.8	U													
K	151														
Se	13.4	U				UJ									
Ag	1.0	U					UJ								
Na	79400														
Zn	2.6	U													
Bi	116											J			
B	20.5														
Ce	8.8	U													
La	2.1	U													
P	4560														
Si	133														J
Sr	1.5														
S	4350														
[illegible]	1.6	U													
Ti	0.57	U													
Zr	1.1	U						UJ			UJ				

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/4/93 SAMPLES/MATRIX J925

REVIEWED BY D.S. DE LORENZO

LABORATORY 2225/WHC

CASE # SST BX-107

SDG # C4/C1

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS: ICP - WATER DIGEST J925	DSO 3/4		
1. CALIBRATION	X			
2. ICV	X			
3. CCV	X			
4. BLANKS	X			
5. PREP BLANK	X			
6. ICS	O			
7. LCS	O			
8. DUPLICATE	X			
9. SPIKE	M			
10. CRA	X			
11. SERIAL DILUTION	X			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Al, Sb, Cu, Mn, Se results of ICV or CCV were out of control limits, Ag, Cu Zr, Al, Ca, Mg blank results out of control limits, Zr duplicate failure, Bi spike recovery low, Ca, Si serial dilution recoveries out of limit.

NOTES:

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/4/93

QC Check: _____

COMMENTS: Post digest spike recoveries: all data on Jo 2 is wrong; the dilution factor was not included. ~~Corrected data results are included on the next page.~~ DSD 3/5

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J9L5	CdCl	~~ALL DATA~~ UJD 3-16-93 ~~J5/uJ3~~		Mg	J6
	Se	uJ4,		B:	J10
	Al	J4, J6		S:	J13
	Sb	uJ4			
	Cu	uJ4, uJ5,	uJ6		
	Mn	uJ4			
	Ag	DSD 3/4 ~~uJ4~~ uJ5			
	Zr	uJ6, uJ9			
	Ca	J6, J13			

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ADDENDUM 1 REV 0

J928W
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J927 BX107-C41-C2

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:

Antimony in CCV-2 (115.0%).
Barium in CCV-2 (89.1%).
Beryllium in CCV-1 (89.9%) and CCV-2 (88.0%).
Cadmium in CCV-2 (89.8%).
Calcium in CCV-2 (89.8%).
Cobalt in CCV-2 (89.5%).
Lead in CCV-2 (89.7%) and CCV-3 (110.2%).
Magnesium in CCV-2 (89.7%).
Manganese in CCV-1 (88.8%) and CCV-2 (86.7%).
Nickel in CCV-2 (87.6%).
Selenium in the ICV (135.1%), CCV-1 (163.2%), CCV-2 (132.2%) and CCV-3 (148%).
Silver in the ICV (114.4%).
Vanadium in CCV-2 (89.1%).
Boron in CCV-2 (89.4%).
Silicon in CCV-2 (87.6%).

INITIAL AND CONTINUING CALIBRATION BLANKS
RCRA Elements - All ICB and CCB analytical measurements were below the CRDL or IDL with the exception of Chromium in CCB-3 and Selenium in CCB-3.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Bismuth in CCB-1, Boron in CCB-1 and CCB-3 and Sulfur in all calibration blanks.

S4-7800-075

Hanford Operations and Engineering Contractor for the US Department of Energy

PREPARATION BLANK
RCRA Elements - All analytical measurements were less than the IDL with the exception of Aluminum and Selenium.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Boron, Silicon and Sulfur.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification with the exception of Lead in ICSAB-I (78.7%) and ICSAB-F (77.8%).

DUPLICATE ANALYSES
Duplicate precision failures were noted for Iron (65.4%), Bismuth (64.3%), Strontium (59.8%) and Zirconium (57.8%).

LABORATORY CONTROL SAMPLE
No failures were noted.

SERIAL DILUTION
Serial dilution failures were noted for Phosphorus and Silicon.

RECOMMENDATIONS

Selenium was out of calibration; data are not reliable. Hydride AA data should be preferred. Numerous calibration failures occured in CCV-2. This is characteristic of a temporary obstruction in the sample nebulizer. Data are usable if the lower recoveries (86-89%) are considered.

Significant contamination with Calcium, Magnesium and Boron is present in the Preparation Blank. Sample data may be usable if adjustment is made for the presence of the contamination. Conversion of units from µg/L to MG/KG is required before data can be adjusted.

A physical or chemical interferent is indicated for Silicon; data are not reliable. Phosphorus exceeds the linear range; the value reported under Serial Dilution Result on Form IX should be considered more accurate.

The duplicate failures for Aluminum, Iron, Bismuth and Strontium cannot be readily explained. Sample heterogeneity is suspected. The duplicate failure for Zirconium can be attributed to the low concentration in the sample.

ABBREVIATIONS
* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not reported. P = ICP method used. U = less than IDL.

Brian Wels
12-3-92
Brian Wels
Senior Scientist, WHCPAL

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00927

Lab Name: WHC_PAL Contract: C2 JM 1/27/93
Lab Code: BX107 Case No.: C41 SAS No.: S1 SDG No.: J928W
Matrix (soil/water): SOIL Lab Sample ID: J927
Level (low/med): LOW Date Received: 08/07/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	350		*	P
7440-36-0	Antimony	37.2	U		P
7440-38-2	Arsenic	3.0	U		P
7440-39-3	Barium	0.64	B		P
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.71	U		P
7440-70-2	Calcium	136	B		P
7440-47-3	Chromium	171			P
7440-48-4	Cobalt	1.2	B		P
7440-50-8	Copper	1.1	B		P
7439-89-6	Iron	422		*	P
7439-92-1	Lead	7.5			P
7439-95-4	Magnesium	9.6	B		P
7439-96-5	Manganese	1.7			P
7440-02-0	Nickel	1.4	U		P
7440-09-7	Potassium	128	B		P
7782-49-2	Selenium	74.5			P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	72600			P
7440-62-2	Vanadium	0.81	U		P
7440-66-6	Zinc	5.3			P
7440-69-9	Bismuth	839		*	P
7440-42-8	Boron	23.2			P
7440-45-1	Cerium	10	U		P
7439-91-0	Lanthanum	1.6	U		P
7723-14-0	Phosphoru	4810		E	P
7440-21-3	Silicon	271		E	P
7440-24-6	Strontium	6.5		*	P
7704-34-9	Sulfur	4170			P
7440-31-5	Tin	2.3	U		P
7440-32-6	Titanium	0.41	U		P
7440-67-7	Zirconium	7.9		*	P

Color Before: BROWN Clarity Before: OPAQUE Texture:
Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C2 SAMPLE ID J927

PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS		QUALIFIERS 1	2	3	4	5	6	7	8	9	10	11	12	13
Al	350 mg/kg					J		J			J				
Sb	37.2	U				UJ									
As	3.0	U				UJ									
Ba	0.64					J					J				
Be	0.30	U				UJ									
Cd	0.71	U				UJ									
Ca	136					J		J			J				
Cr	171					J									
Co	1.2					J									
Cu	1.1					J					J				
Fe	422					J					J				
Pb	7.5					J			J						
Mg	9.6					J		J			J				
	1.7					J					J				
Ni	1.4	U				UJ									
K	128					J									
Se	74.5	R				R		J							
Ag	1.0	U				UJ									
Na	72600					J									
V	0.81	U				UJ									
Zn	5.3					J									
Bi	839					J					J				
B	23.2					J		J							
Ce	10	U				UJ									
La	1.6	U				UJ									
P	4810					J									J
Si	271					J		J							J
Sr	6.5					J					J				
	4170					J	J	J							
Sn	2.3	U				UJ									
Ti	0.41	U				UJ									
Zr	7.9					J					J				

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 5/4/93 SAMPLES/MATRIX J927

REVIEWED BY D.S. DE LORENZO

LABORATORY 222-S/LHC

CASE # SST BX-107

SDG # C41 C2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	ICP - WATER		DIGEST
1. CALIBRATION		X		
2. ICV		M		
3. CCV		X		
4. BLANKS		X		
5. PREP BLANK		X		
6. ICS		X		
7. LCS		O		
8. DUPLICATE		X		
9. CRA		O		
10. SERIAL DILUTION		X		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Se out of calibration ICP instrumentation calibration not adequately documented, CCV-2 results suspect, possible prep blank contamination, possible duplicate contamination.

~~NOTES:~~

152

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/4/93

QC Check: _____

COMMENTS: Selenium out of calibration, some recoveries out of limits on the ICS.

ACTION: _____

sample #	constituent	value/qual
J927	C4 C2	~~ALL DATA~~ ~~J3/uJ3~~ ASD 3-16-93
	ALL DATA	J4/uJ4
	Se	R4, J6
	Ag	uJ4
	S	J5, J6
	Al	J6, J9
	Ca	J6, ~~J7~~ ASD, J9
	Mg	J6, ~~J7~~ ASD, J9
	B	J6
	Si	J6, J13

sample #	constituent	value/qual
	Pb	J7
	Ba	J9
	Cu	J9
	Fe	J9
	Mn	J9
	Ni	J9
	Sr	J9
	Zn	J9
	P	J13

ADDENDUM 1 REV 0

J997
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J999 BX107-HCB
J1000 BX107-FB

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:

Aluminum in the ICV (86.5%), CCV-1 (85.2%), CCV-2 (88.0%) and CCV-3 (87.4%).
Lead in CCV-3 (113.0%).
Silver in the ICV (47.3%), CCV-1 (68.1%), CCV-2 (67.6%) and CCV-3 (68.1%).

INITIAL AND CONTINUING CALIBRATION BLANKS
RCRA Elements - All ICB and CCB analytical measurements were within the CRDL or IDL.

Non-RCRA Elements - All analytical measurements were within the IDL.

PREPARATION BLANK
RCRA Elements - All analytical measurements were within the CRDL or IDL with the exception of Silver and Zinc.

Non-RCRA Elements - All analytical measurements were within the IDL with the exception of Silicon.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification with the exception of Lead in ICSAB-I (79.1%) and ICSAB-F (64.5%) and Silver in ICSAB-I (33.5%) and ICSAB-F (32.7%).

POST DIGEST SPIKE SAMPLE RECOVERIES
No control limits have been defined by EPA for post digested spike recoveries Unusual recoveries were noted for Bismuth (72.3%) and Silicon (153.0%).

J999 BX107-HCB
J1000 BX107-FB

ADDENDUM 1 REV 0

DUPLICATE ANALYSES

Duplicate precision failures were noted as follows:

For J999: Phosphorus (200.0%) and Silicon (39.3%).

For J1000: Magnesium (21.6%), Potassium (200.0%) and Sulfur (40.3%).

LABORATORY CONTROL SAMPLE

No failures were noted.

RECOMMENDATIONS

Aluminum was out of calibration; data are not reliable.

Significant contamination with Potassium and Silicon is present in the Preparation Blank. Sample data may be usable the level of contamination is considered. Conversion of units from µg/L to MG/KG is required before data can be compared.

Low Silver recoveries are often due to the precipitation of AgCl. Data are not reliable.

The spike recovery failure for Bismuth is attributed to matrix interferences. The failure for Silicon may be attributed to contamination. Data should be considered suspect.

The duplicate failures for Phosphorus and Sulfur are attributed to the low concentration found in the sample. The failures for Magnesium, Potassium and Silicon may be attributed to the occurence of contaminaion during sample processing. Data should be considered suspect.

ABBREVIATIONS

* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels
1-21-93

Brian Wels
Senior Scientist, WHCPAL

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J999

Lab Name: WHC PAL Contract: _____
Lab Code: BX107 Case No.: _____ SAS No.: _____ SDG No.: J997
Matrix (soil/water): WATER Lab Sample ID: J999
Level (low/med): LOW Date Received: 01/12/93
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	204	U		P
7440-36-0	Antimony	2140	U		P
7440-38-2	Arsenic	186	U		P
7440-39-3	Barium	18.0	U		P
7440-41-7	Beryllium	18.0	U		P
7440-43-9	Cadmium	42.0	U		P
7440-70-2	Calcium	2540	B		P
7440-47-3	Chromium	84.0	U		P
7440-48-4	Cobalt	72.0	U		P
7440-50-8	Copper	36.0	U		P
7439-89-6	Iron	120	U		P
7439-92-1	Lead	510	U		P
7439-95-4	Magnesium	106	B		P
7439-96-5	Manganese	88.2	B		P
7440-02-0	Nickel	108	U		P
7440-09-7	Potassium	798	U		P
7782-49-2	Selenium	786	U		P
7440-22-4	Silver	60.0	U		P
7440-23-5	Sodium	4630	B		P
7440-66-6	Zinc	150	U		P
7440-69-9	Bismuth	510	U		P
7440-42-8	Boron	1130			P
7440-45-1	Cerium	516	U		P
7439-91-0	Lanthanum	126	U		P
7723-14-0	Phosphoru	480	U	*	P
7440-21-3	Silicon	3360		*	P
7440-24-6	Strontium	36.0	U		P
7704-34-9	Sulfur	569		*	P
7440-31-5	Tin	96.0	U		P
7440-32-6	Titanium	30.0	U		P
7440-67-7	Zirconium	66.0	U		P

Color Before: BROWN Clarity Before: OPAQUE Texture: _____
Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J1000

Lab Name: WHC PAL Contract: _____
Lab Code: BX107 Case No.: _____ SAS No.: _____ SDG No.: J997
Matrix (soil/water): WATER Lab Sample ID: J1000
Level (low/med): LOW Date Received: 01/12/93
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	204	U		P
7440-36-0	Antimony	2140	U		P
7440-38-2	Arsenic	186	U		P
7440-39-3	Barium	18.0	U		P
7440-41-7	Beryllium	18.0	U		P
7440-43-9	Cadmium	42.0	U		P
7440-70-2	Calcium	237	B		P
7440-47-3	Chromium	84.0	U		P
7440-48-4	Cobalt	72.0	U		P
7440-50-8	Copper	36.0	U		P
7439-89-6	Iron	120	U		P
7439-92-1	Lead	510	U		P
7439-95-4	Magnesium	36.0	U		P
7439-96-5	Manganese	18.0	U		P
7440-02-0	Nickel	108	U		P
7440-09-7	Potassium	987	B		P
7782-49-2	Selenium	786	U		P
7440-22-4	Silver	60.0	U		P
7440-23-5	Sodium	4610	B		P
7440-66-6	Zinc	150	U		P
7440-69-9	Bismuth	510	U		P
7440-42-8	Boron	888			P
7440-45-1	Cerium	516	U		P
7439-91-0	Lanthanum	126	U		P
7723-14-0	Phosphoru	496		*	P
7440-21-3	Silicon	534		*	P
7440-24-6	Strontium	36.0	U		P
7704-34-9	Sulfur	360	U	*	P
7440-31-5	Tin	96.0	U		P
7440-32-6	Titanium	30.0	U		P
7440-67-7	Zirconium	66.0	U		P

Color Before: BROWN Clarity Before: OPAQUE Texture:
Color After: YELLOW Clarity After: CLEAR Artifacts:

Cc ts:

2686

FORM I - IN

INDUCTIVELY COUPLED PLASMA

HOT CELL BLANK COMPOSITE/SEGMENT___ SAMPLE ID J999

PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS 1	2	3	4	5	6	7	8	9	10	11	12	13
Al	204 ug/L U R				R									
Sb	2140 U													
As	186 U													
Ba	18.0 U													
Be	18.0 U													
Cd	42.0 U													
Ca	2540													
Cr	84.0 U													
Co	72.0 U													
Cu	36.0 U													
Fe	120 U													
Pb	510 U				UJ									
Mg	106									J				
[illegible]	88.2													
[illegible]	108 U													
K	798 U									UJ				
Se	786 U												UJ	
Ag	60.0 U R				R									
Na	4360													
Zn	150 U													
Bi	510 U										UJ			
B	1130													
Ce	516 U													
La	126 U													
P	480 U													
Si	3360										J			
Sr	36.0 U													
S	569									J				
[illegible]	96.0 U													
[illegible]	30.0 U													
Zr	66.0 U													

INDUCTIVELY COUPLED PLASMA

FIELD BLANK COMPOSITE/SEGMENT___ SAMPLE ID J1000

PREPARATION WATER DIGEST

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS 1	2	3	4	5	6	7	8	9	10	11	12	13
Al	204 ug/L U R				R									
Sb	2140 U													
As	186 U													
Ba	18.0 U													
Be	18.0 U													
Cd	42.0 U													
Ca	237													
Cr	84.0 U													
Co	72.0 U													
Cu	36.0 U													
Fe	120 U													
Pb	510 U				UJ									
Mg	36.0 U													
[illegible]	18.0 U													
Ni	108 U													
K	987									J				
Se	786 U												UJ	
Ag	60.0 U R				R									
Na	4610													
Zn	150 U													
Bi	510 U										UJ			
B	888													
Ce	516 U													
La	126 U													
P	496									J				
Si	534									J	J			
Sr	36.0 U													
S	360 U													
[illegible]	96.0 U													
Ti	30.0 U													
Zr	66.0 U													

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/2/93 SAMPLES/MATRIX J959

REVIEWED BY D.S. M. Cousino J1000

LABORATORY 222-S/WHC

CASE # SST BX-107

SDG # HOT CELL BLANK, FIELD BLANK

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS / CP-	WATER	SLUDGE
1. HOLD TIMES	O ~~X~~ OSD 3/3		
2. CALIBRATION	X		
3. ICV	M		
4. CCV	X		
5. BLANKS	O		
6. ICS	X		
7. LCS	O		
8. DUPLICATES	X		
9. MATRIX SPIKE	X		
10. CRA	X		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Initial calibration not performed satisfactorily, Ag and Al recoveries always on the low side, therefore Ag and Al data is unreliable

NOTES:

160

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/2/93

QC Check: _____

COMMENTS: ~~Chromium hold time exceeded~~ DSD 3/3, initial calibration not ~~at~~ DSD 3/3 satisfactorily performed, Al and Ag out of calibration, Pb recovery out of limits, Ca, Pb, Mg, Ag ICS not within control ~~ACTION:~~ limits, K, Mg, S, P, Si duplicate results out of control limits, Si and Bi matrix spike recoveries out of limits, Se CRA recovery negative, >IDC.

sample #	constituent	value/qual
J999	CELL BLANK	DSD 3/2 ~~Cr UJ2~~
	ICP	
		ASD 3-16-93 ~~ALL DATA J3/UJ3~~
		DSD 3/3 ~~Cr UJ2~~
	Al	R4, UJ4
	Ag	R4, UJ4, ~~UJ7~~ ASD
	Pb	UJ4, ~~UJ7~~ ASD
	Se	UJ12
	ASD 3-16-93 ~~Ca J7~~	
	Mg	ASD ~~J7~~, J9
	K	UJ9
	S	J9
	Si	J10
	Bi	UJ10

sample #	constituent	value/qual
J1000	FIELD BLANK	DSD 3/2 ~~Cr UJ2~~
	ICP	
		ASD 3-16-93 ~~ALL DATA J3/UJ3~~
		DSD 3-3 ~~Cr UJ2~~
	Al	R4, UJ4
	Ag	R4, UJ4, ~~UJ7~~ ASD
	Pb	UJ4, ~~UJ7~~ ASD
	ASD 3-16-93 ~~Ca J7~~	
	ASD ~~Ag UJ9~~	
	K	J9
	P	J9
	Si	J9, J10
	Bi	UJ10
	Se	UJ12

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WHC-SD-WM-DP-028

ADDENDUM 1 REV 0

ICP KOH Fusion

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P.O. Box 1970 Richland, WA 99352

ADDENDUM 1 REV 0

MAR 1993
RECEIVED
OSM DMO

J922FR
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J924 RSA626 BX107-~~C41~~-C1
C40
BW
12-3-92

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:

Antimony in the ICV (86.1%) and CCV-3 (86.3%).
Potassium in CCV-2 (127.9%) and CCV-3 (112.2%).
Sodium in CCV-2 (122.0%) and CCV-3 (110.1%).

INITIAL AND CONTINUING CALIBRATION BLANKS
RCRA Elements - All ICB and CCB analytical measurements were below the CRDL or IDL with the exception of Arsenic in CCB-3.

Non-RCRA Elements - All analytical measurements were less than the IDL.

PREPARATION BLANK
RCRA Elements - All analytical measurements were below the CRDL or IDL with the exception of Chromium.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Boron, Cerium, Lanthanum, Silicon, Titanium and Zirconium.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification with the exception of Lead in ICSAB-I (76.3%) and ICSAB/F (77.5%) and Silver in ICSAB/I (25.0%) and ICSAB/F (24.8%).

POST DIGEST SPIKE SAMPLE RECOVERIES
No control limits have been defined by EPA for post digested spike recoveries.

Hanford Operations and Engineering Contractor for the US Department of Energy

DUPLICATE ANALYSES
Duplicate precision failures were noted for Cadmium (200.0%), Copper (18.8%), Lead (200.0%), Nickel (36.5%), Boron (24.7%), Cerium (200.0%) and Titanium (200.0%).

LABORATORY CONTROL SAMPLE
No failures were noted.

SERIAL DILUTION
No failures were noted.

RECOMMENDATIONS
Significant contamination with Barium, Selenium and Boron is present in the Preparation Blank. Sample data may be usable if adjustment is made for the presence of the contamination. Conversion of units from µg/L to MG/KG is required before data can be adjusted.

The duplicate failures for Cadmium, Lead, Cerium and Titanium can be attributed to their low concentrations in the sample. The duplicate failures for Copper and Boron can be attributed to the influence of contamination levels. The duplicate failure for Nickel cannot be readily explained. Data should be considered suspect.

ABBREVIATIONS
* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels
11-30-92
Brian Wels
Senior Scientist, WHCPAL

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RSA626

Lab Name: WHC_PAL Contract: _____
Lab Code: BX107 Case No.: ~~C41~~ C40 SAS No.: C1 SDG No.: J922FR
Matrix (soil/water): SOIL Lab Sample ID: J924
Level (low/med): LOW Date Received: 08/05/92
% Solids: 100.0

BW 12-3-92

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13400			P
7440-36-0	Antimony	183	U		P
7440-38-2	Arsenic	15.0	U		P
7440-39-3	Barium	4.2	B		P
7440-41-7	Beryllium	1.5	U		P
7440-43-9	Cadmium	3.5	U	*	P
7440-70-2	Calcium	343	B		P
7440-47-3	Chromium	954			P
7440-48-4	Cobalt	5.0	U		P
7440-50-8	Copper	61.0		*	P
7439-89-6	Iron	10700			P
7439-92-1	Lead	35.4	U	*	P
7439-95-4	Magnesium	108	B		P
7439-96-5	Manganese	65.1			P
7440-02-0	Nickel	8520		*	P
7440-09-7	Potassium				NR
7782-49-2	Selenium	41.4	U		P
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	102000			P
7440-62-2	Vanadium	23.6	B		P
7440-66-6	Zinc	78.1			P
7440-69-9	Bismuth	21300			P
7440-42-8	Boron	16.1		*	P
7440-45-1	Cerium	48.9	U	*	P
7439-91-0	Lanthanum	8.0	U		P
7723-14-0	Phosphoru	23900			P
7440-21-3	Silicon	6430			P
7440-24-6	Strontium	164			P
7704-34-9	Sulfur	4790			P
7440-31-5	Tin	11.5	U		P
7440-32-6	Titanium	2.0	U	*	P
7440-67-7	Zirconium	181			P

Color Before: BROWN Clarity Before: OPAQUE Texture: _____
Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:
Results = Raw Data /(2.0044 g/L)
BW 2/19/93

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J924

PREPARATION KOH FUSION

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS 1	2	3	4	5	6	7	8	9	10	11	12	13
Al	13400 mg/kg													
Sb	183 U				UJ			UJ						
As	15.0 U							UJ						
Ba	4.2						J	J						
Be	1.5 U							UJ						
Cd	3.5 U							UJ						
Ca	343													
Cr	954													
Co	5.0 U							UJ						
Cu	61.0													
Fe	10700													
Pb	35.4 U							UJ	UJ					
Mg	108													
	65.1													
Ni	8520							J						
K														
Se	41.4 U				UJ			UJ						
Ag	5.0 U							UJ	UJ					
Na	102000				J									
V	23.6							J						
Zn	78.1							J						
Bi	21300							J						
B	16.1							J						
Ce	48.9 U							UJ						
La	8.0 U							UJ						
P	23900							J						
Si	6430													
Sr	164							J						
	4790							J						
Sn	11.5													
Ti	2.0 U							UJ						
Zr	181													

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/2/93 SAMPLES/MATRIX J924 KOH FUSION

REVIEWED BY D. J. SMITH 3/2/93

LABORATORY 222 S/WHC

CASE # BX-107

SDG # CORE 40 COMP1

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	ICP		
1. CALIBRATION		X		
2. ICV/CCV		X		
3. ICB/CCB		O		
4. PREP BLANK		X		
5. ICS		X		
6. LCS		O		
7. DUPLICATES		X		
8. MATRIX SPIKE		O		
9. CRDL STD		X		
10. SERIAL DILUTION		O		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: I expect that some results may be biased high at or near CRDL. No evidence of initial calibration

NOTES:

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name D. J. SMITH Date 3/2/93

QC Check:

COMMENTS: All data qualified "J" or "UJ" because there was no evidence of instrument calibration for all elements. All data off by .9987 - incorrect ~~dilu~~ dilution factor explained in narrative. CRDL recoveries very high. Suspect high bias at concentrations near CRDL.

ACTION:

ICP - KOH

sample #	constituent	value/qual	sample #	constituent	value/qual
C40 C1 J924	~~ALL~~	~~J3~~			
	Ba	42 J6			
	Ag	50 UJ8			
	Pb	35.4 UJ8			
	Sb	UJ4			
	Na	0.0 ~~UJ4~~			
	Se	UJ4			
ATD 3-16-93	~~ALL~~	~~J7~~			
	All Except Al, Ca, Cr, Cu, Fe, Mg, Mn, K, Na, Si, Sn, & Zr	J7/UJ7			

P.O. Box 1970 Richland, WA 99352

ADDENDUM 1 REV 0

J922F
CASE NARRATIVE - ICP

WHCPAL LABORATORIES

WHCPAL/CUSTOMER SAMPLE NOS:	J924	(not included -- rerunning)	
	J925	RSA627	BX107-C41-C1
	J926	RSA628	BX107-~~C41-C1~~ C40-C2

BW 12-3-92

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:

Antimony in the ICV (89.3%) and CCV-4 (146.0%).
Lead in CCV-2 (110.6%).
Potassium in CCV-2 (119.3%), CCV-3 (152.6%) and CCV-4 (116.7%).
Silver in CCV-2 (110.1%).
Selenium in CCV-3 (112.3%).
Sodium in CCV-2 (114.1%) and CCV-3 (119.7%).

INITIAL AND CONTINUING CALIBRATION BLANKS
RCRA Elements - All ICB and CCB analytical measurements were below the CRDL or IDL with the exception of Cadmium in CCB-1, Lead in CCB-2 and Silver in the ICB.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Boron in CCB-1.

PREPARATION BLANK
RCRA Elements - All analytical measurements were below the CRDL or IDL with the exception of Silver and Zinc.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Boron, Silicon, Sulfur, Titanium and Zirconium.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification with the exception of Lead in ICSAB-I (79.6%).

Hanford Operations and Engineering Contractor for the US Department of Energy

J925 RSA627 BX107-C41-C1
J926 RSA628 BX107-~~C41-C1~~ C40-C2 BW 12-3-92

POST DIGEST SPIKE SAMPLE RECOVERIES
No control limits have been defined by EPA for post digested spike recoveries. A high recovery was noted for Phosphorus (145.7%).

DUPLICATE ANALYSES
Duplicate precision failures were noted as follows:

Sample J925: Lead (47.8%), Managanese (22.3%), Nickel (100.8%), Silver (200.0%), Boron (200.0%), Cerium (28.5%), Titanium (23.9%) and Zirconium (85.6%).

Sample J926: Cadmium (200.0%), Nickel (49.5%), Cerium (38.0%) and Zirconium (38.7%).

LABORATORY CONTROL SAMPLE
No failures were noted.

SERIAL DILUTION
A serial dilution failure was noted for Phosphorus.

RECOMMENDATIONS

Significant contamination with Silver, Boron and Titanium is present in the Preparation Blank. Sample data may be usable if adjustment is made for the presence of the contamination. Conversion of units from µg/L to MG/KG is required before data can be adjusted.

The duplicate failures for Cadmium, Lead, Silver, Cerium, Boron and Titanium can be attributed to their low concentrations in the sample. The duplicate failures for Manganese, Nickel and Zirconium cannot be readily explained. Data should be considered suspect.

Phosphorus exceeds the linear range. The serial dilution result on Form IX should be considered more accurate; however, the post-digestion spike recovery was high. Data should be considered suspect.

ABBREVIATIONS
* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels 11-30-92
Brian Wels
Senior Scientist, WHCPAL

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00925

Lab Name: WHC_PAL_____ Contract: _____
Lab Code: BX107_ Case No.: C41__ SAS No.: C1 SDG No.: J922/F
Matrix (soil/water): SOIL_ Lab Sample ID: J925_____
Level (low/med): LOW__ Date Received: 08/05/92
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): UG/G_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	17200			P
7440-36-0	Antimony_	182	U		P
7440-38-2	Arsenic__	14.9	U		P
7440-39-3	Barium___	12.0	B		P
7440-41-7	Beryllium	1.5	U		P
7440-43-9	Cadmium__	4.7		*	P
7440-70-2	Calcium__	365	B		P
7440-47-3	Chromium_	1080			P
7440-48-4	Cobalt___	5.0	U		P
7440-50-8	Copper___	25.9			P
7439-89-6	Iron_____	13400			P
7439-92-1	Lead_____	123		*	P
7439-95-4	Magnesium	131	B		P
7439-96-5	Manganese	65.2		*	P
7440-02-0	Nickel___	4300		*	P
7440-09-7	Potassium				NR
7782-49-2	Selenium_	41.3	U		P
7440-22-4	Silver___	7.6		*	P
7440-23-5	Sodium___	101000			P
7440-62-2	Vanadium_	10.5	B		P
7440-66-6	Zinc_____	92.8			P
7440-69-9	Bismuth__	28200			P
7440-42-8	Boron____	8.3		*	P
7440-45-1	Cerium___	230		*	P
7439-91-0_	Lanthanum	8.0	U		P
7723-14-0_	Phosphoru	25900			P
7440-21-3_	Silicon__	7980			P
7440-24-6_	Strontium	188			P
7704-34-9_	Sulfur___	4030			P
7440-31-5_	Tin_____	11.5	U		P
7440-32-6_	Titanium_	8.1		*	P
7440-67-7_	Zirconium	173		*	P

Color Before: BROWN____ Clarity Before: OPAQUE Texture: _____
Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

ADDENDUM 1 REV 0 WHC-SD-WM-DP-028 REV 0

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00926

Lab Name: WHC_PAL Contract: ~~C1~~

Lab Code: BX107 Case No.: ~~C41 C41~~ SAS No.: ~~C1/C2~~ BW 12-3-92 SDG No.: J922/F

Matrix (soil/water): SOIL C40 BW 12-3-92 km 12/22/92 Lab Sample ID: J926

Level (low/med): LOW Date Received: 08/05/92

% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): UG/G

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11200			P
7440-36-0	Antimony	183	U		P
7440-38-2	Arsenic	15.0	U		P
7440-39-3	Barium	8.4	B		P
7440-41-7	Beryllium	1.5	U		P
7440-43-9	Cadmium	3.5	U	*	P
7440-70-2	Calcium	303	B		P
7440-47-3	Chromium	787			P
7440-48-4	Cobalt	5.0	U		P
7440-50-8	Copper	72.7			P
7439-89-6	Iron	8350			P
7439-92-1	Lead	65.6		*	P
7439-95-4	Magnesium	85.5	B		P
7439-96-5	Manganese	49.9		*	P
7440-02-0	Nickel	2480		*	P
7440-09-7	Potassium				NR
7782-49-2	Selenium	41.4	U		P
7440-22-4	Silver	8.5		*	P
7440-23-5	Sodium	99700			P
7440-62-2	Vanadium	7.3	B		P
7440-66-6	Zinc	51.3			P
7440-69-9	Bismuth	19300			P
7440-42-8	Boron	20.1		*	P
7440-45-1	Cerium	211		*	P
7439-91-0	Lanthanum	8.0	U		P
7723-14-0	Phosphoru	19400			P
7440-21-3	Silicon	5630			P
7440-24-6	Strontium	165			P
7704-34-9	Sulfur	4650			P
7440-31-5	Tin	11.5	U		P
7440-32-6	Titanium	6.3		*	P
7440-67-7	Zirconium	79.0		*	P

Color Before: BROWN Clarity Before: OPAQUE Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

J 172

FORM I - IN

704

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C1 SAMPLE ID J925

PREPARATION KOH FUSION

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	17200 mg/kg													
Sb	182 U				UJ			UJ						
As	14.9 U							UJ						
Ba	12.0							J						
Be	1.5 U							UJ						
Cd	4.7					J		J						
Ca	365													
Cr	1080													
Co	5.0 U							UJ						
Cu	25.9													
Fe	13400													
Pb	123					J		J		J				
Mg	131													
	65.2									J				
Ni	4300							J		J				
K														
Se	41.3 U							UJ						
Ag	7.6					J	J	J						
Na	101000													
V	10.5							J						
Zn	92.8						J	J						
Bi	28200				J			J						
B	8.3							J						
Ce	230				J			J		J				
La	8.0 U				UJ			UJ						
P	25900				J			J						J
Si	7980													
Sr	188				J			J						
	4030				J			J						
Sn	11.5 U				UJ									
Ti	8.1							J		J				
Zr	173				J					J				

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C2 SAMPLE ID J926

PREPARATION KOH FUSION

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	11200 mg/kg													
Sb	183 U				UJ			UJ						
As	15.0 U							UJ						
Ba	8.4							J						
Be	1.5 U							UJ						
Cd	3.5 U							UJ						
Ca	303													
Cr	787													
Co	5.0 U							UJ						
Cu	72.7													
Fe	8350													
Pb	65.6					J				J				
Mg	85.5													
	49.9									J				
Ni	2480							J		J				
K														
Se	41.4 U							UJ						
Ag	8.5					J	J	J						
Na	99700													
V	7.3							J						
Zn	51.3							J						
Bi	19300				J			J						
B	20.1							J						
Ce	211				J			J		J				
La	8.0 U				UJ			UJ						
P	19400				J			J						J
Si	5630													
Sr	165				J			J						
	4650				J			J						
Sn	11.5 U				UJ									
Ti	6.3				J			J		J				
Zr	79.0				J					J				

174

WHC-SD-WM-DP-028 APPENDIX A ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/3/93 SAMPLES/MATRIX J925 KOH FUSION
REVIEWED BY D. J. SMITH DJS 3/3/93 J926 KOH FUSION
LABORATORY 222S / WHC
CASE # BX-107
SDG # CORE 41 COMP 1
CORE 40 COMP 2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS ICP		
1. CALIBRATION	X		
2. ICV/CCV	X		
3. ICB/CCB	X		
4. PREP BLANK	X		
5. INTERFERENCE CHK SAMPLE	X		
6. LCS	O		
7. DUPLICATES	X		
8. MATRIX SPIKE	O		
9. CRDL STD	O		
10. SERIAL DILUTION	X		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

175

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028
ADDENDUM 1 REV 0 APPENDIX E
LEVEL C DOCUMENTATION (cont)

ICP - KOH FU
J925 C41 C1
J926 C40 C1

RCRA LEVEL C QC

Name D. T. SMITH Date 3/3/93

QC Check: _____

COMMENTS: No evidence of 2 pt. calibration curve being run. CRI std recoveries high near CRDL indicating potentially high biased results at low level. (~~Cr, Se~~ Cr, Se) No Uranium correction run since these samples had relatively high concentration of uranium, results may be biased high.

ACTION: _____

sample #	constituent	value/qual
J925 C4HC1	~~ALL~~	~~J3~~ UJ5
	Sb, Bi, Ce, La	J4
	P, Sr, S, Sn	
	Zr	
	Ag	498 UJ5 ~~10.0 UJ5~~
	Cd	7.0 UJ5
	Pb	71.0 UJ5
	Ag	5.0 UJ6
	Zn	12.5 UJ6
	~~ALL~~	~~J7 for detect~~ ~~UJ5 for non~~ UJ5
	Pb, Ni, Mn, Ce, Ti, Zr	J9
	P	J13
	All Except Al, Ca, Cr, Cu, Fe, Mg, Mn, K, Na, Si, Sn, and Zr	J7/UJ7

sample #	constituent	value/qual
J926 C40C1	~~ALL~~	~~J3~~ UJ5
	Sb Bi Ce La	
	P, Sr, S, Sn	
	Zr	
	Ag	5.0 UJ5
	Cd	NAR
	Pb	~~UJ5~~ 35.5 UJ5
	Ag	5.0 UJ6
	Zn	~~12.5 UJ6~~ NAR
	~~ALL~~	~~J7 for non detect~~ ~~UJ7 for non detect~~ UJ5
	Pb, Ni, Mn, Ce, Ti, Zr	J9
	P	J13
	All Except Al, Ca, Cr, Cu, Fe, Pb, Mg, Mn, K, Na, Si, Sn, and Zr	J7/UJ7

UJD 3-16-93

ADDENDUM 1 REV 0

J928F
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J927 BX107-C41-C2

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

All instrument calibration requirements were in specification during analysis, with the exceptions noted below:

Antimony in the ICV (76.6%), CCV-1 (73.3%), CCV-2 (73.2%) and CCV-3 (82.5%).
Potassium in CCV-2 (112.8%).
Selenium in the ICV (148.1%), CCV-1 (176.0%), CCV-2 (123.8%) and CCV-3 (126.0%).
Silver in the ICV (116.3%).
Sodium in CCV-2 (139.6%).

INITIAL AND CONTINUING CALIBRATION BLANKS

RCRA Elements - All ICB and CCB analytical measurements were below the CRDL or IDL with the exception of Selenium in CCB-2 and CCB-3.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Bismuth in the ICB, CCB-2 and CCB-3, Boron in the ICB, Cerium in CCB-3 and Sulfur in CCB-2.

PREPARATION BLANK

RCRA Elements - All analytical measurements were below the CRDL or IDL.

Non-RCRA Elements - All analytical measurements were less than the IDL with the exception of Bismuth, Boron, Silicon, Strontium, Sulfur and Zirconium.

INTERFERENCE CHECK SAMPLE

All analyte recoveries were within the required specification with the exception of Lead in ICSAB-F (75.9%).

J927 BX107-C41-C2

DUPLICATE ANALYSES
Duplicate precision failures were noted for Copper (58.7%), Lead (29.8%), Nickel (56.6%), Silver (200.0%), Boron (33.0%), Cerium (20.3%), Titanium (47.8%) and Zirconium (36.9%).

LABORATORY CONTROL SAMPLE
No failures were noted.

SERIAL DILUTION
Serial dilution failures were noted for Chromium and Strontium.

RECOMMENDATIONS

Antimony and Selenium were out of calibration. Hydride AA data should be preferred for Selenium. Antimony was not detected in the sample.

Significant contamination with is Boron present in the Preparation Blank. Sample data may be usable if adjustment is made for the presence of the contamination. Conversion of units from µg/L to MG/KG is required before data can be adjusted.

Serial Dilution failures indicate a physical or chemical interferent for Chromium and Strontium; however, the control limit was exceeded by only 0.3% and 0.2%, respectively. Since six-fold dilutions are prepared versus the recommended five-fold dilution, these failures are not considered significant.

The duplicate failures for Lead, Boron, Titanium and Cerium can be attributed to the low concentration in the sample. Failures for Copper, Nickel and Zirconium cannot be readily explained. Data should be considered suspect.

ABBREVIATIONS
* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels 12-3-92
Brian Wels
Senior Scientist, WHCPAL

ADDENDUM 1 REV 0 WHC-SD-WM-DP-028 REV 0

U.S. EPA - CLP

1

EPA SAMPLE NO.

INORGANIC ANALYSES DATA SHEET

J00927

Lab Name: WHC_PAL Contract: RH 1/27/93

Lab Code: BX107 Case No.: C41 SAS No.: CX2 SDG No.: J928F

Matrix (soil/water): SOIL Lab Sample ID: J927

Level (low/med): LOW Date Received: 08/07/92

% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13300			P
7440-36-0	Antimony	183	U		P
7440-38-2	Arsenic	15.0	U		P
7440-39-3	Barium	10.6	B		P
7440-41-7	Beryllium	1.5	U		P
7440-43-9	Cadmium	4.3			P
7440-70-2	Calcium	520	B		P
7440-47-3	Chromium	958		E	P
7440-48-4	Cobalt	9.7	B		P
7440-50-8	Copper	53.3		*	P
7439-89-6	Iron	10500			P
7439-92-1	Lead	101		*	P
7439-95-4	Magnesium	107	B		P
7439-96-5	Manganese	66.0			P
7440-02-0	Nickel	7640		*	P
7440-09-7	Potassium				NR
7782-49-2	Selenium	316			P
7440-22-4	Silver	5.9		*	P
7440-23-5	Sodium	94500			P
7440-66-6	Zinc	111			P
7440-69-9	Bismuth	18900			P
7440-42-8	Boron	18.8		*	P
7440-45-1	Cerium	252		*	P
7439-91-0	Lanthanum	8.0	U		P
7723-14-0	Phosphoru	20900			P
7440-21-3	Silicon	6100			P
7440-24-6	Strontium	144		E	P
7704-34-9	Sulfur	4200			P
7440-31-5	Tin	11.5	U		P
7440-32-6	Titanium	6.9		*	P
7440-67-7	Zirconium	135		*	P

Color Before: BROWN Clarity Before: OPAQUE Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

179

FORM I - IN

INDUCTIVELY COUPLED PLASMA

CORE C41 COMPOSITE/SEGMENT C2 SAMPLE ID J927

PREPARATION KOH FUSION

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al	13300 mg/kg						J							
Sb	183 U R				R									
As	15.0 U													
Ba	10.6													
Be	1.5 U													
Cd	4.3									J				
Ca	520													
Cr	958													J
Co	9.7									J				
Cu	53.3									J				
Fe	10500													
Pb	101									J				
Mg	107													
[illegible]	66.0													
Ni	7640									J				
K														
Se	316 R				R		J							
Ag	5.9				J		J			J				
Na	94500				J		J							
Zn	111													
Bi	18900					J	J							
B	18.8					U	J			J				
Ce	252						J			J				
La	8.0 U													
P	20900													
Si	6100													
Sr	144						J							J
S	4200						J							
[illegible]	11.5 U													
Ti	6.9									J				
Zr	135						J			J				

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J927

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX 107 C91C2

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	ICP-KOH Fusion		
1. COC		O		
2. Holding Times		O		
3. Instrument Cal.		O		
4. ICV - CCV		X		
5. Anal/Prep Blanks		X		
6. ICS		X		
7. LCS		O		
8. Dupl. Analysis		X		
9. Matrix Spike		M		
10. Serial Dilution		X		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: No Matrix Spike Ran

NOTES: 181

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: ICP

COMMENTS: Antimony, Selenium never in Calibration

ACTION:

	sample #	constituent	value/qual
ICV	J927	Antimony	76.6 /J4R4
		Selenium	148.1 /J4R4
CCV1		Antimony	78.3/J4
		Selenium	176.0 /J4
CCV2		Antimony	78.2 /J4
		Sodium	189.6/J4
		Potassium	112.8/J4
		Selenium	123.8/J4
		Silver	116.3/J4
CCV3		Selenium	126.0/J4
		Antimony	82.5/J4
Anal/Prep Blanks			
	ICB	Bismuth	72.8/J6
		Boron	14.3/U5
	CCB1	Sodium *	-34.4/J6
	CCB2	Potassium	370.9/J6
		Sodium	150.7/J6
		Selenium*	-88.8/J6
		Bismuth	71.0/J6
		Sulfur *	-45.0/J6
		Cerium	99.3/J6

sample #	constituent	value/qual
CCB2	Aluminum	41.7/J6
	~~Potassium~~	~~154.8/J6~~
	Sodium	37.7/J6
	Selenium*	-40.6/J6
	Bismuth	62.9/J6
Prep	Aluminum	110.46/J6
	Sodium	4775.305/J6
	Bismuth	75.904/J6
	Boron	181.194/J6
	Silver	1776.65/J6
	Strontium	4.569/J6
	Sulfur*	-46.543/J6
	Zirconium	20.642/J6
~~ICS~~	~~Calcium~~	~~IF 77% R FF 73.9% R~~
	~~Lead~~	~~FF 75.9% R~~

ASD 3-16

182

ASD 3

* Neg => 10L

Pg 1 of 2

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: ICP

COMMENTS: No Matrix Spike Ran.

ACTION:

	sample #	constituent	value/qual	sample #	constituent	value/qual
Dupl. Anal	J927	Cadium	RPD 36.6 /UJ9			
		Cobalt	48.6 /UJ9			
		Copper	58.7 /UJ9			
		Lead	29.8 /UJ9			
		Nickel	56.6 /UJ9			
		Silver	200.0 /UJ9			
		Boron	33.0/UJ9			
		Cerium	20.3/UJ9			
		Titanium	47.8/UJ9			
		Zirconium	36.9/UJ9			
Sen. D.I.		Chromium	%D 10.3/J13			
		Strontium	10.2/J13			

WHC-SD-WM-DP-028

ADDENDUM 1 REV 0

Ion Chromatograph

ADDENDUM 1 REV 0

ION CHROMATOGRAPHY

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J924
PREPARATION WATER DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	8,910 µg/g				J									
Cl	1,170				J									
NO_2	10,200				J									
NO_3	145,000				J							J		
PO_4	14,500				J							J		
SO_4	14,100				J							J		

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WHC-SD-WM-DP-028
ADDENDUM 1 REV 0

ION CHROMATOGRAPHY

CORE C41 COMPOSITE/SEGMENT C1 SAMPLE ID J925

PREPARATION WATER DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	9,040 µg/g				J									
Cl	1,040				J									
NO_2	12,500				J									
NO_3	124,000				J							J		
PO_4	13,400				J							J		
SO_4	12,800				J							J		

ADDENDUM 1 REV 0

ION CHROMATOGRAPHY

CORE C40 COMPOSITE/SEGMENT C2 SAMPLE ID J926

PREPARATION WATER DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	8,500 µg/g				J									
Cl	1,140				J									
NO_2	9,120				J									
NO_3	146,000				J							J		
PO_4	14,800				J							J		
SO_4	14,100				J							J		

WHC-SD-WM-DP-028
ADDENDUM 1 REV 0

ION CHROMATOGRAPHY

CORE C41 COMPOSITE/SEGMENT C2 SAMPLE ID J927

PREPARATION WATER DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	10,900 µg/g													
Cl	1,200													
NO_2	1,210													
NO_3	128,000													
PO_4	14,300											J		
SO_4	12,200											J		

WHC-SD-WM-DP-028
ADDENDUM 1 REV 0

ION CHROMATOGRAPHY

CORE HOT CELL BLANK SAMPLE ID J999

PREPARATION WATER DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	.294 µg/g				J									
Cl	.935				J									
NO_2	.393				J									
NO_3	1.41				J							J		
PO_4	NO DATA				UJ							UJ		
SO_4	1.05				J							J		

ION CHROMATOGRAPHY
CORE FIELD BLANK SAMPLE ID J1000
PREPARATION WATER DIGEST

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
F	.487 µg/g				J									
Cl	.662				J									
NO_2	.352				J									
NO_3	2.95				J							J		
PO_4	.926				J							J		
SO_4	1.12				J							J		

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/1/93 SAMPLES/MATRIX J999

REVIEWED BY D.S. de Lorenzo J1GW

LABORATORY 222-S/WHC

CASE # SST BK-107

SDG # HOT CELL BLANK, FIELD BLANK

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	I.C.		
1. INST CAL		O		
2. ICV		O		
3. CCV		X		
4. BLANKS		O		
5. DUPLICATES		O		
6. MATRIX SPIKE		O		
7. RETENTION TIMES		X		
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Final calibration not performed. Retention times exceeded for NO_3, PO_4 and SO_4.

NOTES:

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028

APPENDIX E

LEVEL C DOCUMENTATION (cont) ADDENDUM 1 REV 0

RCRA LEVEL C QC

Name _____ Date 5/1/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J999 HOT CELL BLANK	F	J4	~~J1000~~ DSO	F	J4
	Cl	J4	J1000 FIELD BLANK	Cl	J4
	NO_2	~~UJ4~~ DSO		NO_2	~~UJ4~~ DSO
	NO_3	J4, J11		NO_3	J4, J11
	PO_4	UJ4, UJ11		PO_4	~~UJ4, UJ11~~ J4, J11
	SO_4	J4, J11		SO_4	J4, J11

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 2/26/93 SAMPLES/MATRIX J924 J927

REVIEWED BY D.S. De Lorenzo J925

LABORATORY 222-S/WHC J926

CASE # SST BX-107

SDG # Core 40, 41 comp 1,2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	IC	IC	
1. CALIBRATION		O	O	
2. ICV		O	O	
3. CCV		X	O	
4. BLANKS		O	O	
5. DUPLICATES		O	O	
6. MATRIX SPIKE		O	O ~~AA~~ DSO 3/9	
7. RETENTION TIME		X	X	
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: No final calibration performed for C40C1, C40C2, C41C1. No matrix spike for C41C2. Retention times exceeded for NO_3, PO_4, SO_4 for

~~NOTES:~~ C40C1, C40C2, C41C1 And for PO_4, SO_4 for C41C2 (exceeded 10%). 1. 193

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 9/26/93

QC Check: _____

COMMENTS: TRANSCRIPTION ERROR ON PAGE 1709, NO_3 MATRIX SPIKE D.R. SHOULD BE 125% INSTEAD OF 119%.

ACTION: _____

sample #	constituent	value/qual
J924	C40 C1	
J926	C40 C2	
J925	C41 C1	
	~~DD C42~~	
J927	C41 C2	
	DD. 9/26	
J924	C40 C1 F	J4
	Cl	J4
	NO_2	J4
	NO_3	J4, J11
	PO_4	J4, J11
	SO_4	J4, J11

sample #	constituent	value/qual
J926	C40 C2 F	J4
	Cl	J4
	NO_2	J4
	NO_3	J4, J11
	PO_4	J4, J11
	SO_4	J4, J11
J925	C41 C1 F	J4
	Cl	J4
	NO_2	J4
	NO_3	J4, J11
	PO_4	J4, J11
	SO_4	J4, J11
J927	C41 C2 F	~~R10~~ DS 0 3/5
	Cl	~~R10~~
	NO_2	~~R10~~
	NO_3	~~R10~~
	PO_4	~~R10~~
	SO_4	~~R10~~

Other Analyses

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OTHER ANALYSES
CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J924, J986, J987, J994, J995

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
DIRECT ANALYSIS														
DSC	NO EXOTHERM													
TGA	56.40%													
% WATER	57.50%													
pH	9.59													
WATER DIGEST														
As	.462 µg/g								J	J				
Se	1.52 µg/g					J								
Hg	.560 µg/g													
CN^-	3.14 µg/g													
NH_3	<4500 µg/g													
TOC	700 µg/g				J									
TIC	1,100 µg/g				J	J								
SPEC WATER														
NO_2	13,100 µg/g													
TCLP														
As	before H+: 2.04 µg/g after H+: <.0050 µg/g					U				U				
Se	before H+: 1.63 µg/g after H+: <.00 µg/g				U	U				U				
Hg	before H+: .0264 µg/g after H+: .0497 µg/g				U	U								

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OTHER ANALYSES

CORE C40 COMPOSITE/SEGMENT C2 SAMPLE ID J926

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
DIRECT ANALYSIS														
DSC	NO EXOTHERM													
TGA	63.30%													
% WATER	57.30%													
pH	9.77													
WATER DIGEST														
As	.433 µg/g								J	J				
Se	1.76 µg/g													
Hg	.366 µg/g													
CN^-	1.79 µg/g									J				
NH_3	<4500 µg/g													
TOC	<550 µg/g				UJ									
TIC	1,600 µg/g				J	J				J				
SPEC WATER														
NO_2	10,000 µg/g													

OTHER ANALYSES

CORE C41 COMPOSITE/SEGMENT CC1 SAMPLE ID J925

WHC-SD-WM-DP-028

ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
DIRECT ANALYSIS														
DSC	NO EXOTHERM													
TGA	66.30%													
% WATER	56.00%													
pH	9.95													
WATER DIGEST														
As	.319 µg/g									J				
Se	2.01 µg/g													
Hg	.539 µg/g										J			
CN^-	2.88 µg/g													
NH_3	<4500 µg/g													
TOC	<500 µg/g				UJ									
TIC	1,390 µg/g				J	J				J				
SPEC WATER														
NO_2	13,900 µg/g													

OTHER ANALYSES

CORE C41 COMPOSITE/SEGMENT C2 SAMPLE ID J927

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
DIRECT ANALYSIS														
DSC	NO EXOTHERM													
TGA	50.70%													
% WATER	55.90%													
pH	9.72													
WATER DIGEST														
As	.517 µg/g													
Se	.596 µg/g				J									
Hg	.627 µg/g			J										
CN^-	2.07 µg/g													
NH_3	<4500 µg/g													
TOC	796 µg/g				J									
TIC	1,100 µg/g				J	J								
SPEC WATER														
NO_2	12,400 µg/g													

OTHER ANALYSES

CORE HOT CELL BLANK SAMPLE ID J999

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
As	<.0100 µg/mL													
Se	<.0100 µg/mL				UJ									
Hg	<.00500 µg/mL		UJ											
TOC	7.10 µg/mL		J		J									

OTHER ANALYSES
CORE FIELD BLANK SAMPLE ID J1000

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
As	<.0100 µg/mL													
Se	<.0100 µg/mL				UJ									
Hg	<.00500 µg/mL		UJ											
TOC	<5.50 µg/mL		UJ		UJ									

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J924 J926

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX 107

SDG # J922 A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	Se		
1. COC		O		
2. Holding Times		O		
3. Instrument Cal.		O		
4. ICV		O		
5. CCV		O		
6. Anal./Prep. Blank		X		
7. Matrix Spike		O		
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

202

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Selenium

COMMENTS:

ACTION:

sample #	constituent	value/qual	sample #	constituent	value/qual
J924	Se	1.52 ~~J~~ J6			
		< 5x Blank			
		J5			

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-9-93 SAMPLES/MATRIX ~~J924~~

REVIEWED BY A.T. D'Canso J924 BX107-C40-C1

LABORATORY 222-S/WHC J925 BX107-C41-C1

CASE # 55T BX107 J926 BX107-C40-C2

SDG #

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Se/HYORD		
1. Holding Times	O		
2. Inst Calibration	O		
3. ICV	O		
4. CCV	O		
5. Blanks	X		
6. LCS	O		
7. Duplicates	O		
8. Matrix Spikes	O		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

204

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date _____

QC Check: _____

COMMENTS: ~~The blank was~~
The blank result was greater than the detection limit.

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J924	Se	~~45~~ 0.20 4/4 J5			

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-9-93 SAMPLES/MATRIX J927

REVIEWED BY A.T. DiCenso

LABORATORY 222-S/WHC

CASE # 55T BX107

SDG # C41 C2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	Se / HYDRO		
1. Holding Time		O		
2. Inst. Calibration		O		
3. ICV		O		
4. CCV		X		
5. LCS		O		
6. Blank		O		
7. Duplicate		O		
8. Matrix Spike		X		
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

206

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date _____

QC Check: _____

COMMENTS: A matrix spike was not ~~performed~~ analyzed.

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J927	Se	J4			

207

___ of ___

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/9/93 SAMPLES/MATRIX J925

REVIEWED BY D.S. & Lorenzo J927

LABORATORY 222-S/LHC

CASE # SST-6X107

SDG # C41C1 C41C2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	As		
1. CALIBRATION		O		
2. ICV		O		
3. CCV		O		
4. BLANKS		O		
5. DUPLICATE		X		
6. MATRIX SPIKE		~~O~~ M 2/10		
7.				
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: No matrix spike performed for J927 (C41C2) batch.

NOTES: 208

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028

APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/5/91

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J925 c41c1	As	J9			
~~J927 c41c2~~	~~As~~	~~R10~~			
		W10 3/10			

WHC-SD-WM-DP-028

APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J924 J926

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX 107 C40 C1+C2 Arsenic

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS As		
1. COC	O		
2. Holding Times	O		
3. Instrument Cal.	O		
4. Anal. Blank	X		
5. LCS	X		
6. Dupl. Anal.	X		
7. Matrix Spike	O		
8.			
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES: 210

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Arsenic

COMMENTS:

ACTION:

sample #	constituent	value/qual	sample #	constituent	value/qual
J923,	Arsenic	<0.250/J5			
J924,	"	%R105.4/J8			
J926	"	%R 91.0/J8			
	"	RPD 13.9/J9			
	"	RPD 20.4/J9			

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 2/26/93
REVIEWED BY D. J. SMITH
LABORATORY 222-S/WHC
CASE # SST BX-107
SDG # CORE 40,41 COMP 1,2

SAMPLES/MATRIX J924
J925
J926
J927

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Hg	CN^-	
1. CALIBRATION	X	O	
2. BLANKS	O	O	
3. MATRIX SPIKE	X	M	
4. DUPLICATES	X	X	
5. HOLD TIMES	X	X	
6.			
7.			
8.			
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: No matrix spike performed for CN^- for sample C41-COMP 2 (J927). Qualified unusable (R).

NOTES:

212

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 2/26/93

QC Check: _____

COMMENTS: J927 NO MS PERFORMED

ACTION: _____

sample #	constituent	value/qual
~~J925 C41-C1~~	~~Hg~~	
J925 C41-C1	Hg	J10
J927 C41-C2	Hg	J3
~~J926 C40-C2~~	~~CN⁻~~	~~UJ9~~
J926 C40-C2	CN⁻	J9
~~J927 C41-C2~~	~~CN⁻~~	~~R10~~

sample #	constituent	value/qual

WHC-SD-WM-DP-028

APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 4/26/93 SAMPLES/MATRIX J924 J927

REVIEWED BY D.S. w/o Lorenzo J925

LABORATORY 222-S/UHC J926

CASE # 259 BK-107

SDG # CWOC w/o 41 Comp 142

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	NH4	NH3	
1. ICV		0	0	
2. BLANKS		0	0	
3. DUPLICATES		0	0	
4. MATRIX SPIKES		0	0	
5.				
6.				
7.				
8.				
9.				
10.				

0 = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES: 214

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV C

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 2/26/93 SAMPLES/MATRIX J924 J927

REVIEWED BY D.S. De Lorenzo J925

LABORATORY 222-S/WHC J926

CASE # SST BX-107

SDG # core 40, 41 comp 1,2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	TOC	TOC	
1. INST CAL		O	O	
2. ICV		O	O	
3. CCV		X	X	
4. BLANKS		O	O	
5. DUPLICATES		O	~~X~~ O DSD 3/1	
6. MATRIX SPIKE		O	O	
7.				
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: No final calibration performed for any of the ~~any~~ O.D. analyses. ~~RPD for 64/C2 (J927) or 22.4% out of limit.~~ DSD 3/1

NOTES: 215

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 2/26/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J924	C40 C1	TOC	J4		
J925	C40 C2	TOC	UJ 4		
J926	C41 C1	TOC	UJ 4		
J927	C41 C2	TOC	J4, ~~J4~~ psd sll		

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 2/26/93 SAMPLES/MATRIX 5924 5922

REVIEWED BY D.S. Wolcotte 5925

LABORATORY 2225 / WHC 5926

CASE # SST-BX/07

SDG # Case 40, 41 Cover 1,2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	NO_2	NO_2	
1. ICV		O	O	
2. CCV		O	O	
3. BLANK		O	O	
4. DUPLICATES		O	O	
5. MATRIX SPIKE		O	O	
6.				
7.				
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-5-9

REVIEWED BY A.T. DiCenso

LABORATORY 222-S/WHC

CASE # SST BX-107

SDG # C40 C1

SAMPLES/MATRIX J986, J987, J994

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS As/HYDRO		
1. Holding Time	O		
2. Inst. Calibration	O		
3. ICV	O		
4. CCV	O		
5. Blank	X		
6. LCS	O		
7. Duplicate	X		
8. Matrix Spike	O		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

T 218

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date _____

QC Check: _____

COMMENTS: ~~Since the results of~~
The J987 Sample and Duplicate Sample results cannot be averaged since the first value is below the detection limit.

ACTION: _____

	sample #	constituent	value/qual	sample #	constituent	value/qual
J986		As	U5			
J987		As	U5, UJ9			

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 2/26/93 SAMPLES/MATRIX J924 J927

REVIEWED BY D.S. DeLorenzo J925

LABORATORY 222-S/WHC J926

CASE # SST BX-107

SDG # WM3 40, 41 COMO 1, 2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	TIC	TIC	
1. ICV		o	o	
2. CCV		X	X	
3. BLANKS		X	X	
4. DUPLICATES		X	o	
5. MATRIX SPIKE		O	O	
6.				
7.				
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: No calibration done after analysis. ~~BEAD~~ Blank results more than 10X the detection limit, and almost 5X the sample results. Duplicate RPD for C40 C2 = 78.1%, C41 C1 = 23.5%, out of limit.

~~NOTES:~~

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 2/26/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J924 C40 C1	TIC	J4, J5, ~~J7~~ J9			
J926 C40C2	TIC	J4, J5, J9			
J925 C41 C1	TIC	J4, J5, J9			
J927 C41 C2	TIC	J4, J5			

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-5-93 SAMPLES/MATRIX J986

REVIEWED BY A.T. D'Censo J987

LABORATORY 222-S/WHC

CASE # SST BX-107

SDG # C40 C1

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	Se/HYDRD		
1. Holding Times		O		
2. Inst. Calibration		O		
3. ICV		O		
4. CCV		O		
5. Blanks		X		
6. LCS		O		
7. Duplicate		X		
8. Matrix Spike		O		
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES: 222

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date _____

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J986	Se	U15			
~~J987~~	~~Se~~	~~U5~~			
J987	Se	U15, UJ9			

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-5-93
REVIEWED BY A.T. DiCenso
LABORATORY 222-S/WHC
CASE # 55T BX-107
SDG # C90C1

SAMPLES/MATRIX J986
J987
J995

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Hg/HYDRO		
1. Holding Times	O		
2. Inst. Calibration	O		
3. ICV	O		
4. CCV	~~O~~ X		
5. Blanks	X		
6. LCS	O		
7. Duplicate	O		
8. Matrix Spike	O		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date _____

QC Check: _____

COMMENTS: ~~There Ø No CCV DATA~~
No CCV data were present.

Transcription errors on #1258.

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J986	Hg	U5, UJ4			
J987	Hg	UJ4			
J995	Hg	UJ4			

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-5-93 SAMPLES/MATRIX 5994

REVIEWED BY A.T. D'Canso

LABORATORY 222-5/WHC

CASE # SST-BX-107

SDG # C40 C1

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Se/HYDRD		
1. Holding Time	O		
2. Inst. Calibration	O		
3. ICV	O		
4. CCV	X		
5. Blanks	O		
6. LCS	O		
7. Duplicate	O		
8. Matrix Spike	X		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES: 226

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date _____

QC Check: _____

COMMENTS: ~~A No matrix spike analysis was~~ ~~repo~~ A matrix spike analysis was not performed.

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J994	Se	J4, UJ10			

OSM RCRA LEVEL C DATA ASSESSMENT

DATE: 2-26-93 SAMPLES/MATRIX: See Attached Sheets

REVIEWED BY: STROUP

LABORATORY: 222-S

CASE #: BX 107

SDG #: C40 & C41

DATA ASSESSMENT SUMMARY

QUALITY CONTROL

CHECK	ANALYSIS: WT% WATER	PARTICLE SIZE	pH	EXOTHERM
Chain of Custody (J1)	O	O	O	O
Holding Times (J2)	O	O	O	O
Instrument Calibration (J3)	O	O	X	O
ICV and CCV (J4)	O	X	X	O
Laboratory Control Sample (J8)	O	X	X	O
Duplicate Analysis (J9)	O	O	O	O

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems. Some data may be unusable

OVERALL ASSESSMENT:

NOTES:

RCRA LEVEL C QC

Name: Stroup Date: 2-26-93

QC Check: Wt% Water

Comments: The weight percent water analysis shall be repeated before any other analysis is performed on a sample stored for 30 days or more. The dates of analysis is included along with the data below for further reference.

Action:

Sample #	Constituent	Value/Qual	Analysis Date
C40S2 J897-5712	Wt % Water	45.0	8-29-92
C40S2 J897-5812		43.7	8-29-92
C40S3 J895-5712		51.2	8-24-92
C40S3 J895-5812		51.4	8-24-92
C40S6 J892-5712		46.2	8-26-92
C40S6 J892-5812		46.0	8-26-92
C40S5 J893-5712		54.9	8-26-92
C40S5 J893-5812		50.8	8-26-92
C40S7 J890-5712		50.4	8-18-92
C40S7 J890-5812		48.8	8-18-92
C41S7 J882-5712		35.2	8-23-92
C41S7 J882-5812		34.0	8-23-92
C41S6 J883-5712		38.4	8-23-92
C41S6 J883-5812		44.0	8-23-92
C41S6 J884-5712		39.4	8-23-92
C41S5 J884-5812		36.4	8-23-92
C41S3 J887-5712		52.5	8-18-92
C41S2 J887-5812		54.1	8-18-92
C41S5 J869-5710		27.9	8-06-92
C41S2 J888-5712		49.1	8-18-92
C41S2 J888-5812		39.6	8-18-92
C40S7 J874		38.7	8-06-92
C40S6 J875		50.4	8-06-92
C40S3 J878		50.8	8-06-92
C40S2 J879		55.7	8-06-92
C40C1 J931-5710		57.5	8-20-92
C40C1 J932-5710		58.0	8-20-92
C40C2 J933-5710		57.3	8-20-92
C40C2 J934-5710		56.9	8-20-92
C41C1 J925-5712		66.3	9-14-92
C41C1 J925-5812		61.8	9-14-92
C41C2 J927-5712		50.7	8-28-92
C41C2 J927-5812		54.3	8-28-92
C41C1 J935-5710		56.0	8-20-92
C41C1 J936-5710		56.3	8-20-92
C41C2 J937-5710		56.0	8-20-92
C41C2 J938-5710		55.9	8-20-92
C40C1 J924-5712		56.4	9-14-92
C40C2 J926-5712		63.3	9-14-92
C40C1 J924-5812		56.5	9-14-92
C40C2 J926-5812		63.7	9-14-92

Sample #	Constituent	Value/Qual	Analysis Date
C40S2H J907-5710	Wt % Water	55.15	8-19-92
C41S2H J831-5710		49.8	8-28-92
C41S2H J832-5710		50.9	8-28-92
C41S3H J829-5710		56.89	8-19-92
C41S3H J830-5710		56.8	8-19-92
C41S6H J809-5710		48.72	8-19-92
C41S6H J810-5710		50.16	8-19-92
C41S7H J806-5710		50.34	8-19-92
C41S7H J807-5710		48.7	8-19-92
C40S7H J851-5710		44.3	8-28-92
C40S7H J852-5710		43.0	8-28-92
C40S2H J907-5710		55.15	8-19-92
C40S2H J908-5710		54.68	8-19-92
C40S4H J902-5710		53.41	8-19-92
C40S4H J903-5710		52.86	8-19-92
C40S5H J900-5710		57.7	8-21-92
C40S5H J901-5710		56.6	8-21-92
C40S6H J854-5710		56.2	8-21-92
C40S6H J855-5710		56.3	8 21-92
C40S7H J851-5710		44.3	8-28-92
C40S7H J852-5710		43.0	8-28-92

Pg 2 of 2

RCRA LEVEL C QC

Name: Stroup Date: 2-26-93

QC Check: Particle Size BX 107

Comments: No LCS or CCV ran with sample batch.

Action:

Sample #	Constituent	Value/Qual
C41S7 J882	Particle Size	J4,8
C41S6 J883		J4,8
C41S5 J884		J4,8
C41S3 J887		J4,8
C41S2 J888		J4,8
C40S7 J890		J4,8
C40S6 J892		J4,8
C40S5 J893		J4,8
C40S3 J895		J4,8
C40S2 J897		J4,8

RCRA LEVEL C QC

Name: Stroup Date: 2-26-93

QC Check: pH Anions BX 107

Comments: Standard Card J922-5515 does not indicate that two standard buffers were used to calibrate. No ICV or CCV conducted. No LCS.

Action:

Sample #	Constituent	Value/qual
C40C1 J924S	pH	9.59/J3,4,8
C40C1 J924D	pH	9.66/J3,4,8
C40C2 J926S	pH	9.77/J3,4,8
C40C2 J926D	pH	9.58/J3,4,8

RCRA LEVEL C QC

Name: Stroup Date: 2-26-93

QC Check: Exotherm BX 107

Comments: No exotherm exhibited in samples.

Action:

Sample #	Constituent	Value/Qual
C40S3 J895-5711	Exotherm	
C40S3 J895-5811		
C40S2 J897-5711		
C40S2 J897-5811		
C40S6 J892-5711		
C40S6 J892-5811		
C40S5 J893-5711		
C40S5 J893-5811		
C40S7 J890-5711		
C40C1 J924-5711		
C40C1 J924-5811		
C40C2 J926-5711		
C40C2 J926-5811		
C41S3 J887-5711		
C41S3 J887-5811		
C41S2 J888-5711		
C41S5 J884-5711		
C41S5 J884-5811		
C41S7 J882-5711		
C41S7 J882-5811		
C41S6 J883-5711		
C41S6 J883-5811		
C41C1 J925-5711		
C41C2 J927-5711		
C41C2 J927-5811		

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/1/93 SAMPLES/MATRIX J999

REVIEWED BY D.S. DE CORONADO J1000

LABORATORY 222-S/WHC

CASE # SST BX-107

SDG # HOT CELL BLANK, FIELD BLANK

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	TOC	Hg	As
1. HOLD TIME		X	X	O
2. ICV		O	O	O
3. CCV		X	O	O
4. BLANKS		O	O	O
5. DUPLICATES		O	O	O
6. MATRIX SPIKE		O	O	O
7. INST CAL		N/A	O	O
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: HOLD TIME OF OVER 6 MONTHS BEFORE ANALYSIS COMPLETED. NO CALIBRATION RUN AFTER ANALYSIS FOR TOC

NOTES: NO CHAIN-OF-CUSTODY INFORMATION FOR HOT CELL OR FIELD BLANKS.

o Refer to the corresponding attachments for explanation of any problems.

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/1/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J999	HOT CELL BLANK	TOC	UJ2, UJ4		
J1000	FIELD BLANK	TOC	UJ2, UJ4		
J999	HOT CELL BLANK	Hg	UJ2		
J1000	FIELD BLANK	~~A~~ Hg	UJ2		
J999	HOT CELL BLANK	As	Ø		
J1000	FIELD BLANK	As	Ø		

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/1/93 SAMPLES/MATRIX J499

REVIEWED BY D.S. De Lorenzo J1000

LABORATORY 222-S/WHC

CASE # SST BX 107

SDG # HOT CELL BLANK, FIELD BLANK

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Se		
1. INST CAL.	O		
2. ICV	O		
3. CCV	X		
4. BLANKS	O		
5. DUPLICATES	O		
6. MATRIX SPIKE	O		
7.			
8.			
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Final CCV returned a %R of 127%, outside of control limits.

NOTES: Volume errors on computer print out sheet page 276/. DV 236

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/1/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J9S5	Int Cell Blank	Se	UJ4		
J1SR	Field Blank	Se	UJ4		

WHC-SD-WM-DP-028

ADDENDUM 1 REV 0

ICP TCLP Analysis

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P.O. Box 1970 Richland, WA 99352

ADDENDUM 1 REV 0

MAR 1993
RECEIVED
OSM DMO

J984A
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J990 BX107-C40-CC1

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:
Silver in CCV-1 (34.6%), CCV-2 (40.3%) and CCV-3 (39.9%).

INITIAL AND CONTINUING CALIBRATION BLANKS
All ICB and CCB analytical measurements were below the CRDL or IDL.

PREPARATION BLANK
All analytical measurements were below the CRDL or IDL.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification with the exception of Silver in ICSAB-I (158%) and ICSAB-F (161.6%).

DUPLICATE ANALYSES
Duplicate precision failures were noted for Barium (30.1%), Lead (33.4%) and Silver (35.2%).

LABORATORY CONTROL SAMPLE
A failure was noted for Silver (30.2%).

SERIAL DILUTION
No failures were noted.

RECOMMENDATIONS
Silver was out of calibration; data are not reliable.
Barium, Lead and Silver are susceptible to precipitation as the sulfate or halide (Silver). This tendency towards precipitation may contribute to the duplicate failures. Data should be considered suspect.

ABBREVIATIONS
* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels 12-8-92

Brian Wels
Senior Scientist, WHCPAL

WHC-SD-WM-DP-028
REV 0

U.S. EPA - CLP

ADDENDUM 1 REV 0

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J00990

Lab Name: WHC_PAL_____ Contract: _____
Lab Code: BX107_ Case No.: C40__ SAS No.: CC1___ SDG No.: J984A_
Matrix (soil/water): WATER Lab Sample ID: J990_____
Level (low/med): LOW__ Date Received: 09/30/92
% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): MG/L_

CAS No.	Analyte	Concentration	C	Q	M
7440-39-3	Barium___	48.977200		*	P
7440-43-9	Cadmium__	0.762933			P
7440-47-3	Chromium_	9.076867			P
7439-92-1	Lead_____	12.759100		*	P
7440-22-4	Silver___	0.964333		*	P

Color Before: BROWN____ Clarity Before: OPAQUE Texture: _____
Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: _____

Comments:

J984T
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J986 BX107-C40-C1
J987 BX107-C40-C1

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Laboratory Data Validation - Functional Guidelines for Evaluating Inorganic Analysis", United States Environmental Protection Agency (USEPA), July 1, 1988. Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were in specification during analysis, with the exceptions noted below:
Arsenic in CCV-1 (112.1%) and CCV-3 (114.4%).
Selenium in CCV-3 (86.6%).

INITIAL AND CONTINUING CALIBRATION BLANKS
All ICB and CCB analytical measurements were within the CRDL or IDL.

PREPARATION BLANK
All analytical measurements were within the CRDL or IDL.

INTERFERENCE CHECK SAMPLE
All analyte recoveries were within the required specification with the exception of Lead in ICSAB-I (76.2%) and ICSAB-F (74.5%).

SPIKE SAMPLE RECOVERIES
Spike recovery failures were noted for Silver (34.3%).

DUPLICATE ANALYSES
Duplicate precision requirements were met for all analytes.

LABORATORY CONTROL SAMPLE
Failures were noted for Silver.

SERIAL DILUTION
No serial dilution failures were noted.

J986 BX107-C40-C1
J987 BX107-C40-C1

RECOMMENDATIONS

Arsenic and Selenium failed one or more calibration verification standards at the 0.5 and 1.0 mg/L level; however, single-shell tank standards at the 5.0 mg/L level were in control. Arsenic was in control in the laboratory control sample at 0.5 mg/L, whereas Selenium's recovery was comparable to its recovery in the calibration verification standards. Since both elements are near or below their detection limits, the data are considered valid.

Low Silver recoveries in the spike sample and laboratory control sample are often due to the precipitation of AgCl. Data are not reliable.

ABBREVIATIONS

* = Duplicate failure. B = less than CRDL. E = Serial dilution failure. N = Spike failure. NR = Not required. P = ICP method used. U = less than IDL.

Brian Wels
2-5-93

Brian Wels
Senior Scientist, WHCPAL

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J986

Lab Name: WHC PAL Contract: _____
Lab Code: BX107 Case No.: C40 SAS No.: C1 SDG No.: J984T
Matrix (soil/water): WATER Lab Sample ID: J986
Level (low/med): LOW Date Received: 09/30/92
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): MG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.321500			P
7440-39-3	Barium	0.041130	B		P
7440-43-9	Cadmium	0.070000	U		P
7440-47-3	Chromium	0.120000	U		P
7439-92-1	Lead	0.710000	U		P
7782-49-2	Selenium	0.830000	U		P
7440-22-4	Silver	0.100000	U	N	P

Color Before: YELLOW Clarity Before: CLEAR Texture: _____
Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

244

FORM I - IN

U.S. EPA - CLP

1 -

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J987

Lab Name: WHC_PAL Contract: _____
Lab Code: BX107 Case No.: C40 SAS No.: C1 SDG No.: J984T
Matrix (soil/water): WATER Lab Sample ID: J987
Level (low/med): LOW Date Received: 09/30/92
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): MG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.300000	U		P
7440-39-3	Barium	0.103040	B		P
7440-43-9	Cadmium	0.070000	U		P
7440-47-3	Chromium	7.055620			P
7439-92-1	Lead	0.710000	U		P
7782-49-2	Selenium	0.830000	U		P
7440-22-4	Silver	0.100000	U	N	P

Color Before: YELLOW Clarity Before: CLEAR Texture: _____
Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT CI SAMPLE ID J986

PREPARATION TCLP

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al														
Sb														
As	.321500 mg/L				J			J						
Ba	.041130							J						
Be														
Cd	.070000 U													
Ca														
Cr	.120000 U													
Co														
Cu														
Fe														
Pb	.710000 U													
Mg														
Mn														
Ni														
K														
Se	.830000 U				UJ								UJ	
Ag	.100000 U										UJ			
Na														
Zn														
Bi														
B														
Ce														
La														
P														
Si														
Sr														
S														
Sn														
Ti														
Zr														

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J987

PREPARATION TCLP

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al														
Sb														
As	.300000 mg/L U				UJ									
Ba	.103040							J						
Be														
Cd	.070000 U													
Ca														
Cr	7.055620							J						
Co														
Cu														
Fe														
Pb	.710000 U													
Mg														
Mn														
Ni														
K														
Se	.830000 U				UJ								UJ	
Ag	.100000 U										UJ			
Na														
Zn														
Bi														
B														
Ce														
La														
P														
Si														
Sr														
S														
Sn														
Ti														
Zr														

INDUCTIVELY COUPLED PLASMA

CORE C40 COMPOSITE/SEGMENT C1 SAMPLE ID J990

PREPARATION TCLP

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
Al														
Sb														
As														
Ba	48.977200 mg/L									J				
Be														
Cd	.762933													
Ca														
Cr	9.076867													
Co														
Cu														
Fe														
Pb	12.759100									J				
Mg														
n														
Ni														
K														
Se														
Ag	.964333				J			J	J	J				
Na														
Zn														
Bi														
B														
Ce														
La														
P														
Si														
Sr														
S														
ı														
Ti														
Zr														

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-3-93

REVIEWED BY A.T. D'Ceruso

LABORATORY 222-S / WHC

CASE # SST Bx-107

SDG # C40 C1

SAMPLES/MATRIX ~~IS~~ ASD

J986

J987

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS ICP-TCLP		
1. Serial Dilution	O		
2. Inst. Calibration	X		
3. ICV	O		
4. CCV	X		
5. Anal. Blanks	X		
6. ICS	X		
7. LCS	O		
8. Duplicates	O		
9. Matrix Spike	X		
10. CRA	X		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3-3-93

QC Check: _____

COMMENTS: The linear range data was out of date. The CCV values for As and Se were not within the required specifications. Transcription errors related to Analytical Blank Data concerning ~~ACTION:~~ Ag and Se are present. Uranium was not run as an interference check.

sample #	constituent	value/qual
J986 C40 C1	A.D. 3-16 ~~All Data UJ3/J2~~	
	Se	UJ4, UJ12
	As	J4, J7
	Ba	J7
	Ag	UJ10

sample #	constituent	value/qual
J987 C40 C1	~~All Data UJ3/J2~~ A.D. 3-16	
	Se	UJ4, UJ12
	As	UJ4
	Ba	J7
	Cr	J7
	Ag	UJ10

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-4-93 SAMPLES/MATRIX J990

REVIEWED BY A.T. DiCenso

LABORATORY 222-S / WHC

CASE # SST BX-107

SDG # C40 C1

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	ICP - TCLP		
1. Inst. Calibration		X		
2. ICV		O		
3. CCV		X		
4. Blanks		O		
5. ICS		X		
6. LCS		X		
7. Duplicates		X		
8. Matrix Spike		O		
9. CRA		O		
10. Serial Dilution		~~X~~ O		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES: 251

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date _____

QC Check: _____

COMMENTS: The linear range data was out of date. The intrument detection limits should have been the recorded values of the blank data. The interference check sample did not include uranium.

~~ACTION~~: No spike sample recovery data were included; form II was missing. The CRDL standards for ICP should be at least two times the IDL's.

sample #	constituent	value/qual
J990	~~All data~~ ABD 1-16	~~J3/UJ3~~
	Ag	J4, J7, J8, J9
	Ba	J9
	Pb	J9

sample #	constituent	value/qual

WHC-SD-WM-DP-028
ADDENDUM 1 REV 0

Radiochemical Analyses

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RADIOCHEMICAL ANALYSIS
CORE C40 COMPOSITE C1

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.0789 µCi/g	C	C											
TOTAL BETA	50.3	C	C											
TOTAL U	9.32×10^{-6} (1,560 µg/g)	C	C											
GEA														
Cs-137	13.5	C	J		J									
Eu-154	<.0185	C	UJ		UJ									
Eu-155	<.0311	C	UJ		UJ									
Am-241	<.0748	C	UJ		UJ									
Co-60	<.00683	C	UJ		UJ									
I-129	<.0139		UJ								C	UJ		
AEA														
Pu 239/240	.0349						C	J			C			
Pu-238	<.00449													
Am-241	.00805 R	R C	J				C				C			
Cm-244	No Detect													
Np-237	<.0216													
BETA Sr-90	9.76				C		C			J	C			
LIQUID SCINT														
Tc-99	.0356				C			C			C			
H-3	.000389	C	C											
C-14	.000306	C						J						
Se-79	<.000125			C										

MAR 1993
RECEIVED
OSM DMO

RADIOCHEMICAL ANALYSIS
CORE C40 COMPOSITE C2

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.0717 µCi/g	C	C											
TOTAL BETA	38.8	C	C											
TOTAL U	5.27×10^{-6} (1,860 µg/g)	C	C											
GEA														
Cs-137	10.9	C									C			
Eu-154	<.00181	C									C			
Eu-155	<.0290	C									C			
Am-241	<.0689	C									C			
Co-60	<.00654	C									C			
I-129	<.0954		UJ								C	UJ		
AEA														
Pu 239/240	.0834						C	J			C			
Pu-238	<.00450													
Am-241	.0141 R	R C	J				C				C			
Cm-244	No Detect													
Np-237	<.0216													
BETA Sr-90	7.71	C			C		C			J	C			
LIQUID SCINT														
Tc-99	.0283				C			C			C			
H-3	.000779	C	C											
C-14	.000182	C						J						
Se-79	<.000123			C										

RADIOCHEMICAL ANALYSIS
CORE C41 COMPOSITE C1

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.123 µCi/g	C	C											
TOTAL BETA	52.4	C	C								C			
TOTAL U	0.00 (2,820 µg/g)							J		J				
GEA														
Cs-137	20.0	C									C			
Eu-154	<.0159	C									C			
Eu-155	<.0376	C									C			
Am-241	<.0896	C									C			
Co-60	<.00682	C									C			
I-129	<.0183										C			
AEA														
Pu 239/240	.0549		J				C			J	C			
Pu-238	No Detect													
Am-241	.0128 R	R					C				C			
Cm-244	No Detect													
Np-237	<.0215	C	C											
BETA Sr-90	11.8	C			C		C			J	C			
LIQUID SCINT														
Tc-99	.0429				C			C			C			
H-3	.000420	C	C											
C-14	.000349	C						J						
Se-79	<.000126			C										

RADIOCHEMICAL ANALYSIS
CORE C41 COMPOSITE C2

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.115 µCi/g R	C		R										
TOTAL BETA	45.8	C												
TOTAL U	N/A (2,820 µg/g)							J		J				
GEA														
Cs-137	24.3	C									C			
Eu-154	<.0210	C									C			
Eu-155	<.0390	C									C			
Am-241	<.0970	C									C			
Co-60	<.00660	C									C			
I-129	<.0504 R	R									C			
AEA														
Pu 239/240	.0449						C			J	C			
Pu-238	<.00450													
Am-241	.0131 R	R					C				C			
Cm-244	No Detect													
Np-237	<.00324	C	C											
BETA Sr-90	8.74	C			C		C							
LIQUID SCINT														
Tc-99	.0374				C			C			C			
H-3	.000697	C	C											
C-14	.000224	C						J						
Se-79	<.000147			C										

RADIOCHEMICAL ANALYSIS
CORE 41 SEGMENT 6H-1 SAMPLE ID J815

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.145 µCi/g	C	C								C			
GEA														
Cs-137	7.20	C									C			
Eu-154	<.00380	C									C			
Eu-155	<.00980	C									C			
Am-241	<.0235	C									C			
Co-60	<.00120	C									C			

RADIOCHEMICAL ANALYSIS
CORE 41 SEGMENT 6H-1 SAMPLE ID J814

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.141 µCi/g	C	C								C			
GEA														
Cs-137	7.26	C									C			
Eu-154	<.00370	C									C			
Eu-155	<.0100	C									C			
Am-241	<.0240	C									C			
Co-60	<.00126	C									C			

RADIOCHEMICAL ANALYSIS
CORE 41 SEGMENT 2H-1 SAMPLE ID J836

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.142 µCi/g	C	C											
GEA														
Cs-137	45.7	C									C			
Eu-154	<.0170	C									C			
Eu-155	<.0520	C									C			
Am-241	<.130	C									C			
Co-60	<.00650	C									C			

RADIOCHEMICAL ANALYSIS
CORE 41 SEGMENT 2H-1 SAMPLE ID J837

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	.171 µCi/g	C	C											
GEA														
Cs-137	47.1	C									C			
Eu-154	<.0180	C									C			
Eu-155	<.0550	C									C			
Am-241	<.130	C									C			
Co-60	<.00580	C									C			

RADIOCHEMICAL ANALYSIS
CORE HOT CELL BLANK

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	$<1.13 \times 10^{-6}$ µCi/mL	C	C		UJ									
TOTAL BETA	.000782 µCi/mL	C	C		J									
GEA														
Cs-137	.000412				J									
Eu-154	$<1.62 \times 10^{-6}$				UJ									
Eu-155	$<1.86 \times 10^{-6}$				UJ									
Am-241	$<4.31 \times 10^{-6}$				UJ									
Co-60	$<5.45 \times 10^{-7}$				UJ									

RADIOCHEMICAL ANALYSIS
CORE FIELD BLANK

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

ANALYTE	SAMPLE RESULTS	QUALIFIERS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL ALPHA	$<1.13 \times 10^{-6}$ µCi/mL	C	C		UJ									
TOTAL BETA	.000136 µCi/mL	C	C		J									
GEA														
Cs-137	.000176													
Eu-154	$<1.79 \times 10^{-6}$													
Eu-155	$<1.53 \times 10^{-6}$													
Am-241	$<3.36 \times 10^{-6}$													
Co-60	$<5.45 \times 10^{-7}$													

The sulfur determined on the acid ICP, converted to sulfate, compared to the sulfate determined by IC shows good agreement for cores and composite samples. The same comparison of phosphorus (from the ICP) with the IC phosphate shows that the converted phosphorus is nearly a factor of four (4) to five (5) higher than the IC phosphate.

The pH is very consistent at about 9.7. Only "less than" values were obtained for ammonia. Poor duplicate analysis results were obtained for the TIC, ranging from a core 40 composite 2. Spike recoveries were all 100 ± 8%. TOC results were nearly an order of magnitude lower (1000 µg/g), or reported as "less than" values. The analytical units were changed to µg/g for the blanks on the data summaries, and may not agree with what is on the analytical card. All cyanide results obtained were "less than" values. Both the percent water and TGA results were between 51% and 63%. The RPD's were within ±25% (25.45% for core 38 composite 1).

Radiochemical Analysis

Most of the radionuclides are determined on the fusion due to the acid insolubility of actinide and Sr compounds. Tritium and C-14 are determined on the water digestion. The same quench curve (calibration curve) is used for C-14 and Se-79.

Spike recoveries are used to correct for chemical yield. In the cases where two spike recoveries are reported in the analytical summaries, one under the other, the second spike (bottom) corresponds to the duplicate result. Pu-238 is reported as part of the Pu-239 analysis, using the spike data from the Pu-239 procedure. Cm-244 is reported only if seen on the Am-241 mount.

Calibration of the alpha proportional counters (APC) is performed as follows. A standard source is prepared by the standards laboratory and used to calibrate one of the three detectors. Since the calibration standard is not durable enough for daily use, a secondary source is prepared and the activity of the secondary source is assigned using the calibrated detector. The secondary source is counted daily on all three APC's and tracked using the LMCS system. The detectors pass the daily check if the calculated efficiency for each detector is within 50% ±0.25% (100% "recovery"). The LMCS data for the APC's and EDP codes are listed in the "Precision and Accuracy Statement" section.

Spike recoveries for uranium ranged from 94.1% to 119.7%. Sample data across all core composite samples was between 1800 and 2800 µg/g, with all RPD's under 20%.

Total alpha and total beta RPD's were under 20% with spike recoveries ranging from 87.4% to 97.3%. The total alpha results are 1.5 times the sum of the Pu and Am results for all core composite samples except core 40 composite 2 (this sample had a higher Pu result). The high ratio of the AT to the Pu and Am results indicates 1) the potential presence of undetermined alpha emitters, 2) beta cross-talk (unlikely due to the beta activity present), or 3) incorrect Pu or Am recoveries (incomplete exchange with the spike). The ratio of the total beta to the sum of the Sr/Y and Cs-137 results show good agreement (.77 to 1.02) for the activity balance of the beta emitters.

Cs-137 was the only isotope found at concentrations which could be quantified by gamma spectroscopy. As stated above, the beta activity based on the Cs-137 results from gamma spectroscopy, agreed with the gross beta determination.

The Pu spike recoveries ranged from 34% to 75%. Am recoveries were poor, ranging between 5% and 15%. No Pu-238, Np-237 or Cm-244 were present above detection levels. Spike recoveries for Np-237 were consistently low at around 7-95%.

Tc-99 results ranged from 0.03 to 0.05 μCi/g with spike recoveries from 65% to 83%. I-129 results were all "less than" values, therefore no counting error could be determined. Spike recoveries ranged from 18% to 86%. There are indications that I-129 is lost during the acidification of the fused sample. This will require the development of an alternate digestion procedure for future work. Sr-90 results ranged from 8 to 12 μCi/g with spike recoveries from 88% to 92%. The results for H-3 varied from 0.0004 to .0009 μCi/g (less than six times the detection limit) with spike recoveries from 92% to 99%. The tritium procedure LA-218-113 was changed to LA-218-114 for analysis subsequent to C-110. This procedure uses microdistillation columns in place of the normal glass distillation equipment. Se-79 and C-14 were at or below detection limits (less than three times the detection limit), while spike recoveries ranged from 88 to 90%. A C-14 LMCS standard failure is noted for BX107-C41-CC1 (65.1%), this occurred during the second re-run. No standard material is available for Se-79.

Physical Measurements

DSC, TGA, and weight percent water analyses were requested on each core composite. No exotherms were observed in any of the core composite samples. A duplicate DSC was not ran on core 41 composite 1. TGA and percent water results are in the same range as found on the segment samples, 50% to 63%.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J925 J927

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX107 C4IC1-C2

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Se 79		
1. COC	O		
2. Holding Times	O		
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: No documentation for Carrier Calculation C3

NOTES:

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028

APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Sc-79

COMMENTS: See front.

ACTION:

sample #	constituent	value/qual	sample #	constituent	value/qual
J926, 927		C3			

APPENDIX B
OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 3/8/93 SAMPLES/MATRIX J924

REVIEWED BY D.J. SMITH 3/8/93 J926

LABORATORY 2225 / WHC J925

CASE # RX 107

SDG # CORE 40 C1
CORE 40 C2
CORE 41 C1

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	79 Se		
1. Chain of Custody		O		
2. Initial Calibrations		O		
3. Efficiency Checks		O		
4. Background Checks		O		
5. Preparation Blanks		O		
6. MS/Tracers/Carriers		X ~~O~~	C-3	
7. Duplicate Analyses		O		
8. LCS		NA		
9. Other				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT: _____

NOTES: _____

* Refer to the corresponding attachments for explanation of any problems.

APPENDIX B
OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 3/4/93 SAMPLES/MATRIX J924 KOH FUSION
REVIEWED BY D.J. SMITH J925
LABORATORY 2225 / WHC J926
CASE # BX 107
SDG # CORE 40, 41 COMP 1,2
CORE 41 COMP. 2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	TOTAL ALPHA	TOTAL BETA	
1. Chain of Custody		0	0	
2. Initial Calibrations		0	0	
3. Efficiency Checks		0	0	
4. Background Checks		0	X c10	
5. Preparation Blanks		0	0	
6. MS/Tracers/Carriers		X c2	X c2	
7. Duplicate Analyses		0	0	
8. LCS		X c1	X c1	
9. Other				

0 = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT: Matrix spike and LCS not traceable to orig. source for α. No background check data provided for β

NOTES: Since the sample result is much greater than the blk, no qualifier was assigned.

* Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J925

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX107 C41C1

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Sr-90		
1. COC	O		
2. Holding Times	O		
3. Instrument Cal.	X		
4. Det. Eff. Ck.	X		
5. Background Ck	X		
6. Prep. Blank	O		
7. LCS	X		
8. Dupl. Anal.	X		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
N = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

270

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Sr 90

COMMENTS: Initial Energy Chan. Cal. - no info. No Background info. LCS not traceable.

ACTION:

sample #	constituent	value/qual
J925	Sr 90	C6
		C4
		C10
		C1
	RPD 1.68	J9

sample #	constituent	value/qual

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J92A

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX 107 C40C1

SDG # J92RA

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Sr 90		
1. COC	O		
2. Holding Times	O		
3. Instrument Cal.	X		
4. Det. Eff. Ck.	X		
5. Background Ck.	X		
6. Prep. Blank	O		
7. LCS	X		
8. Dupl. Analysis	X		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

272

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Sr 90

COMMENTS: Unable to check or verify calculations, no documentation on origin of numbers used.

ACTION:

sample #	constituent	value/qual
J929	Sr 90	C6
		C9
		C10
		RPD 1.1/J9

sample #	constituent	value/qual

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX B
OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 3/4/3/5/93 SAMPLES/MATRIX _____ _____ _____

REVIEWED BY JJ McCow _____ _____ _____

LABORATORY 2225/WHC _____ _____ _____

CASE # SST BX 107 _____ _____ _____

SDG # Core 41 Comp 2 _____ _____ _____

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK ANALYSIS	GEA	Am-241	I-129
1. Chain of Custody	0	0	0
2. Initial Calibrations	0	0 C-6	0
3. Efficiency Checks	0	0	0
4. Background Checks	X C10	X C10	X C-10
5. Preparation Blanks	0	0	0
6. MS/Tracers/Carriers	N/A C	M R1	M R1
7. Duplicate Analyses	0	0	0
8. LCS	0 C-1	0	0
9. Other			

0 = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT: _____

NOTES: Batch + summary + cards don't jive - no
LCS documentation JJ 3/15

* Refer to the corresponding attachments for explanation of any problems.

APPENDIX B
OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 3/5/92 SAMPLES/MATRIX J904 KOH FUSION
REVIEWED BY D.J. SMITH 3/5/93 J925* "
LABORATORY 2225/WHC J926 "
CASE # RX 107
SDG # CORE 40

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS GEA		
1. Chain of Custody	O		
2. Initial Calibrations	O		
3. Efficiency Checks	X		
4. Background Checks	X		
5. Preparation Blanks	O		
6. MS/Tracers/Carriers	NR		
7. Duplicate Analyses	O		
8. LCS	X		
9. Other			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT: Data acceptable - need documentation for eff., background, and LCS.

NOTES:

* Refer to the corresponding attachments for explanation of any problems.

APPENDIX B
OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 3/5/93 SAMPLES/MATRIX

REVIEWED BY JJ McCown

LABORATORY 2225/WHC

CASE # SST BX 107

SDG # core 41 - comp 1

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	Am-241	I-129	
1. Chain of Custody		O	O	
2. Initial Calibrations		O C-6	O	
3. Efficiency Checks		O	O	
4. Background Checks		X C-10	X C-10	
5. Preparation Blanks		O	O	
6. MS/Tracers/Carriers		O M R-1	O	
7. Duplicate Analyses		O	O	
8. LCS		O	O	
9. Other				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT: Batch summary and cards don't have same C40 C41 numbers, no units on standards don't show conversion mg/L to uCi/g <1.8 is > than det limit

NOTES: Missing 1926 Wash cards & counting sheets

* Refer to the corresponding attachments for explanation of any problems.

APPENDIX B
OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 3/8/93 SAMPLES/MATRIX _____ _____ _____

REVIEWED BY JJ McCown _____ _____ _____

LABORATORY 3225/WRC _____ _____ _____

CASE # SST B X107 _____ _____ _____

SDG # C41-C1,C2 _____ _____ _____

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK ANALYSIS	Tc^{99}	U	
1. Chain of Custody	0	0	
2. Initial Calibrations	0	0	
3. Efficiency Checks	X C4	N/A	
4. Background Checks	V C10	N/A	
5. Preparation Blanks	0	0	
6. MS/Tracers/Carriers	X C-7	X C2	
7. Duplicate Analyses	0	0	
8. LCS	0	X C1	
9. Other			

0 = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT: _____

Tc 40 C1 on Batch 40 C1 + 41 C1 on Summary Cards missing on 925-6784 and 926-6784

NOTES: U - missing cards, mixup on 40 & 41 between batch & summary C1, C2 J7 J9

* Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J925

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX107 C41C1

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS P0239/240		
1. COC	O		
2. Holding Times	O		
3. Instrument Cal.	X		
4. Det. Eff. Ck.	X		
5. Background Ck	X		
6. Prep. Blank	O		
7. LCS	O		
8. Dupl. Analysis	X		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES: I. 278

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Pu 239/240

COMMENTS: No documentation for Initial Energy Chan. Cal. No background check information.

ACTION:

sample #	constituent	value/qual
J925	Pu 239/40	C6
		J2
		C10
	RPD 2.6	J9

sample #	constituent	value/qual

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J926 J924 J925

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX 107

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Plutonium 239/240		
1. COC	O		
2. Holding Times	O		
3. Instrument Cal.	X		
4. Det. Eff. Ck.	X		
5. Background Ck.	X		
6. Prep. Blank	O		
7. LCS	O		
8. Dupl. Analysis	X		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

o Refer to the corresponding attachments for explanation of any problems.

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WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Plutonium 239/240

COMMENTS: No documentation for Initial Energy Chan. Cal. No Background Check information.

ACTION:

sample #	constituent	value/qual
J926,		C6
924,		C10
925		J7
Dupl. Anal. RPD		41.6
		27.7

sample #	constituent	value/qual

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/5/93 SAMPLES/MATRIX J925

REVIEWED BY D.S. de Lorenzo J927 KOH

LABORATORY 222-S/WHC

CASE # SST Bx-107

SDG # C41 C1, C4/C2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Np-237		
1. CALIBRATION	O		
2. ICV	O		
3. BACKGROUND	O		
4. BLANKS	O		
5. DUPLICATE	O		
6. MATRIX SPIKE	O		
7.			
8.			
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: LCS AND MATRIX SPIKE NOT TRACEABLE TO REFERENCE SOURCE.

NOTES: 282

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/5/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J925	C41C1	Np-237	C1, C2		
J927	C41C2	Np-237	C1, C2		

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J924 925 926 Nep 237 Kolt

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX107

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Np237		
1. See Reverse.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

0 = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES: 284

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Nep 237

COMMENTS: No raw data included with analysis. No peak analysis or data reduction report. — Data located — Ryan 5/15/93

ACTION: No Documentation for LCS or MATRIX SPIKE. Qualify C1, C2 DJ Smith 3/15/93

sample #	constituent	value/qual	sample #	constituent	value/qual
J924, 925, 926	Nep 237	~~R2~~	5/15/93		
"		C1			
"		C2			

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J927

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX 107 B41CP

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Sr-90		
1. C.o.C	o		
2. Holding Times	o		
3. Instrument Cal	X		
4. Det. Eff. Ck	X		
5. Background Ck	X		
6. Prep. Blank	o		
7. LCS	X		
8. Dupl. Analysis	X		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES: 286

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Sr.90

COMMENTS: Initial Energy Chan. Cal. - no info.
Det. Eff. Ck. Source not traceable.
LCS not traceable.

ACTION:

sample #	constituent	value/qual	sample #	constituent	value/qual
J927		C6			
		C4			
		C1			
	RPD	18.0 ~~J9~~			3/10/93

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J923 J926

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX 107 C40C1+C2

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	J-129		
1. COC		O		
2. Holding Times		O		
3. Instrument Cal.		O		
4. Det. Eff. Ck		X		
5. Background Ck		X		
6. Prep. Blank		X		
7. LCS		O		
8. Dupl. Anal.		X		
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

288

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Iodine 129

COMMENTS: A detector efficiency check was not available. Data not provided for Background Check - used file BK0024. Duplicate Analysis - none detect.

ACTION:

sample #	constituent	value/qual
J923, 926	Iodine 129	J2
		C10
		J11

Blank < 1.47E-2

Samples < 1.39E-2
< 1.45E-2
< 9.54E-3
< 1.23E-2

sample #	constituent	value/qual

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/5/93 SAMPLES/MATRIX J836

REVIEWED BY D.S. De Lorenzo J837

LABORATORY 222-S/WHC

CASE # 557 BX-107

SDG # C4152H, C4152H

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	Total Alpha	GEA	
1.	CALIBRATION	O	O	
2.	ICV	O	O	
3.	LCS	X	X	
4.	BACKGROUND	O	X	
5.	BLANKS	O	O	
6.	DUPLICATES	O	O	
7.	MATRIX SPIKE	X	N/A	
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Laboratory Standards not traceable, GEA background data and acceptance criteria not provided.

NOTES:

290

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/5/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J836 C4152H	TOTAL ALPHA	C1, C2	J837 C4152H	TOTAL ALPHA	C1, C2
	GEA	C1, C10		GEA	C1, C10

291

___ of ___

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/3/93 SAMPLES/MATRIX J499

REVIEWED BY D.S. DE LORENZO J602

LABORATORY 222-S/WHC

CASE # SST AX-107

SDG # 1st CCC, FIELD BLANK

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS GCA		
1. INST CAL	O		
2. LCS	X		
3. BACKGROUND	X		
4. BLANKS	O		
5. ICV	O		
6.			
7.			
8.			
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Documentation not provided for traceability of LCS or background data, background acceptance not provided.

NOTES:

292

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/3/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J999	Hot cell Blank	GEA	WJ4		

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/3/93 SAMPLES/MATRIX J999

REVIEWED BY O. J. De Lorenzo J1520

LABORATORY 222-S/B HC

CASE # SST BX-107

SDG # HOT CELL BLANK, FIELD BLANK

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	TOTAL ALPHA	TOTAL BETA	
1. CALIBRATION		O	O	
2. LCS		X	X	
3. ICV		O	O	
4. BACKGROUND		X	X	
5. BLANKS		O	O	
6. DUPLICATES		O	O	
7. MATRIX SPIKE		X	X	
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Background data and acceptance criteria not provided, Matrix Spike and LCS not traceable.

NOTES:

294

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/2/93

QC Check: _____

COMMENTS: _____

ACTION: _____

	sample #	constituent	value/qual	sample #	constituent	value/qual
J999	HOT CELL BLANK	TOTAL ALPHA	UJ4, C1, E2			
		TOTAL BETA	J4, C1, C2			
J1000	FIELD BLANK	TOTAL ALPHA	UJ4, C1, C2			
		TOTAL BETA	J4, C1, E2			

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/2/93 SAMPLES/MATRIX J927

REVIEWED BY D.S. De Lorenzo

LABORATORY 222-S/WHC

CASE # SST BX-107

SDG # C41°C2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	TOTAL ALPHA		TOTAL BETA
1. CALIBRATION		0		0
2. LCS		0		0
3. BACKGROUND		0		0
4. BLANKS		0		0
5. DUPLICATES		0		0
6. MATRIX SPIKE		M		N/A
7.				
8.				
9.				
10.				

0 = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: No matrix spike performed for total alpha, data unreliable

NOTES: 296

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028

APPENDIX E ADDENDUM 1 REV 0

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/8/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
J927 C4/C4	TOTAL ALPHA	R3, C1			
	TOTAL BETA	C1			

APPENDIX B
OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 3/8/93 SAMPLES/MATRIX J924 KOH FUSION

REVIEWED BY D.J. SMITH 3/8/93 J926 KOH FUSION

LABORATORY 222S / 4HC

CASE # BX 107

SDG # C40C1 J924
C40C2 J926

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS			
		241 Am		
1. Chain of Custody		O		
2. Initial Calibrations		X		
3. Efficiency Checks		X		
4. Background Checks		X		
5. Preparation Blanks		O		
6. MS/Tracers/Carriers		M		
7. Duplicate Analyses		O		
8. LCS		O		
9. Other				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT: Very poor tracer recoveries (6-16%) for Am 241

NOTES:

* Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J926

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX107 C90CE

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Sr 90		
1. COC	O		
2. Holding Times	O		
3. Instrument Cal.	X		
4. Det. Eff. Ck.	X		
5. Background Ck.	X		
6. Prep. Blank	O		
7. LCS	X		
8. Dupl. Anal.	X		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

299

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Sr 90

COMMENTS: Unable to check calculations, no information on origin of some numbers. No documentation for Initial Energy Chan. Cal. No background info. LCS not traceable.

ACTION:

sample #	constituent	value/qual
J926	Sr 90	C4
		C6
		C10
		C1
	RPD 13.1	J9

sample #	constituent	value/qual

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX B

OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 3/5/93 SAMPLES/MATRIX

REVIEWED BY JJ McEown

LABORATORY 2225/WRC

CASE # SST BX 107

SDG # C40-21, C2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Tc-99		
1. Chain of Custody	O		
2. Initial Calibrations	O		
3. Efficiency Checks	X C4		
4. Background Checks	X C-10		
5. Preparation Blanks	O		
6. MS/Tracers/Carriers	X C-7		
7. Duplicate Analyses	O		
8. LCS	O		
9. Other			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT:

NOTES: Batch + summary inconsistent #'s J925 6784 6889 missing
no trace or spk std - not using tracer-carrier

* Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3-10-93 SAMPLES/MATRIX J927

REVIEWED BY Stroup

LABORATORY 222-S

CASE # BX107 C41C2

SDG # J922A

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS		
1. COC	O		
2. Holding Times	O		
3. Instrument Cal.	X		
4. Det. Eff. Ck	X		
5. Background Ck	X		
6. Prep. Blank	O		
7. LCS	O		
8. Dupl. Analysis	X		
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES:

302

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name Stroup Date 3-10-93

QC Check: Pu 239/240

COMMENTS: No documentation for Initial Energy Chan. Check. Background check data not provided.

ACTION:

sample #	constituent	value/qual
J927	Pu239/40	C6
		C10
	RPD	18.5 J9

sample #	constituent	value/qual

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 3/8/93 SAMPLES/MATRIX J814

REVIEWED BY D.S. DE LORENZO J815

LABORATORY 222-S/LMC

CASE # SST 13X-107

SDG # C4156H C4156H

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS Total Alpha	GEA	
1. Calibration	O	O	
2. ICV	O	O	
3. LCS	O	O	
4. Background	X	X	
5. Blanks	O	O	
6. Duplicates	O	O	
7. Matrix Spike	O	O	
8.			
9.			
10.			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Background and standards not documented or traceable.

NOTES: ~~IN 304~~

o Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX E

LEVEL C DOCUMENTATION (cont)

RCRA LEVEL C QC

Name _____ Date 3/5/93

QC Check: _____

COMMENTS: _____

ACTION: _____

sample #	constituent	value/qual	sample #	constituent	value/qual
JE14 C4156H	TOTAL ALPHA	C1, C2, C10	JS15 C4151H	TOTAL ALPHA	C1, C2, C10
	GEA	C1, C10		GEA	C1, C10

WHC-SD-WM-DP-028
ADDENDUM 1 REV 0

APPENDIX B
OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 2/26/93 SAMPLES/MATRIX J924

REVIEWED BY D. J. SMITH J925

LABORATORY 2225 / WHC J926

CASE # BX-107 J927

SDG # CORE 40,41 COMP. 1, 2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS ^{14}C		
1. Chain of Custody	O		
2. Initial Calibrations	O		
3. Efficiency Checks	~~X~~ 3/5/93		
4. Background Checks	O		
5. Preparation Blanks	O		
6. MS/Tracers/Carriers	~~M~~ O		
7. Duplicate Analyses	X J7		
8. LCS	X cl		
9. Other			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT: ~~ALL TRACER/SPIKE RECOVERY~~ 2/26/93
~~C40 C2 (J926) QUALIFIED~~ 2/26/93

NOTES:

* Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028 ADDENDUM 1 REV 0

APPENDIX B

OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 2/27/93 SAMPLES/MATRIX J924 WATER DIGESTS

REVIEWED BY D. J. SMITH J925

LABORATORY 222S / WHC J926

CASE # SST BX-107 J927

SDG # CORE 40, 41 (C1, C2, C40 & 41)

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	H3		
1. Chain of Custody		O		
2. Initial Calibrations		O		
3. Efficiency Checks		O		
4. Background Checks		O		
5. Preparation Blanks		O		
6. MS/Tracers/Carriers		~~X~~ O	C-2	
7. Duplicate Analyses		~~X~~ O		
8. LCS		X U		
9. Other				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT: C40 C2 J926 had an RPD of 47% (<5 x background NGR)

NOTES: No documentation for LCS traceability. C1 qualifier for all samples

* Refer to the corresponding attachments for explanation of any problems.

APPENDIX B
OSM HIGH LEVEL RADIOCHEMICAL DATA ASSESSMENT

DATE 3/9/93 SAMPLES/MATRIX PD4 : KOH FUSION

REVIEWED BY D. J. SMITH [signature] 3/9/93 J92C

LABORATORY 2225 / WHC

CASE # BX107

SDG # CORE 40 C1, C2

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS		
	U TOT		
1. Chain of Custody	O		
2. Initial Calibrations	NA		
3. Efficiency Checks	NA		
4. Background Checks	NA		
5. Preparation Blanks	O 3/10/93		
6. MS/Tracers/Carriers	X C2		
7. Duplicate Analyses	O 3/10/93		
8. LCS	X C1		
9. Other			

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some date may be unusable

OVERALL ASSESSMENT: Data acceptable - No documentation for spike & LCS

NOTES:

* Refer to the corresponding attachments for explanation of any problems.

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

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SAMPLE DATA SUMMARY

ADDENDUM 2

This report consists of pages 1-41.

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Physical Properties Summary For BX 107

CORE 40

Segment	Solids Volume (mL)	Solids Weight (g) **	Liquids Volume (mL)	Liquids Weight (g)	Recovery (%)	Density (g/mL) Solids	Density (g/mL) Liquids
1	Empty*		NONE				
2	187	204.31	NONE		100	1.0926	
3	EMPTY*		NONE				
4	187	216.57	NONE		100	1.1581	
5	187	218.04	NONE		100	1.1660	
6	187	215.81	NONE		100	1.1541	
7	187	132.45	NONE		66	0.7083	

CORE 41

Segment	Solids Volume (mL)	Solids Weight (g) **	Liquids Volume (mL)	Liquids Weight (g)	Recovery (%)	Density (g/mL) Solids	Density (g/mL) Liquids
1	EMPTY*		NONE				
2	187	186.17	NONE		100	0.9956	
3	93	185.23	NONE		50	1.9917	
4	EMPTY*		NONE				
5	9.35	5.53	NONE		5	0.5914	
6	187	248.04	NONE		100	1.3264	
7	187	250.2	NONE		100	1.3380	

* Extruder valve in "open" position.

** Weight includes net weight of solids plus all weights from the sample breakdown (VOA, Rheology, PSD, and DSC/TGA) from the core extrusion worksheet.

Note: Solid Volumes are approximations.

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

CORE 40 DIRECT SEGMENT ANALYSIS

SEGMENT 1

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
DSC	NO SAMPLE	NA	NA	NA	NA	NA
TGA	NO SAMPLE	NA	NA	NA	NA	NA
%WTR	NO SAMPLE	NA	NA	NA	NA	NA

SEGMENT 2

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J897-5711	J897-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J897-5712	J897-5812		
TGA	101.50	NA	45.00	43.70	44.35	2.93
			J907-5710	J908-5710		
%WTR	100.13	NA	55.15	54.68	54.92	0.86

SEGMENT 3*

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J895-5711	J895-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J895-5712	J89-5812		
TGA	101.50	NA	51.20	51.40	51.30	0.39
			J878-5710			
%WTR	99.60	NA	50.80	NA	NA	NA

*= NOTE: SAMPLE WAS DEPLETED AFTER THESE ANALYSIS

SEGMENT 4

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
DSC	NO SAMPLE	NA	NA	NA	NA	NA
TGA	NO SAMPLE	NA	NA	NA	NA	NA
%WTR	NO SAMPLE	NA	NA	NA	NA	NA

CORE 40 DIRECT SEGMENT ANALYSIS

SEGMENT 5

ADDENDUM 2 REV 0

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J893-5711	J893-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J893-5712	J893-5812		
TGA	97.60	NA	54.90	50.80	52.85	7.76
%WTR	NO SAMPLE	NA	NA	NA	NA	NA

SEGMENT 6

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J892-5711	J892-5811		
DSC	EXO	N/A	EXO	EXO	NA	NA
			J892-5712	J892-5812		
TGA	100.60	N/A	46.20	46.00	46.10	0.43
			J854-5710	J855-5710		
%WTR	100.60	N/A	56.20	56.30	56.25	0.18

SEGMENT 7

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J890-5711	J890-5811		
DSC	EXO	NA	NO EXO	NA	NA	NA
			J890-5712	J890-5812		
TGA	99.70	NA	50.40	48.80	49.60	3.23
			J851-5710	J852-5710		
%WTR	100.50	NA	44.30	43.00	43.65	2.98

WHC-SD-WM-DP-028
REV 0

3-16-99

BX107 CORE 40 CORE COMP 1

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J924-8755	Result #2 (ug/g) J924-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	120.90	3.50E+00	J 1.23E+04	1.14E+04	1.19E+04	8.00	4.84E+01	-431.50	3.50E+00	3.40E+03
	Sb	5000	88.80	3.66E+01	UJ 3.48E+01	3.35E+01	3.41E+01		4.84E+01	77.80	3.66E+01	9.32E-01
	As	5000	94.10	3.00E+00	UJ 2.85E+00	2.74E+00	2.80E+00		4.84E+01	98.90	3.00E+00	9.33E-01
	Ba	10000	105.60	3.00E-01	J 7.28E+00	6.22E+00	6.75E+00	15.70	9.68E+01	98.30	3.00E-01	2.25E+01
	Be	10000	103.10	3.00E-01	UJ 2.85E-01	2.74E-01	2.80E-01		9.68E+01	92.40	3.00E-01	9.33E-01
	Cd	10000	101.80	7.00E-01	J 2.04E+00	1.67E+00	1.86E+00	19.80	9.68E+01	90.60	7.00E-01	2.66E+00
	Ca	10000	156.00	5.94E+01	J 3.50E+03	7.86E+02	2.14E+03	126.60	9.68E+01	-182.40	2.72E+01	7.87E+01
	Cr	5000	105.70	1.20E+00	8.89E+02	8.20E+02	8.54E+02	8.20	4.84E+01	24.90	1.20E+00	7.12E+02
	Co	10000	103.20	1.00E+00	J 2.22E+00	1.94E+00	2.08E+00	13.90	9.68E+01	91.70	1.00E+00	2.06E+00
	Cu	5000	105.30	1.65E+00	J 6.51E+01	6.04E+01	6.27E+01	7.60	4.84E+01	92.50	4.00E-01	1.57E+02
	Fe	5000	108.20	1.50E+00	9.86E+03	9.04E+03	9.45E+03	8.60	4.84E+01	-984.60	1.50E+00	6.30E+03
	Pb	5000	102.50	7.10E+00	J 5.55E+01	5.30E+01	5.43E+01	4.80	4.84E+01	85.80	7.10E+00	7.65E+00
	Mg	5000	111.50	1.50E+00	J 2.02E+02	1.37E+02	1.70E+02	38.20	4.84E+01	48.40	7.00E-01	2.43E+02
	Mn	5000	99.60	3.00E-01	3.78E+01	3.30E+01	3.54E+01	13.70	4.84E+01	87.00	3.00E-01	1.18E+02
	Ni	5000	102.70	1.40E+00	J 1.16E+01	1.03E+01	1.09E+01	11.90	4.84E+01	91.40	1.40E+00	7.79E+00
	K	5000	75.60	-2.70E+01	J 2.73E+02	2.56E+02	2.64E+02	6.70	4.84E+01	86.50	1.29E+01	2.05E+01
	Se	5000	154.50	-2.57E+01	J 3.26E+02	2.99E+02	3.12E+02	8.50	4.84E+01	72.90	8.30E+00	3.76E+01
	Ag	5000	48.10	1.00E+00	UJ 9.50E-01	9.14E-01	9.32E-01		4.84E+01	49.00	1.00E+00	9.32E-01
	Na	10000	154.60	2.26E+01	J 1.02E+05	9.85E+04	1.00E+05	3.20	9.68E+01	-236.70	2.80E+00	3.57E+04
	Zn	10000	102.10	5.64E+00	J 7.50E+01	3.72E+01	5.61E+01	67.30	9.68E+01	113.70	2.50E+00	2.24E+01
	Bi	5000	70.00	5.80E+00	J 2.19E+04	2.05E+04	2.12E+04	6.70	4.84E+01	-924.50	5.80E+00	3.66E+03
	B	5000	142.50	1.83E+00	J 4.70E+01	5.25E+01	4.98E+01	11.10	4.84E+01	104.00	1.00E+00	4.98E+01
	Ce	5000	88.40	-2.33E+01	J 1.54E+02	1.47E+02	1.51E+02	4.30	4.84E+01	128.20	9.60E+00	1.54E+01
	La	5000	107.70	1.60E+00	UJ 1.52E+00	1.46E+00	1.49E+00		9.68E+01	42.00	1.60E+00	9.31E-01
	P	10000	111.50	9.90E+00	J 1.95E+04	2.00E+04	1.97E+04	2.40	9.68E+01	2499.70	9.90E+00	1.99E+03
	Si	10000	404.60	9.18E+00	J 1.66E+03	1.41E+03	1.54E+03	16.30	9.68E+01	989.10	4.30E+00	3.58E+02
	Sr	10000	105.60	4.00E-01	J 1.61E+02	1.47E+02	1.54E+02	8.96	9.68E+01	93.40	4.00E-01	3.85E+02
	S	5000	132.70	1.75E+01	J 4.76E+03	4.76E+03	4.76E+03	0.00	4.84E+01	453.40	4.50E+00	1.06E+03
	Sn	5000	104.30	2.30E+00	J 3.34E+00	3.23E+00	3.28E+00	3.50	4.84E+01	98.70	2.30E+00	1.43E+00
	Ti	5000	102.10	-4.30E-01	J 3.18E+00	3.18E+00	3.18E+00	0.20	4.84E+01	93.60	4.00E-01	7.95E+00
	Zr	10000	99.20	-1.02E+00	J 1.12E+02	7.72E+01	9.46E+01	36.70	9.68E+01	38.90	8.00E-01	1.18E+02

Direct/Unho	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
	DSC	EXO	NA	J924-5711 NO EXO	J924-5811 NO EXO	NA	NA	NA	NA	NA
	TGA (%)	98.30	NA	J924-5712 56.40	J924-5812 56.50	56.45	0.18	NA	NA	NA
	%WTR (%)	100.60	NA	J931-5710 57.50	J932-5710 58.00	57.75	0.87		9.00E-01	
HYAA	As	115.80	5.27E+00	J924-8795 J 4.62E-01	J924-8895 4.02E-01	4.30E-01	13.95	85.80	2.50E-01	1.72
	Se	100.00	3.10E-01	J 1.52E+00	1.48E+00	1.50E+00	2.67	111.80	2.50E-01	6.00
CVAA	Hg	99.9	<1.25E-1	5.60E-01	6.61E-01	6.11E-01	16.54	107.30	1.25E-01	4.88E+00
CN-Dir	CN	95.10	<2.00E 0	J924-5778 3.14E+00	J924-5878 3.08E+00	3.11E+00	1.90	91.30	2.00E+00	1.55E+00

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

BX107 CORE 40 CORE COMP 1 9

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J924-7755	Result #2 (ug/g) J924-7855	Average (ug/g)	RPD %	Spk add (ug/L)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Water	Al	5000	99.10	3.89E+01	1.15E+02	9.57E+01	1.05E+02	18.30	1.25E+03	103.10	3.50E+00	30.08
	Sb	5000	101.70	3.66E+01	UJ 3.73E+01	3.73E+01	3.73E+01		1.25E+03	103.80	3.66E+01	1.02
	As	5000	101.50	3.00E+00	3.06E+00	3.05E+00	3.06E+00		1.25E+03	100.70	3.00E+00	1.02
	Ba	10000	98.50	3.00E-01	4.52E-01	3.05E-01	3.79E-01	200.00	2.50E+03	97.30	3.00E-01	1.26
	Be	10000	100.20	3.00E-01	3.06E-01	3.05E-01	3.06E-01		2.50E+03	98.60	3.00E-01	1.02
	Cd	10000	98.30	7.00E-01	7.14E-01	7.13E-01	7.13E-01		2.50E+03	96.50	7.00E-01	1.02
	Ca	10000	96.60	1.13E+02	J 1.13E+03	3.71E+02	7.52E+02	101.20	2.50E+03	52.60	2.72E+01	27.65
	Cr	5000	101.60	1.20E+00	1.58E+02	1.57E+02	1.57E+02	0.80	1.25E+03	99.80	1.20E+00	131.19
	Co	10000	98.10	1.00E+00	1.02E+00	1.02E+00	1.02E+00		2.50E+03	96.30	1.00E+00	1.02
	Cu	5000	98.80	4.00E-01	6.87E-01	7.65E-01	7.26E-01	10.80	1.25E+03	96.30	4.00E-01	1.82
	Fe	5000	96.80	3.17E+00	J 5.16E+01	5.78E+01	5.47E+01	11.30	1.25E+03	95.60	1.50E+00	36.48
	Pb	5000	101.70	7.10E+00	UJ 7.24E+00	7.23E+00	7.23E+00		1.25E+03	99.90	7.10E+00	1.02
	Mg	5000	100.30	3.35E+00	2.43E+01	8.72E+00	1.65E+01	94.30	1.25E+03	97.10	7.00E-01	23.57
	Mn	5000	94.10	3.00E-01	J 1.53E+00	6.31E-01	1.08E+00	83.40	1.25E+03	92.80	3.00E-01	3.61
	Ni	5000	97.70	1.40E+00	1.43E+00	1.43E+00	1.43E+00		1.25E+03	97.50	1.40E+00	1.02
	K	5000	99.30	1.29E+01	1.70E+02	1.64E+02	1.67E+02	3.70	1.25E+03	100.90	1.29E+01	12.95
	Se	5000	106.40	8.30E+00	UJ 8.47E+00	8.45E+00	8.46E+00		1.25E+03	104.40	8.30E+00	1.02
	Ag	5000	96.80	-2.17E+00	UJ 1.02E+00	1.02E+00	1.02E+00		1.25E+03	99.40	1.00E+00	1.02
	Na	10000	97.90	1.38E+01	J 2.63E+04	8.03E+04	5.33E+04	101.40	2.50E+03	142.90	2.80E+00	19032.5
	V	10000	98.70	8.00E-01	8.16E-01	8.14E-01	8.15E-01		2.50E+03	99.20	8.00E-01	1.02
	Zn	10000	100.10	2.50E+00	J 4.33E+01	7.94E+00	2.56E+01	138.00	2.50E+03	95.30	2.50E+00	10.25
	Bi	5000	103.80	5.80E+00	9.96E+01	1.13E+02	1.06E+02	12.70	1.25E+03	68.80	5.80E+00	18.34
	B	5000	98.70	1.21E+01	J 2.79E+01	2.78E+01	2.79E+01	0.50	1.25E+03	96.30	1.00E+00	27.86
	Ce	5000	105.90	9.80E+00	1.00E+01	9.98E+00	9.99E+00		1.25E+03	111.50	9.80E+00	1.02
	La	5000	104.30	1.60E+00	1.63E+00	1.63E+00	1.63E+00		1.25E+03	106.80	1.60E+00	1.02
	P	10000	110.80	9.90E+00	J 4.77E+03	4.74E+03	4.75E+03	0.60	2.50E+03	86.20	9.90E+00	479.98
	Si	10000	99.40	1.38E+01	J 5.24E+02	3.03E+02	4.14E+02	53.30	2.50E+03	134.50	4.30E+00	96.17
	Sr	10000	98.60	4.00E-01	J 1.99E+00	1.41E+00	1.70E+00	33.90	2.50E+03	97.80	4.00E-01	4.25
	S	5000	103.30	5.60E+00	J 4.54E+03	4.57E+03	4.56E+03	0.50	1.25E+03	85.70	4.50E+00	1012.43
	Sn	5000	98.70	2.30E+00	2.35E+00	2.34E+00	2.34E+00		1.25E+03	97.20	2.30E+00	1.02
	Ti	5000	99.80	4.00E-01	4.08E-01	4.07E-01	4.08E-01		1.25E+03	100.00	4.00E-01	1.02
	Zr	10000	110.70	8.00E-01	1.49E+00	1.60E+00	1.54E+00	7.50				

	Ratio AA/ICP
As	0.153571428
Se	0.004807692

9

ASD 3-16-93

9 1 2 0 5 1 5 2 0

BX107 CORE 40 CORE COMP 1

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J924-7771	J924-7871					
IC-Water	F	103.00	<1.00E+1	J 8.91E+03	8.11E+03	8.51E+03	9.40	121.00	1.00E+01	851.00
	Cl	105.00	2.36E+01	J 1.17E+03	1.14E+03	1.16E+03	2.60	107.00	2.36E+01	48.94
	NO3	106.00	1.86E+03	J 1.45E+05	1.39E+05	1.42E+05	4.23	124.00	1.86E+03	76.34
	NO2	103.00	<100.	J 1.02E+04	9.17E+03	9.68E+03	10.64	109.00	1.00E+02	96.85
	PO4	106.00	<100.	J 1.45E+04	1.43E+04	1.44E+04	1.39	111.00	1.00E+02	144.00
	SO4	105.00	<100.	J 1.41E+04	1.40E+04	1.41E+04	0.71	108.00	1.00E+02	140.50
	P ACID ICP/PO4 IC					4.19E+00				
	S ACID ICP/SO4 IC					1.02E+00				
				J924-7779	J924-7879					
Spec-water	NO2	103.0	<5.11E3	1.31E+04	1.32E+04	1.32E+04	0.76	97.40	5.11E+03	2.57
	NO3 (IC)/NO2 Spec.					1.08E+01				
	NO2 (IC)/NO2 (SPEC)					7.37E-01				
				J924-5715	J924-5815					
pH	pH	101.10	N/A	9.59E+00	9.66E+00	9.63E+00	0.73	NA	NA	NA
				J924-7728	J924-7828					
NH3-Water	NH3	108.20	<4.50E+3	<4.50E3	<4.50E3	NA	NA	100.90	4.50E+03	0.00
				J924-7726	J924-7826					
TOC-Water	TOC	96.70	<5.50E+02	J 7.00E+02	7.00E+02	7.00E+02	0.00	98.30	5.50E+02	1.27
	Acetate Eq		3.44E+03							
				J924-7727	J924-7827					
TIC-water	CO3	106.0	3.40E-01	J 1.10E+03	1.20E+03	1.15E+03	8.70	103.90	5.00E+02	2.30

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

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3-16-93

BX107 CORE 40 CORE COMP 1

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J924-6755	Result #2 (ug/g) J924-6855	Average (ug/g)	RPD %	Spk add (ug/L)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Fusion	Al	5000	96.60	6.54E+01	1.34E+04	1.43E+04	1.39E+04	6.50	1.25E+03	99.20	1.75E+01	791.69
	Sb	5000	99.70	1.83E+02	UJ 1.83E+02	1.83E+02	1.83E+02		1.25E+03	93.60	1.83E+02	1.00
	As	5000	95.90	1.50E+01	UJ 1.50E+01	1.50E+01	1.50E+01		1.25E+03	94.20	1.50E+01	1.00
	Ba	10000	101.60	2.50E+00	J 4.17E+00	7.97E+00	6.07E+00	62.60	2.50E+03	96.60	1.50E+00	4.05
	Be	10000	99.40	1.50E+00	UJ 1.50E+00	1.50E+00	1.50E+00		2.50E+03	95.50	1.50E+00	1.00
	Cd	10000	99.20	3.50E+00	UJ 3.49E+00	3.87E+00	3.68E+00	200.00	2.50E+03	96.00	3.50E+00	1.05
	Ca	10000	100.10	1.36E+02	3.43E+02	3.77E+02	3.60E+02	9.60	2.50E+03	102.70	1.36E+02	2.65
	Cr	5000	104.40	6.08E+00	9.54E+02	9.90E+02	9.72E+02	3.70	1.25E+03	102.60	6.00E+00	162.03
	Co	10000	99.90	5.00E+00	UJ 4.99E+00	4.99E+00	4.99E+00		2.50E+03	97.50	5.00E+00	1.00
	Cu	5000	101.10	4.67E+00	6.10E+01	7.36E+01	6.73E+01	18.80	1.25E+03	98.70	2.00E+00	33.64
	Fe	5000	101.30	7.50E+00	1.07E+04	1.13E+04	1.10E+04	5.10	1.25E+03	93.50	7.50E+00	1467.94
	Pb	5000	97.70	3.55E+01	UJ 3.54E+01	5.45E+01	4.50E+01	200.00	1.25E+03	96.00	3.55E+01	1.27
	Mg	5000	98.70	3.50E+00	1.08E+02	1.14E+02	1.11E+02	5.10	1.25E+03	96.40	3.50E+00	31.72
	Mn	5000	97.40	1.50E+00	6.51E+01	6.05E+01	6.28E+01	7.30	1.25E+03	94.80	1.50E+00	41.85
	Ni	5000	99.80	7.98E+00	J 6.52E+03	5.89E+03	7.20E+03	38.50	1.25E+03	96.00	7.00E+00	1029.05
	K	5000	106.40	6.45E+01			NA				6.45E+01	0.00
	Se	5000	97.60	-5.79E+01	UJ 4.14E+01	4.14E+01	4.14E+01		1.25E+03	97.40	4.15E+01	1.00
	Ag	5000	106.60	5.00E+00	UJ 4.99E+00	4.99E+00	4.99E+00		1.25E+03	100.60	5.00E+00	1.00
	Na	10000	100.50	1.12E+03	J 1.02E+05	1.06E+05	1.04E+05	4.00	2.50E+03	76.40	1.40E+01	7424.77
	V	10000	99.80	4.00E+00	J 2.36E+01	1.30E+01	1.83E+01	57.90	2.50E+03	98.80	4.00E+00	4.57
	Zn	10000	101.20	1.25E+01	J 7.61E+01	7.25E+01	7.53E+01	7.40	2.50E+03	98.70	1.25E+01	6.02
	Bi	5000	100.50	2.90E+01	J 2.13E+04	2.25E+04	2.19E+04	5.50	1.25E+03	55.70	2.90E+01	754.05
	B	5000	110.00	1.31E+01	J 1.61E+01	2.06E+01	1.84E+01	24.70	1.25E+03	104.30	5.00E+00	3.67
	Ce	5000	107.80	9.40E+01	UJ 4.69E+01	1.35E+02	9.21E+01	200.00	1.25E+03	113.90	4.90E+01	1.88
	La	5000	105.20	6.18E+00	UJ 7.98E+00	7.98E+00	7.98E+00		1.25E+03	102.40	6.00E+00	1.00
	P	10000	103.70	4.95E+01	J 2.39E+04	2.44E+04	2.42E+04	2.30	2.50E+03	97.90	4.95E+01	488.25
	Si	10000	95.40	2.39E+02	6.43E+03	6.77E+03	6.60E+03	5.30	2.50E+03	96.00	2.15E+01	306.96
	Sr	10000	100.50	2.00E+00	J 1.64E+02	1.77E+02	1.71E+02	7.90	2.50E+03	96.00	2.00E+00	85.36
	S	5000	104.80	2.25E+01	J 4.79E+03	4.87E+03	4.83E+03	1.60	1.25E+03	106.60	2.25E+01	214.74
	Sn	5000	92.50	1.15E+01	1.15E+01	1.15E+01	1.15E+01		1.25E+03	94.00	1.15E+01	1.00
	Ti	5000	103.20	4.18E+00	UJ 2.00E+00	4.51E+00	3.25E+00	200.00	1.25E+03	102.00	2.00E+00	1.63
	Zr	10000	97.00	1.12E+01	1.81E+02	1.97E+02	1.89E+02	8.20				-

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

8

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3-16-93

BX107 CORE 40 CORE COMP 1

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J924-6740	J924-6840					
Fluor	U	107.9	<2.33E+02	C 1.56E+03	2.07E+03	1.82E+03	28.00	94.10	2.30E+02	7.89E+00
	U as uCi/g					9.32E-06				

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
				J924-6725	J924-6825						
RAD-Fus.	AT	91.2	<3.58E-03	C 7.89E-02	9.47E-02	8.68E-02	18.20	87.40	3.60E-03	2.41E+01	7.00E+00
	TA/Pu+Am			1.84E+00	1.45E+00						
				J924-6720	J924-6820						
	TB	94.50	<1.31E+00	C 5.03E+01	5.02E+01	5.03E+01	0.20	97.30	1.30E+00	3.87E+01	2.60E+00
	TB/Cs+Sr			1.05E+00	1.02E+00						
				J924-6730	J924-6830						
GEA	Cs-137	105.70	<7.90E-3	J 1.35E+01	1.34E+01	1.34E+01	0.52	NA	7.20E-03	1.86E+03	0.70
	Eu-154	NA	<1.88E-2	UJ <1.85E-2	<2.22E-2	NA	NA	NA	2.04E-02	NA	
	Eu-155	NA	<1.23E-2	UJ <3.11E-2	<3.19E-2	NA	NA	NA	1.26E-02	NA	
	Am-241	NA	<3.01E-2	UJ <7.48E-2	<7.47E-2	NA	NA	NA	2.90E-02	NA	
	Co-60	103.80	<6.35E-3	UJ <6.83E-3	<5.73E-3	NA	NA	NA	6.75E-03	NA	
				J924-6781	J924-6881						
	PU239/40	97.80	<3.28E-03	C 3.49E-02	5.32E-02	4.40E-02	41.54	75.90	3.30E-03	13.35	2.00
	PU-238			<4.49E-03	<4.49E-03	NA	NA	70.50	4.50E-03	0.00	5.00

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
				J924-6782	J924-6882						
	Am-241	105.8	<1.08E-02	R 8.05E-03	1.23E-02	1.02E-02	41.77	12.00	4.70E-03	2.16E+00	2.03E+01
	Cm-244			NONE DETECTED		NA	NA	13.80		NA	
	Am-241 (GEA)/Am-241 (ALPHA)					NA					
				J924-6783	J924-6883						
	NP-237	81.50	<2.16E-02	<2.16E-2	<1.08E-02	NA	NA	95.60	2.10E-02	0.00	<5.00E2
				J924-6784	J924-6884						
	TC-99	94.4	<9.38E-04	C 3.56E-02	4.06E-02	3.81E-02	13.12	70.00	9.40E-04	40.53	2.20
						NA		69.00			
				J924-6785	J924-6885						
	I-129	98.0	<1.47E-02	UJ <1.39E-02	<1.45E-02	NA	NA	63.60	1.40E-02	0.00	NA
								63.60			

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

ASD
3-16-93

BX107 CORE 40 CORE COMP 1

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Ct Err
			J924-6786	924-6889						
Sr-90	93.40	<1.97E-03	C 9.76E+00	1.02E+01	9.97E+00	4.10	92.30 91.50	2.00E-03	4.99E+03	2.00E-01
			J924-7787	J924-7877						
H-3	97.50	<2.29E-03	C 3.89E-04	4.02E-04	3.96E-04	3.29	92.80	2.20E-04	1.80	6.30
			J924-7788	J924-7888						
C-14	65.10	<1.13E-04	C 3.06E-04	1.33E-04	2.20E-04	78.82	87.80	1.10E-04	2.00	2.80
			J924-6789	J924-6889						
Se-79	NA	<1.34E-04	C <1.25E-04	<1.22E-04	NA	NA	90.20 92.10	1.20E-04	NA	4.50

	Analyte	Std #1 % Rec	PREP BLK (mg/L)	Result #1 (mg/L)	Result #2 (mg/L)	Average (mg/L)	RPD %	Spk Rec %	DET LIM (mg/L)	Ratio R/DL	TCLP Lim (mg/L)	Result/Lim
				J987-8750	J987-8850							
TCLP-ICP	Ag	30.20	<1.00E-02	U <1.00E-01	<1.00E-01	<1.00E-01	NA	1.16E+02	1.00E-01	1.00E+00	5.00E+00	2.00E-02
	Ba	97.60	<3.00E-03	J 1.03E-01	1.01E-01	1.02E-01	1.96	1.47E+02	3.00E-02	3.40E+00	1.00E+02	1.02E-03
	Cd	94.40	<7.00E-03	<7.00E-02	<7.00E-02	<7.00E-02		9.16E+01	7.00E-02	1.00E+00	1.00E+00	7.00E-02
	Cr	101.00	<1.20E-02	J 7.06E+00	7.16E+00	7.11E+00	1.41	9.63E+01	1.20E-01	5.92E+01	5.00E+00	1.42E+00
	Pb	100.30	<7.10E-02	<7.10E-01	<7.10E-01	<7.10E-01	NA	1.54E+02	7.10E-01	1.00E+00	1.00E+00	7.10E-01
				J994-8795								
TCLP-HYAA	As BEFORE H+	115.70	NA	U 2.04E+00		NA	NA	138.40	5.00E-02	0.00	5.00E+00	
				J987-8795	J987-8895							
	As: AFTER H+	115.70	NA	<5.0E-02	5.27E-02	NA	NA	125.80	5.00E-02	0.00	5.00E+00	
				J994-8796								
	Se BEFORE H+	107.50	<2.5E-03	U 1.63E+00		NA	NA	110.50	<2.5E-03	NA	1.00	0.00
				J987-8796	J987-8896							
	Se AFTER H+	107.50	<2.5E-03	<2.5E-03	<2.5E-03	NA	NA	74.40	<2.5E-03	NA	1.00	0.00
				J995-5797								
TCLP-CVAA	Hg AFTER H+	95.00	<2.50E-3	U 4.97E-02	NA	NA	NA	149.10	2.50E-03	NA		
				J987-5797	J987-5897							
	Hg BEFORE H+	95.00	<2.50E-3	2.64E-02	2.51E-02	2.58E-02	5.05	87.20	2.50E-03	10.30	0.20	0.13

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

10

ASD 3-16-93

BX107 CORE 40 CORE COMP 2

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J926-8750	Result #2 (ug/g) J926-8850	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	120.90	3.50E+00	J	1.25E+04	1.22E+04	1.23E+04	2.90	NA	NA	3.50E+00	3.51E+03
	Sb	5000	88.80	3.66E+01	UJ	3.45E+01	3.52E+01	3.49E+01		NA	NA	3.66E+01	9.54E-01
	As	5000	94.10	3.00E+00	UJ	2.83E+00	2.88E+00	2.86E+00		NA	NA	3.00E+00	9.53E-01
	Ba	10000	105.60	3.00E-01	J	6.33E+00	6.42E+00	6.38E+00	1.50	NA	NA	3.00E-01	2.13E+01
	Be	10000	103.10	3.00E-01	UJ	2.83E-01	2.88E-01	2.86E-01		NA	NA	3.00E-01	9.53E-01
	Cd	10000	101.80	7.00E-01	J	2.03E+00	1.83E+00	1.93E+00	10.00	NA	NA	7.00E-01	2.76E+00
	Ca	10000	156.00	5.94E+01	J	3.65E+02	7.30E+02	5.47E+02	66.70	NA	NA	2.72E+01	2.01E+01
	Cr	5000	105.70	1.20E+00		8.77E+02	8.77E+02	8.77E+02	0.10	NA	NA	1.20E+00	7.31E+02
	Co	10000	103.20	1.00E+00	J	1.64E+00	1.75E+00	1.69E+00	6.30	NA	NA	1.00E+00	1.69E+00
	Cu	5000	105.30	1.65E+00	J	7.24E+01	7.27E+01	7.25E+01	0.40	NA	NA	4.00E-01	1.81E+02
	Fe	5000	108.20	1.50E+00		9.43E+03	9.42E+03	9.43E+03	0.10	NA	NA	1.50E+00	6.29E+03
	Pb	5000	102.50	7.10E+00	J	5.49E+01	4.61E+01	5.05E+01	17.40	NA	NA	7.10E+00	7.11E+00
	Mg	5000	111.50	1.50E+00	J	1.56E+02	1.43E+02	1.49E+02	8.50	NA	NA	7.00E-01	2.13E+02
	Mn	5000	99.60	3.00E-01		3.32E+01	3.35E+01	3.33E+01	0.90	NA	NA	3.00E-01	1.11E+02
	Ni	5000	102.70	1.40E+00	J	1.08E+01	9.93E+00	1.04E+01	8.40	NA	NA	1.40E+00	7.43E+00
	K	5000	75.60	-2.70E+01	J	1.99E+02	1.99E+02	1.99E+02	0.10	NA	NA	1.29E+01	1.54E+01
	Se	5000	154.50	-2.57E+01	J	2.90E+02	3.01E+02	2.95E+02	3.80	NA	NA	8.30E+00	3.55E+01
	Ag	5000	48.10	1.00E+00	UJ	9.43E-01	9.62E-01	9.52E-01		NA	NA	1.00E+00	9.52E-01
	Na	10000	154.60	2.26E+01	J	1.03E+05	1.02E+05	1.02E+05	1.30	NA	NA	2.80E+00	3.64E+04
	Zn	10000	102.10	5.64E+00	J	3.13E+01	3.97E+01	3.55E+01	23.50	NA	NA	2.50E+00	1.42E+01
	Si	5000	70.00	5.80E+00	J	2.22E+04	2.20E+04	2.21E+04	1.10	NA	NA	5.80E+00	3.81E+03
	B	5000	142.50	1.83E+00	J	6.85E+01	5.61E+01	6.23E+01	19.80	NA	NA	1.00E+00	6.23E+01
	Ce	5000	86.40	-2.33E+01	J	1.69E+02	1.69E+02	1.69E+02	0.30	NA	NA	9.80E+00	1.72E+01
	La	5000	107.70	1.60E+00	UJ	1.51E+00	1.54E+00	1.52E+00		NA	NA	1.60E+00	9.50E-01
	P	10000	111.50	9.90E+00	J	2.21E+04	2.06E+04	2.13E+04	7.20	NA	NA	9.90E+00	2.15E+03
	Si	10000	404.60	9.18E+00	J	1.63E+03	1.81E+03	1.72E+03	10.40	NA	NA	4.30E+00	4.00E+02
	Sr	10000	105.60	4.00E-01	J	1.58E+02	1.57E+02	1.57E+02	0.40	NA	NA	4.00E-01	3.92E+02
	S	5000	132.70	1.75E+01	J	5.07E+03	4.94E+03	5.00E+03	2.60	NA	NA	4.50E+00	1.11E+03
	Sn	5000	104.30	2.30E+00	UJ	2.17E+00	1.04E+01	6.30E+00	200.00	NA	NA	2.30E+00	2.74E+00
	Ti	5000	102.10	-4.30E-01	J	3.72E+00	3.47E+00	3.59E+00	6.90	NA	NA	4.00E-01	8.97E+00
	Zr	10000	99.20	-1.02E+00	J	8.72E+01	9.71E+01	9.22E+01	10.80	NA	NA	6.00E-01	1.15E+02

Direct: Unhom.	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g) J926-5711	Result #2 (ug/g) J926-5811	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL		
	DSC	EXO	NA	NO EXO	NO EXO	NA	NA	NA	NA	NA		
				J926-5712	J926-5812							
	TGA	98.30	NA	63.30	63.70	63.5	0.63	NA	NA	NA		
				J933-5710	J934-5710							
	%WTR	100.60	NA	57.30	56.90	57.1	0.70	NA	1.00E-01	NA		0.571
				J926-8795	J926-8895							
HYAA	As	115.60	5.27E+00	J 4.33E-01	3.53E-01	3.93E-01	20.36	85.80	2.50E-01	1.57		
				J926-8796	J926-8896							
	Se	100.00	3.10E-01	1.76E+00	2.07E+00	1.92E+00	16.19	111.80	1.61E+01	1.19E-01	0.25	
CVAA	Hg	99.9	<1.25E-01	3.66E-01	3.83E-01	3.74E-01	4.54	107.30	1.25E-01	3.00E+00	0.13	
				J926-5778	J926-5878							
CN-Dir	CN	95.10	<2.00E+00	J 1.79E+00	1.06E+00	1.43E+00	51.00	91.30	<2.00E+00	NA		

11

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

BX107 CORE 40 CORE COMP 2

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J926-7755	Result #2 (ug/g) J926-7855	Average (ug/g)	RPD %	Spk add (ug/L)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Water	Al	5000	99.10	3.89E+01		8.00E+01	8.07E+01	8.04E+01	0.90	1250	103.10	3.50E+00	2.30E+01
	Sb	5000	101.70	3.66E+01		3.73E+01	3.73E+01	3.73E+01		1250	103.60	3.66E+01	1.02E+00
	As	5000	101.50	3.00E+00		3.05E+00	3.06E+00	3.06E+00		1250	100.70	3.00E+00	1.02E+00
	Ba	10000	98.50	3.00E-01	J	3.89E-01	6.73E-01	5.31E-01	53.60	2500	97.30	3.00E-01	1.77E+00
	Be	10000	100.20	3.00E-01		3.05E-01	3.06E-01	3.06E-01		2500	98.60	3.00E-01	1.02E+00
	Cd	10000	98.30	7.00E-01		7.13E-01	7.14E-01	7.13E-01		2500	96.50	7.00E-01	1.02E+00
	Ca	10000	96.60	1.13E+02	J	9.47E+02	4.80E+02	7.14E+02	65.50	2500	52.60	2.72E+01	2.62E+01
	Cr	5000	101.60	1.20E+00		1.31E+02	1.35E+02	1.33E+02	2.50	1250	99.80	1.20E+00	1.11E+02
	Co	10000	98.10	1.00E+00		1.02E+00	1.02E+00	1.02E+00		2500	96.30	1.00E+00	1.02E+00
	Cu	5000	96.80	4.00E-01		7.72E-01	7.80E-01	7.76E-01	1.10	1250	96.30	4.00E-01	1.94E+00
	Fe	5000	96.80	3.17E+00		4.27E+01	4.12E+01	4.20E+01	3.50	1250	95.60	1.50E+00	2.80E+01
	Pb	5000	101.70	7.10E+00	UJ	7.23E+00	7.24E+00	7.23E+00		1250	99.90	7.10E+00	1.02E+00
	Mg	5000	100.30	3.35E+00	J	4.41E+01	2.47E+01	3.44E+01	56.70	1250	97.10	7.00E-01	4.91E+01
	Mn	5000	94.10	3.00E-01	J	1.58E+00	9.12E-01	1.25E+00	53.80	1250	92.80	3.00E-01	4.16E+00
	Ni	5000	97.70	1.40E+00		1.43E+00	1.43E+00	1.43E+00		1250	97.50	1.40E+00	1.02E+00
	K	5000	99.30	1.29E+01		1.31E+02	1.43E+02	1.37E+02	8.30	1250	100.90	1.29E+01	1.06E+01
	Se	5000	106.40	8.30E+00	UJ	8.45E+00	8.47E+00	8.46E+00		1250	104.40	8.30E+00	1.02E+00
	Ag	5000	96.80	-2.17E+00	UJ	1.02E+00	1.02E+00	1.02E+00		1250	99.40	1.00E+00	1.02E+00
	Na	10000	97.90	1.38E+01	J	5.29E+04	8.11E+04	6.70E+04	42.20	2500	142.90	2.80E+00	2.39E+04
	V	10000	98.70	8.00E-01		8.14E-01	8.16E-01	8.15E-01		2500	99.20	8.00E-01	1.02E+00
	Zn	10000	100.10	2.50E+00	J	3.31E+01	1.46E+01	2.38E+01	77.70	2500	95.30	2.50E+00	9.53E+00
	Bi	5000	103.80	5.60E+00		7.83E+01	8.21E+01	8.02E+01	4.70	1250	66.60	5.60E+00	1.38E+01
	B	5000	98.70	1.21E+01		2.89E+01	2.85E+01	2.87E+01	1.40	1250	96.30	1.00E+00	2.87E+01
	Ce	5000	105.90	9.80E+00		9.98E+00	1.00E+01	9.99E+00		1250	111.50	9.80E+00	1.02E+00
	La	5000	104.30	1.60E+00		1.63E+00	1.63E+00	1.63E+00		1250	106.80	1.60E+00	1.02E+00
	P	10000	110.80	9.90E+00	J	5.26E+03	4.74E+03	5.00E+03	10.30	2500	86.20	9.90E+00	5.05E+02
	Si	10000	99.40	1.38E+01		3.68E+02	3.61E+02	3.64E+02	2.00	2500	134.50	4.30E+00	8.47E+01
	Sr	10000	98.60	4.00E-01	J	1.90E+00	1.43E+00	1.66E+00	28.30	2500	97.80	4.00E-01	4.16E+00
	S	5000	103.30	5.60E+00	J	4.69E+03	4.57E+03	4.63E+03	2.40	1250	85.70	4.50E+00	1.03E+03
	Sn	5000	98.70	2.30E+00		2.34E+00	2.35E+00	2.34E+00		1250	97.20	2.30E+00	1.02E+00
	Ti	5000	99.80	4.00E-01		4.07E-01	4.06E-01	4.06E-01		1250	100.00	4.00E-01	1.02E+00
	Zr	10000	110.70	8.00E-01	UJ	8.14E-01	1.40E+00	1.11E+00	200.00				
	Ratio AA/ICP												
As	0.1374												
Se	0.0064												

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

ASD
3-16-93

BX107 CORE 40 CORE COMP 2

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J926-7771	J926-7871					
IC-Water	F	103.00	<1.00E-01	J 8.50E+03	8.33E+03	8.42E+03	2.02	121.00	1.00E-01	84150.00
	Cl	105.00	2.36E-01	J 1.14E+03	1.21E+03	1.18E+03	5.96	107.00	2.36E-01	4978.81
	NO3	106.00	1.86E+01	J 1.46E+05	1.53E+05	1.50E+05	4.68	124.00	1.86E+01	8037.63
	NO2	103.00	<1.00	J 9.12E+03	9.19E+03	9.16E+03	0.76	109.00	1.00E+00	9155.00
	PO4	106.00	<1.00	J 1.48E+04	1.51E+04	1.50E+04	2.01	111.00	1.00E+00	14950.00
	SO4	105.00	<1.00	J 1.41E+04	1.42E+04	1.42E+04	0.71	108.00	1.00E+00	14150.00
	P ACID ICP/PO4 IC					4.37E+00				
	S ACID ICP/SO4 IC					1.06E+00				
				J926-7779	J926-7879					
Spec-water	NO2	103.0	<5.11E+1	1.00E+04	1.06E+04	1.03E+04	5.83	97.40	5.11E+03	2.02
	NO3 (IC)/NO2 Spec.					14.51				
	NO2 (IC)/NO2 (SPEC)					0.89				
				J926-5715	J926-5815					
pH	pH	101.0	NA	9.77	9.58	9.68	1.96	NA	NA	NA
				J926-7728	J926-7828					
NH3-Water	NH3	108.20	4.50E+01	<4.50E+03	<4.50E+03	NA	NA	100.90	4.50E+03	0.00
				J926-7726	J926-7826					
TOC-Water	TOC	96.70	<5.50E 02	UJ <5.50E+02	<5.50E+02	NA	NA	98.30	5.50E+02	0.00
	Acetate Eq		0.00							
				J926-7727	J926-7827					
TIC-water	CO3	106.0	3.40E-01	J 1.60E+03	6.99E+02	1.15E+03	78.10	103.90	5.00E+02	2.30

13

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

ADD
3-16-93

BX107 CORE 40 CORE COMP 2

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J926-6755	Result #2 (ug/g) J926-6855	Average (ug/g)	RPD % J926 RPD	Spk add (ug/L)	Spike % Rec J925SPK	DET LIM (ug/g) IDL/2	Ratio R/DL
ICP-Fusion	Al	5000	97.10	3.33E+01		1.12E+04	1.26E+04	1.20E+04	13.50	1.25E+03	117.90	1.75E+01	6.85E+02
	Sb	5000	102.60	1.83E+02	UJ	1.83E+02	1.83E+02	1.83E+02		1.25E+03	100.20	1.83E+02	9.99E-01
	As	5000	98.80	1.50E+01	UJ	1.50E+01	1.50E+01	1.50E+01		1.25E+03	100.20	1.50E+01	9.99E-01
	Ba	10000	98.20	1.50E+00	J	8.35E+00	7.78E+00	8.07E+00	7.20	2.50E+03	102.30	1.50E+00	5.38E+00
	Be	10000	96.00	1.50E+00	UJ	1.50E+00	1.50E+00	1.50E+00		2.50E+03	95.80	1.50E+00	9.99E-01
	Cd	10000	98.90	3.50E+00	UJ	3.49E+00	3.53E+00	3.51E+00	200.00	2.50E+03	97.00	3.50E+00	1.00E+00
	Ca	10000	96.30	1.36E+02		3.03E+02	3.10E+02	3.06E+02	2.10	2.50E+03	106.20	1.36E+02	2.25E+00
	Cr	5000	101.20	6.00E+00		7.87E+02	8.89E+02	8.38E+02	12.10	1.25E+03	101.90	6.00E+00	1.40E+02
	Co	10000	97.20	5.00E+00	UJ	4.99E+00	5.00E+00	5.00E+00		2.50E+03	97.00	5.00E+00	9.99E-01
	Cu	5000	98.80	3.58E+00		7.27E+01	7.05E+01	7.16E+01	3.10	1.25E+03	100.00	2.00E+00	3.58E+01
	Fe	5000	97.30	7.50E+00		8.35E+03	9.39E+03	8.87E+03	11.70	1.25E+03	106.30	7.50E+00	1.18E+03
	Pb	5000	102.80	3.55E+01	J	6.56E+01	6.48E+01	6.52E+01	1.20	1.25E+03	107.80	3.55E+01	1.84E+00
	Mg	5000	98.60	3.50E+00		8.55E+01	9.40E+01	8.98E+01	9.40	1.25E+03	99.50	3.50E+00	2.57E+01
	Mn	5000	94.10	1.50E+00	J	4.99E+01	5.89E+01	5.44E+01	16.60	1.25E+03	94.20	1.50E+00	3.63E+01
	Ni	5000	98.10	7.00E+00	J	2.48E+03	1.50E+03	1.99E+03	49.50	1.25E+03	87.20	7.00E+00	2.84E+02
	K	5000	102.50	0.00E+00				NA				6.45E+01	0.00E+00
	Se	5000	98.10	4.15E+01	UJ	4.14E+01	4.15E+01	4.15E+01		1.25E+03	105.10	4.15E+01	9.99E-01
	Ag	5000	102.90	1.44E+01	J	8.48E+00	5.57E+00	7.02E+00	41.50	1.25E+03	110.20	5.00E+00	1.40E+00
	Na	10000	96.70	2.28E+03		9.97E+04	1.02E+05	1.01E+05	2.10	2.50E+03	126.90	1.40E+01	7.19E+03
	V	10000	97.70	4.00E+00	J	7.33E+00	8.30E+00	7.81E+00	12.40	2.50E+03	101.20	4.00E+00	1.95E+00
	Zn	10000	98.90	1.66E+01	J	5.13E+01	4.49E+01	4.81E+01	13.30	2.50E+03	98.20	1.25E+01	3.85E+00
	Bi	5000	103.10	2.90E+01	J	1.93E+04	2.19E+04	2.06E+04	12.50	1.25E+03	84.90	2.90E+01	7.10E+02
	B	5000	96.80	6.08E+00	J	2.01E+01	1.75E+01	1.88E+01	13.60	1.25E+03	96.60	5.00E+00	3.76E+00
	Ce	5000	103.90	4.90E+01	J	2.11E+02	1.44E+02	1.78E+02	38.00	1.25E+03	119.40	4.90E+01	3.62E+00
	La	5000	100.60	8.00E+00	UJ	7.98E+00	8.00E+00	7.99E+00		1.25E+03	104.20	8.00E+00	9.99E-01
	P	10000	102.80	4.95E+01	J	1.94E+04	2.21E+04	2.08E+04	13.20	2.50E+03	145.70	4.95E+01	4.19E+02
	Si	10000	97.20	2.42E+02		5.63E+03	6.37E+03	6.00E+03	12.20	2.50E+03	110.00	2.15E+01	2.79E+02
	Sr	10000	98.10	2.00E+00	J	1.65E+02	1.55E+02	1.60E+02	5.90	2.50E+03	102.30	2.00E+00	8.00E+01
	S	5000	97.20	3.24E+01	J	4.65E+03	4.65E+03	4.65E+03	0.10	1.25E+03	113.80	2.25E+01	2.07E+02
	Sn	5000	98.50	1.15E+01	UJ	1.15E+01	1.15E+01	1.15E+01		1.25E+03	99.10	1.15E+01	9.99E-01
	Ti	5000	97.50	2.93E+00	J	6.35E+00	5.26E+00	5.80E+00	18.80	1.25E+03	101.80	2.00E+00	2.90E+00
	Zr	10000	111.10	5.79E+00	J	7.90E+01	5.34E+01	6.62E+01	38.70				-

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

ASD
3-16-93

BX107 CORE 40 CORE COMP 2

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J926-6740	J926-6840					
Fluor	U	107.9	<2.33E+02	< 1.86E+03	2.18E+03	2.02E+03	15.84	94.10	2.30E+02	8.78
	U as uCi/g					5.27E-06				

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
				J926-6725	J926-6825						
RAD-Fus.	AT	91.20	<3.58E-03	< 7.17E-02	7.28E-02	7.23E-02	1.52	87.40	3.60E-03	2.01E+01	7.40E+00
	AT/Pu+Am			7.35E-01	8.13E-01						
				J926-6720	J926-6820						
	TB	94.50	<1.31+00	< 3.88E+01	3.28E+01	3.58E+01	16.76		1.30E+00	2.75E+01	3.50E+00
	TB/Cs+Sr			1.01E+00	7.71E-01						
				J926-6730	J926-6830						
GEA	Cs-137	102.00	<7.75E-03	< 1.09E+01	1.16E+01	1.13E+01	6.66	NA	7.20E-03	1564.58	
	Eu-154	NA	<1.86E-02	< <1.81E-03	<1.94E-02	NA	NA	NA	2.04E-02	0.00	
	Eu-155	NA	<1.33E-02	< <2.90E-02	<3.02E-02	NA	NA	NA	1.26E-02	0.00	
	Am-241	NA	<2.83E-02	< <6.89E-02	<7.19E-02	NA	NA	NA	2.90E-02	0.00	
	Co-60	101.00	<6.00E-03	< <6.54E-03	<6.64E-03	NA	NA	NA	6.75E-03	0.00	
				J926-6761	J926-6861						
	PU239/	98.90	<3.26E-03	< 8.34E-02	7.57E-02	7.96E-02	9.68	67.00	3.30E-03	2.41E+01	9.00E-01
	PU-238	NA	NA	<4.50E-03	<4.50E-03	NA	NA	69.60	4.50E-03	0.00	2.60E+00

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
				J926-6782	J926-6882						
	Am-241	105.8	<1.08E-02	< 1.41E-02	1.38E-02	1.40E-02	2.00	5.50	8.10E-03	1.72E+00	2.83E+01
	Cm-244			NONE DETECTED		NA	NA	8.00	NA	NA	NA
	Am-241 (GEA)/Am-241 (ALPHA)					0.00E+00					
				J926-6783	J926-6883						
	NP-237	81.50	<2.16E-02	<2.16E-02	<1.08E-02	NA	0.00	83.10	2.10E-02	0.00	7.42E+01
				J926-6784	J926-6884						
	TC-99	94.4	<9.38E-04	< 2.83E-02	2.96E-02	2.90E-02	4.49	66.80	9.40E-04	30.80	
								68.10			
				J926-6785	J926-6885						
	I-129	98.0	<1.47E-02	< <9.54E-03	<1.23E-02	NA	NA	86.90	1.40E-02	0.00	
								80.70			

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

WHC-SD-WM-DP-028
REV 0

ADDENDUM 2 REV 0

USD
3-16-93

9 1 0 0 5 1 6 2 9

BX107 CORE 40 CORE COMP 2

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Ct Err
			J926-6786	J926-6886						
Sr-90	102.80	<2.29E-03	< 7.71E+00	8.79E+00	8.25E+00	13.09	87.90	2.30E-03	3587.0	0.30
							87.70			
			J926-7787	J926-7887						
H-3	103.40	<3.60E-04	< 7.79E-04	4.83E-04	6.31E-04	46.91		3.60E-04	1.75	4.90
			J926-7788	J926-7888						
C-14	65.10	1.10E-04	< 1.82E-04	4.21E-04	3.02E-04	79.27	87.80	1.10E-04	2.74	
			J926-6789	J926-6889						
Se-79	NA	<1.34E-04	< <1.23E-04	<1.22E-04	NA	NA	91.70	1.20E-04	0.00	4.50
							92.50			

CORE 40 HOMOGENIZATION

% WATER OF HOMOGENIZATION SEGMENTS

Analyte	LMCS Std (%)	PREP BLK (%)	Result #1 (%)	Result #2 (%)	Average (%)	RPD %
SEGMENT			J907-5710	J908-5710		
S2H	100.10	NA	55.20	54.70	54.95	0.91
			J902-5710	J903-5710		
S4H	100.10	NA	53.40	52.90	53.15	0.94
			J900-5710	J901-5710		
S5H	100.60	NA	57.70	56.60	57.15	1.92
			J854-5719	J855-5710		
S6H	100.60	NA	56.20	56.30	56.25	0.18
			J851-5710	J852-5710		
S7H	100.50	NA	44.30	43.00	43.65	2.98

CORE 41 DIRECT SEGEMENT ANALYSIS
WHC-SD-WM-DP-028 ADDENDUM 2 REV 0
REV 0

Segment 1

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	AVERAGE (ug/g)	RPD %
DSC	NO SAMPLE				NA	NA
TGA	NO SAMPLE				ND	NA
%WTR	NO SAMPLE				ND	NA

Segment 2

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J888-5711	J888-5811		
DSC	EXO	NA	NO EXO	NA	NA	NA
			J888-5712	J888-5812		
TGA	99.70	NA	49.10	39.60	44.35	21.42
%WTR	NO SAMPLE				ND	NA

Segment 3

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J887-5711	J887-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J887-5712	J887-5812		
TGA	99.70	NA	52.50	54.10	NA	NA
			J829-5710	J830-5710		
%WTR	100.13	NA	56.89	56.80	56.85	0.16

Segment 4

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
DSC	NO SAMPLE				NA	NA
J#:	NO SAMPLE				NA	NA
%WTR	NO SAMPLE				NA	NA

CORE 41 DIRECT SEGEMENT ANALYSIS

WHC-SD-WM-DP-028 ADDENDUM 2 REV 0
REV 0

Segment 5

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J884-5711	J884-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J884-5712	J884-5812		
TGA	99.00	NA	39.40	36.40	37.90	7.92
			J869-5710			
%WTR	99.60	NA	27.90	NO SAMPLE	NA	NA

Segment 6

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J883-5711	J883-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J883-5712	J883-5812		
TGA	99.00	NA	38.40	44.00	41.20	13.59
			J809-5710	J810-5710		
%WTR	100.13	NA	48.72	50.16	49.44	2.91

Segment 7

Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %
			J882-5711	J882-5811		
DSC	EXO	NA	NO EXO	NO EXO	NA	NA
			J882-5712	J882-5812		
TGA	99.00	NA	35.20	34.00	34.60	3.47
			J806-5710	J807-5710		
%WTR	100.13	NA	50.34	48.70	49.52	3.31

7-16-93

Core 41 Segment 2H-1

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J836-8755	Result #2 (ug/g) J836-8855	Average (ug/g)	RPD %	Spk add (ug/g) J836-8950	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	122.20	7.65E+00	1.62E+04	J 1.60E+04	1.61E+04	1.40	4.91E+01	-374.30	3.50E+00	4602.22
	Sb	5000	107.90	3.66E+01	3.44E+01	UJ 3.60E+01	3.52E+01		4.91E+01	168.60	3.66E+01	0.96
	As	5000	100.50	3.00E+00	7.53E+00	J 6.07E+00	6.80E+00	21.50	4.91E+01	89.10	3.00E+00	2.27
	Ba	10000	94.20	3.00E-01	1.62E+01	J 1.64E+01	1.63E+01	1.10	9.82E+01	93.90	3.00E-01	54.41
	Be	10000	69.00	3.00E-01	2.82E-01	UJ 2.95E-01	2.89E-01		9.82E+01	67.00	3.00E-01	0.96
	Cd	10000	94.10	7.00E-01	3.76E+00	J 3.85E+00	3.81E+00	2.30	9.82E+01	96.50	7.00E-01	5.44
	Ca	10000	153.90	1.68E+02	3.71E+02	R 3.88E+02	3.80E+02	4.50	9.82E+01	0.90	2.72E+01	13.96
	Cr	5000	99.00	1.20E+00	1.22E+03	1.17E+03	1.19E+03	4.00	4.91E+01	2.80	1.20E+00	994.54
	Co	10000	95.70	1.00E+00	1.35E+00	J 1.53E+00	1.44E+00	12.00	9.82E+01	93.50	1.00E+00	1.44
	Cu	5000	98.10	4.00E-01	2.21E+01	2.25E+01	2.23E+01	1.90	4.91E+01	95.20	4.00E-01	55.81
	Fe	5000	98.80	1.93E+00	1.74E+04	1.67E+04	1.71E+04	3.90	4.91E+01	-1836.50	1.50E+00	11380.4
	Pb	5000	98.60	7.10E+00	9.23E+01	9.45E+01	9.34E+01	2.40	4.91E+01	104.70	7.10E+00	13.16
	Mg	5000	98.90	4.13E+00	1.58E+02	J 1.78E+02	1.68E+02	11.90	4.91E+01	16.60	7.00E-01	239.61
	Mn	5000	92.40	3.00E-01	7.06E+01	6.79E+01	6.92E+01	3.90	4.91E+01	81.90	3.00E-01	231
	Ni	5000	97.60	1.40E+00	1.66E+01	J 1.65E+01	1.66E+01	0.30	4.91E+01	89.50	1.40E+00	11.84
	K	5000	97.00	1.29E+01	5.49E+02	5.68E+02	5.59E+02	3.50	4.91E+01	98.70	1.29E+01	43.30
	Se	5000	146.40	8.30E+00	3.78E+02	R 3.72E+02	3.75E+02	1.70	4.91E+01	105.00	8.30E+00	45.19
	Ag	5000	75.00	1.00E+00	9.39E-01	UJ 1.22E+00	1.08E+00	200.00	4.91E+01	66.70	1.00E+00	1.08
	Na	10000	117.70	2.31E+01	9.59E+04	J 9.71E+04	9.65E+04	1.30	9.82E+01	991.00	2.60E+00	34467.84
	V	10000	95.40	8.00E-01	5.88E+00	J 4.64E+00	5.26E+00	23.50	9.82E+01	94.80	8.00E-01	6.58
	Zn	10000	94.30	2.92E+00	1.20E+02	J 1.18E+02	1.19E+02	2.10	9.82E+01	89.20	2.50E+00	47.69
	Bi	5000	74.70	5.80E+00	3.10E+04	J 3.05E+04	3.08E+04	1.80	4.91E+01	-988.30	5.80E+00	5302.58
	B	5000	113.40	5.39E+00	3.19E+01	J 3.91E+01	3.55E+01	20.40	4.91E+01	38.30	1.00E+00	35.48
	Ce	5000	104.50	9.80E+00	2.53E+02	J 2.67E+02	2.60E+02	5.30	4.91E+01	129.80	9.80E+00	26.52
	La	5000	98.10	1.60E+00	1.50E+00	UJ 1.57E+00	1.54E+00		4.91E+01	75.80	1.60E+00	0.96
	P	10000	116.50	9.90E+00	2.63E+04	J 2.62E+04	2.62E+04	0.30	9.82E+01	1614.70	9.90E+00	2648.75
	Si	10000	293.90	4.02E+01	2.28E+03	J 2.17E+03	2.22E+03	4.80	9.82E+01	1686.60	4.30E+00	517.31
	Sr	10000	93.20	4.00E-01	2.18E+02	J 2.16E+02	2.17E+02	0.90	9.82E+01	89.50	4.00E-01	541.42
	S	5000	254.40	1.91E+02	4.25E+03	J 4.26E+03	4.25E+03	0.30	4.91E+01	287.60	4.50E+00	944.79
	Sn	5000	105.00	2.30E+00	9.43E+00	9.77E+00	9.60E+00	3.60	4.91E+01	97.40	2.30E+00	4.18
	Ti	5000	98.20	4.00E-01	5.47E+00	J 6.00E+00	5.74E+00	9.20	4.91E+01	97.00	4.00E-01	14.34
	Zr	10000	98.10	8.00E-01	1.46E+02	J 1.34E+02	1.40E+02	8.70	9.82E+01	180.50		–

	Analyte	LMCS Std (%)	PREP BLK (ug/g)	Result #1 (ug/g) J836-8725	Result #2 (ug/g) J836-8855	Average (ug/g)	RPD %	Spike % Rec	DET LIM (ug/L)	Ratio R/DL
RAD-Acid	AT	94.70	<5.13E-3	< 1.42E-01	1.55E-01	1.48E-01	8.80	101.7	0.0051	NA

				J836-8730	J836-8730					
GEA	Cs-137	102.00	<7.37E-3	< 4.57E+01	4.59E+01	4.58E+01	0.40	NA	7.60E-03	NA
	Eu-154	N/A	<1.92E-2	< <1.70E-2	<1.90E-2	NA	NA	NA	1.50E-02	NA
	Eu-155	N/A	<1.25E-2	< <5.20E-2	<5.40E-2	NA	NA	NA	1.25E-02	NA
	Am-241	N/A	<2.79E-2	< <1.30E-1	<1.30E-1	NA	NA	NA	2.78E-02	NA
	Co-60	102.00	<7.20E-3	< <6.50E-3	<6.10E-3	NA	NA	NA	6.00E-03	NA

ASD 3-16-93

Core 41 Segment 2H-2

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J837-8755	Result #2 (ug/g) J837-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g) IDL/10	Ratio R/DL
ICP-Acid	Al	5000	122.20	7.65E+00	J 1.66E+04	1.62E+04	1.64E+04	2.20	4.91E+01	-374.30	3.50E+00	4680.47
	Sb	5000	107.90	3.66E+01	UJ 3.55E+01	3.51E+01	3.53E+01		4.91E+01	168.60	3.66E+01	0.96
	As	5000	100.50	3.00E+00	J 6.32E+00	6.12E+00	6.22E+00	3.30	4.91E+01	89.10	3.00E+00	2.07
	Ba	10000	94.20	3.00E-01	J 1.66E+01	1.60E+01	1.63E+01	3.40	9.82E+01	93.90	3.00E-01	54.29
	Be	10000	89.00	3.00E-01	UJ 2.91E-01	2.87E-01	2.89E-01		9.82E+01	87.00	3.00E-01	0.96
	Cd	10000	94.10	7.00E-01	J 4.03E+00	3.49E+00	3.76E+00	14.30	9.82E+01	98.50	7.00E-01	5.37
	Ca	10000	153.90	1.68E+02	R 3.66E+02	3.48E+02	3.57E+02	5.10	9.82E+01	0.90	2.72E+01	13.12
	Cr	5000	99.00	1.20E+00	1.25E+03	1.19E+03	1.22E+03	4.70	4.91E+01	2.80	1.20E+00	1016.58
	Co	10000	95.70	1.00E+00	UJ 9.71E-01	1.71E+00	1.34E+00	200.00	9.82E+01	93.50	1.00E+00	1.34
	Cu	5000	98.10	4.00E-01	2.24E+01	2.17E+01	2.20E+01	3.10	4.91E+01	95.20	4.00E-01	55.10
	Fe	5000	98.80	1.93E+00	1.78E+04	1.70E+04	1.74E+04	4.40	4.91E+01	-1836.50	1.50E+00	11587.6
	Pb	5000	98.60	7.10E+00	1.02E+02	9.43E+01	9.80E+01	7.60	4.91E+01	104.70	7.10E+00	13.80
	Mg	5000	98.90	4.13E+00	J 1.63E+02	1.48E+02	1.55E+02	9.70	4.91E+01	16.60	7.00E-01	221.91
	Mn	5000	92.40	3.00E-01	7.15E+01	6.83E+01	6.99E+01	4.50	4.91E+01	81.90	3.00E-01	233
	Ni	5000	97.60	1.40E+00	J 1.62E+01	1.61E+01	1.62E+01	0.40	4.91E+01	89.50	1.40E+00	11.56
	K	5000	97.00	1.29E+01	5.73E+02	5.61E+02	5.67E+02	2.10	4.91E+01	98.70	1.29E+01	43.96
	Se	5000	146.40	8.30E+00	R 3.99E+02	3.91E+02	3.95E+02	1.90	4.91E+01	105.00	8.30E+00	47.57
	Ag	5000	75.00	1.00E+00	UJ 9.71E-01	9.58E-01	9.64E-01		4.91E+01	66.70	1.00E+00	0.96
	Na	10000	117.70	2.31E+01	J 9.88E+04	9.67E+04	9.77E+04	2.10	9.82E+01	991.00	2.80E+00	34898.58
	V	10000	95.40	8.00E-01	J 5.99E+00	5.49E+00	5.74E+00	8.80	9.82E+01	94.80	8.00E-01	7.18
	Zn	10000	94.30	2.92E+00	J 1.26E+02	1.20E+02	1.23E+02	4.90	9.82E+01	89.20	2.50E+00	49.05
	Bi	5000	74.70	5.80E+00	J 3.20E+04	3.09E+04	3.15E+04	3.60	4.91E+01	-988.30	5.80E+00	5424.11
	B	5000	113.40	5.39E+00	J 2.57E+01	1.81E+01	2.19E+01	34.70	4.91E+01	38.30	1.00E+00	21.93
	Ce	5000	104.50	9.80E+00	J 2.61E+02	2.58E+02	2.59E+02	1.40	4.91E+01	129.80	9.80E+00	26.48
	La	5000	98.10	1.60E+00	UJ 1.55E+00	1.53E+00	1.54E+00		4.91E+01	75.80	1.60E+00	0.96
	P	10000	116.50	9.90E+00	J 2.67E+04	2.73E+04	2.70E+04	2.10	9.82E+01	1614.70	9.90E+00	2727.18
	Si	10000	293.90	4.02E+01	J 2.19E+03	2.33E+03	2.26E+03	5.90	9.82E+01	1686.60	4.30E+00	525.54
	Sr	10000	93.20	4.00E-01	J 2.25E+02	2.17E+02	2.21E+02	3.90	9.82E+01	89.50	4.00E-01	552.28
	S	5000	254.40	1.91E+02	J 4.43E+03	4.32E+03	4.37E+03	2.50	4.91E+01	287.60	4.50E+00	972.11
	Sn	5000	105.00	2.30E+00	1.11E+01	9.59E+00	1.03E+01	14.30	4.91E+01	97.40	2.30E+00	4.49
	Ti	5000	98.20	4.00E-01	J 5.84E+00	5.69E+00	5.77E+00	2.50	4.91E+01	97.00	4.00E-01	14.42
	Zr	10000	98.10	8.00E-01	J 1.37E+02	1.65E+02	1.51E+02	18.30	9.82E+01	180.50		-

	Analyte	LMCS Std (%)	PREP BLK (ug/g)	Result #1 (ug/g) J837-8725	Result #2 (ug/g) J837-8825	Average (ug/g)	RPD %	Spike % Rec	DET LIM (ug/L)	Ratio R/DL
RAD-Acid	AT	94.70	<5.13E-3	< 1.71E-01	1.55E-01	1.63E-01	10.20	101.70	5.10E-03	NA

	J#:837	J834	J835	J837-8730	J837-8830					
GEA	Cs-137	102.00	<7.37E-3	< 4.71E+01	4.72E+01	4.72E+01	0.21	NA	7.60E-03	NA
	Eu-154	N/A	<1.92E-2	< <1.80E-2	<1.95E-2	NA	NA	NA	1.50E-02	NA
	Eu-155	N/A	<1.25E-2	< <5.40E-2	<5.40E-2	NA	NA	NA	1.25E-02	NA
	Am-241	n/A	<2.79E-2	< <1.30E-1	<1.30E-1	NA	NA	NA	2.78E-02	NA
	Co-60	102.00	<7.20E-3	< <5.80E-3	<5.40E-3	NA	NA	NA	6.00E-03	NA

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

Core 41 Segment 6H-1

	Analyte	LMCS Std add (ug/L)	LMCS Std % Rec	PREP BLK (ug/g)	Result #1 (ug/g) J814-8755	Result #2 (ug/g) J814-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	117.80	3.40E+00	J 1.71E+04	1.72E+04	1.71E+04	0.60	9.75E+01	414.80	3.40E+00	5.03E+03
	Sb	5000	98.50	3.56E+01	UJ 3.49E+01	3.46E+01	3.48E+01		9.75E+01	122.40	3.56E+01	9.78E-01
	As	5000	97.50	-3.43E+00	UJ 3.04E+00	3.02E+00	3.03E+00		9.75E+01	97.60	3.10E+00	9.77E-01
	Ba	10000	91.90	5.28E-01	J 8.38E+00	8.77E+00	8.57E+00	4.60	1.95E+02	96.50	3.00E-01	2.86E+01
	Be	10000	93.80	3.00E-01	UJ 2.94E-01	2.92E-01	2.93E-01		1.95E+02	94.80	3.00E-01	9.77E-01
	Cd	10000	89.90	7.00E-01	J 2.59E+00	2.17E+00	2.38E+00	17.50	1.95E+02	94.50	7.00E-01	3.40E+00
	Ca	10000	115.40	2.31E+01	J 2.77E+02	3.03E+02	2.90E+02	8.90	1.95E+02	87.10	2.40E+00	1.21E+02
	Cr	5000	94.60	1.40E+00	J 1.04E+03	1.02E+03	1.03E+03	1.70	9.75E+01	116.10	1.40E+00	7.36E+02
	Co	10000	89.20	1.20E+00	J 1.88E+00	1.17E+00	1.53E+00	200.00	1.95E+02	92.50	1.20E+00	1.28E+00
	Cu	5000	91.70	6.00E-01	J 1.83E+01	1.83E+01	1.83E+01	0.10	9.75E+01	93.70	6.00E-01	3.05E+01
	Fe	5000	92.10	2.00E+00	J 1.22E+04	1.21E+04	1.22E+04	0.80	9.75E+01	409.70	2.00E+00	6.10E+03
	Pb	10000	97.50	8.50E+00	J 6.48E+01	6.77E+01	6.62E+01	4.40	1.95E+02	100.00	8.50E+00	7.79E+00
	Mg	5000	101.70	3.70E+00	J 1.38E+02	1.45E+02	1.41E+02	4.80	9.75E+01	90.30	6.00E-01	2.35E+02
	Mn	5000	88.10	3.00E-01	J 4.01E+01	4.02E+01	4.02E+01	0.20	9.75E+01	92.70	3.00E-01	1.34E+02
	Ni	5000	92.60	1.80E+00	J 1.24E+01	1.30E+01	1.27E+01	4.70	9.75E+01	94.90	1.80E+00	7.06E+00
	K	5000	95.00	1.33E+01	J 9.47E+01	9.86E+01	9.67E+01	4.00	9.75E+01	110.30	1.33E+01	7.27E+00
	Se	5000	96.20	1.31E+01	J 1.43E+01	2.19E+01	1.81E+01	42.10	9.75E+01	106.20	1.31E+01	1.38E+00
	Ag	10000	10.30	1.00E+00	UJ 9.80E-01	9.73E-01	9.77E-01		1.95E+02	9.30	1.00E+00	9.77E-01
	Na	10000	130.40	2.64E+01	J 1.01E+05	1.01E+05	1.01E+05	0.70	1.95E+02	1994.20	8.70E+00	1.16E+04
	Zn	10000	91.00	2.50E+00	J 4.45E+01	4.39E+01	4.42E+01	1.30	1.95E+02	93.60	2.50E+00	1.77E+01
	Bi	10000	83.80	8.50E+00	J 2.82E+04	2.82E+04	2.82E+04	0.10	1.95E+02	285.40	8.50E+00	3.32E+03
	B	5000	132.10	8.56E+00	J 2.56E+01	3.17E+01	2.87E+01	21.50	9.75E+01	93.00	1.90E+00	1.51E+01
	Ce	10000	104.40	8.60E+00	J 1.94E+02	1.90E+02	1.92E+02	2.00	1.95E+02	100.00	8.60E+00	2.23E+01
	La	10000	95.40	2.10E+00	UJ 2.06E+00	2.04E+00	2.05E+00		1.95E+02	84.70	2.10E+00	9.76E-01
	P	10000	98.90	8.00E+00	J 2.59E+04	2.55E+04	2.57E+04	1.40	1.95E+02	180.20	8.00E+00	3.21E+03
	Si	10000	375.70	1.52E+01	R 1.61E+03	1.67E+03	1.64E+03	3.70	1.95E+02	791.30	2.30E+00	7.13E+02
	Sr	10000	91.80	6.00E-01	J 1.74E+02	1.73E+02	1.73E+02	0.50	1.95E+02	97.80	6.00E-01	2.88E+02
	S	5000	105.40	6.04E+00	J 4.05E+03	3.92E+03	3.98E+03	3.40	9.75E+01	79.40	6.00E+00	6.63E+02
	Sn	5000	91.30	1.60E+00	J 9.41E+00	8.25E+00	8.83E+00	13.10	9.75E+01	94.60	1.60E+00	5.52E+00
	Tl	5000	94.70	5.00E-01	J 4.12E+00	4.18E+00	4.15E+00	1.50	9.75E+01	93.50	5.00E-01	8.30E+00
	Zr	10000	91.20	1.10E+00	J 1.08E+02	8.97E+01	9.89E+01	18.70	1.95E+02	66.40	1.10E+00	8.99E+01

	Analyte	LMCS Std (%)	PREP BLK (ug/g)	Result #1 (ug/g) J814-8725	Result #2 (ug/g) J814-8825	Average (ug/g)	RPD %	Spike % Rec	DET LIM (ug/L)	Ratio R/DL
RAD-Acid	AT	87.90	<5.33E-04	< 1.41E-01	1.40E-01	0.14	0.71	66.00	0.00053	265.09

				J814-8730	J814-8830					
GEA	Cs-137	101.40	<1.59E-3	< 7.26E+00	7.31E+00	7.29E+00	0.69	NA	<1.44E-3	NA
	Eu-154	NA	<3.80E-3	< <3.70E-3	<4.00E-3	NA	NA	NA	<4.10E-3	NA
	Eu-155	NA	<2.58E-3	< <1.00E-2	<9.90E-3	NA	NA	NA	<2.52E-3	NA
	Am-241	NA	<5.97E-3	< <2.40E-2	<2.40E-2	NA	NA	NA	<5.80E-3	NA
	Co-60	99.80	<1.27E-3	< <1.26E-3	<9.40E-4	NA	NA	NA	<1.35E-3	NA

ASD 4 6
3-16-93

Core 41 Segment 6H-2

DATE:	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J815-8755	Result #2 (ug/g) J815-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5.00E+03	117.80	3.40E+00	J 1.70E+04	1.67E+04	1.69E+04	1.20	NA	NA	3.40E+00	4.97E+03
	Sb	5.00E+03	98.50	3.56E+01	UJ 3.36E+01	3.39E+01	3.38E+01		NA	NA	3.56E+01	9.49E-01
	As	5.00E+03	97.50	-3.43E+00	UJ 2.92E+00	2.96E+00	2.94E+00		NA	NA	3.10E+00	9.48E-01
	Ba	1.00E+04	91.90	5.28E-01	J 8.48E+00	8.42E+00	8.45E+00	0.80	NA	NA	3.00E-01	2.82E+01
	Be	1.00E+04	93.80	3.00E-01	UJ 2.83E-01	2.86E-01	2.84E-01		NA	NA	3.00E-01	9.47E-01
	Cd	1.00E+04	89.90	7.00E-01	J 2.47E+00	2.27E+00	2.37E+00	8.10	NA	NA	7.00E-01	3.39E+00
	Ca	1.00E+04	115.40	2.31E+01	J 2.76E+02	2.69E+02	2.73E+02	2.60	NA	NA	2.40E+00	1.14E+02
	Cr	5.00E+03	94.60	1.40E+00	J 1.03E+03	1.01E+03	1.02E+03	2.60	NA	NA	1.40E+00	7.29E+02
	Co	1.00E+04	89.20	1.20E+00	J 1.68E+00	1.14E+00	1.41E+00	200.00	NA	NA	1.20E+00	1.18E+00
	Cu	5.00E+03	91.70	6.00E-01	J 1.86E+01	1.80E+01	1.83E+01	3.60	NA	NA	6.00E-01	3.05E+01
	Fe	5.00E+03	92.10	2.00E+00	J 1.22E+04	1.18E+04	1.20E+04	2.90	NA	NA	2.00E+00	6.00E+03
	Pb	1.00E+04	97.50	8.50E+00	J 6.06E+01	6.90E+01	6.48E+01	13.10	NA	NA	8.50E+00	7.62E+00
	Mg	5.00E+03	101.70	3.70E+00	J 1.36E+02	1.30E+02	1.33E+02	4.20	NA	NA	6.00E-01	2.22E+02
	Mn	5.00E+03	88.10	3.00E-01	J 4.04E+01	3.93E+01	3.99E+01	2.70	NA	NA	3.00E-01	1.33E+02
	Ni	5.00E+03	92.60	1.80E+00	J 1.23E+01	1.21E+01	1.22E+01	1.40	NA	NA	1.80E+00	6.78E+00
	K	5.00E+03	95.00	1.33E+01	J 1.13E+02	1.04E+02	1.09E+02	7.90	NA	NA	1.33E+01	8.20E+00
	Se	5.00E+03	96.20	1.31E+01	J 2.61E+01	3.26E+01	2.93E+01	22.20	NA	NA	1.31E+01	2.24E+00
	Ag	1.00E+04	10.30	1.00E+00	UJ 9.43E-01	9.53E-01	9.48E-01		NA	NA	1.00E+00	9.48E-01
	Na	1.00E+04	130.40	2.64E+01	J 9.82E+04	9.59E+04	9.71E+04	2.30	NA	NA	8.70E+00	1.12E+04
	Zn	1.00E+04	91.00	2.50E+00	J 4.39E+01	4.35E+01	4.37E+01	1.00	NA	NA	2.50E+00	1.75E+01
	Bi	1.00E+04	83.80	8.50E+00	J 2.79E+04	2.75E+04	2.77E+04	1.40	NA	NA	8.50E+00	3.26E+03
	B	5.00E+03	132.10	8.56E+00	J 2.42E+01	2.23E+01	2.32E+01	7.90	NA	NA	1.90E+00	1.22E+01
	Ce	1.00E+04	104.40	8.60E+00	J 1.93E+02	1.86E+02	1.90E+02	3.90	NA	NA	8.60E+00	2.21E+01
	La	1.00E+04	95.40	2.10E+00	UJ 1.98E+00	2.00E+00	1.99E+00		NA	NA	2.10E+00	9.48E-01
	P	1.00E+04	98.90	8.00E+00	J 2.53E+04	2.50E+04	2.51E+04	1.30	NA	NA	8.00E+00	3.14E+03
	Si	1.00E+04	375.70	1.52E+01	R 1.15E+03	1.54E+03	1.34E+03	29.00	NA	NA	2.30E+00	5.83E+02
	Sr	1.00E+04	91.80	6.00E-01	J 1.74E+02	1.69E+02	1.72E+02	2.60	NA	NA	6.00E-01	2.87E+02
	S	5.00E+03	105.40	6.04E+00	J 4.13E+03	3.99E+03	4.06E+03	3.50	NA	NA	6.00E+00	6.77E+02
	Sn	5.00E+03	91.30	1.60E+00	J 7.51E+00	8.87E+00	8.19E+00	16.60	NA	NA	1.60E+00	5.12E+00
	Ti	5.00E+03	94.70	5.00E-01	J 4.30E+00	4.23E+00	4.26E+00	1.80	NA	NA	5.00E-01	8.52E+00
	Zr	1.00E+04	91.20	1.10E+00	J 7.66E+01	1.01E+02	8.89E+01	27.60	NA	NA	1.10E+00	8.08E+01

Date:	Analyte	LMCS Std (%)	PREP BLK (ug/g)	Result #1 (ug/g) J815-8725	Result #2 (ug/g) J815-8825	Average (ug/g)	RPD %	Spike % Rec	DET LIM (ug/L)	Ratio R/DL
RAD-Acid	AT	87.90	<5.33E-04	< 1.45E-01	1.44E-01	1.44E-01	0.69	NA	NA	NA

				J815-8730	J815-8830					
GEA	Cs-137	101.40	<1.59E-3	< 7.20E+00	7.34E+00	7.27E+00	1.93	NA	<1.44E-3	NA
	Eu-154	NA	<3.80E-3	< <3.80E-3	<2.70E-3	NA	NA	NA	<4.10E-3	NA
	Eu-155	NA	<2.58E-3	< <9.80E-3	<9.20E-3	NA	NA	NA	<2.52E-3	NA
	Am-241	NA	<5.97E-3	< <2.35E-2	<2.20E-2	NA	NA	NA	<5.80E-3	NA
	Co-60	99.80	<1.27E-3	< <1.20E-3	<1.00E-3	NA	NA	NA	<1.35E-3	NA

23

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

BX107 CORE 41 CC1

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J925-8755	Result #2 (ug/g) J925-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	120.90	3.50E+00	J 1.62E+04	1.62E+04	1.62E+04	0.10	4.68E+01	5300.80	3.50E+00	4.63E+03
	Sb	5000	88.80	3.66E+01	J 3.47E+01	3.56E+01	3.52E+01		4.68E+01	0.00	3.66E+01	9.62E-01
	As	5000	94.10	3.00E+00	J 3.13E+00	2.92E+00	3.02E+00	6.90	4.68E+01	93.70	3.00E+00	1.01E+00
	Ba	10000	105.60	3.00E-01	J 1.01E+01	1.05E+01	1.03E+01	3.50	9.36E+01	101.30	3.00E-01	3.43E+01
	Be	10000	103.10	3.00E-01	J J 2.85E-01	2.92E-01	2.88E-01		9.36E+01	95.10	3.00E-01	9.60E-01
	Cd	10000	101.80	7.00E-01	J 2.70E+00	2.77E+00	2.74E+00	2.60	9.36E+01	94.20	7.00E-01	3.91E+00
	Ca	10000	156.00	5.94E+01	J 4.16E+02	1.92E+03	1.17E+03	128.70	9.36E+01	134.40	2.72E+01	4.30E+01
	Cr	5000	105.70	1.20E+00	1.07E+03	1.07E+03	1.07E+03	0.60	4.68E+01	64.60	1.20E+00	8.92E+02
	Co	10000	103.20	1.00E+00	J 2.09E+00	2.55E+00	2.32E+00	19.60	9.36E+01	94.80	1.00E+00	2.32E+00
	Cu	5000	105.30	1.65E+00	J 1.86E+01	1.89E+01	1.87E+01	1.40	4.68E+01	177.00	4.00E-01	4.67E+01
	Fe	5000	108.20	1.50E+00	1.28E+04	1.29E+04	1.29E+04	0.90	4.68E+01	-439.20	1.50E+00	8.60E+03
	Pb	5000	102.50	7.10E+00	J 7.75E+01	7.67E+01	7.71E+01	1.10	4.68E+01	191.20	7.10E+00	1.09E+01
	Mg	5000	111.50	1.50E+00	J 1.62E+02	2.16E+02	1.89E+02	28.40	4.68E+01	80.50	7.00E-01	2.70E+02
	Mn	5000	99.60	3.00E-01	4.62E+01	4.82E+01	4.72E+01	4.20	4.68E+01	92.80	3.00E-01	1.57E+02
	Ni	5000	102.70	1.40E+00	J 1.36E+01	1.43E+01	1.40E+01	5.30	4.68E+01	168.20	1.40E+00	1.00E+01
	K	5000	75.60	-2.70E+01	J 2.99E+02	3.13E+02	3.06E+02	4.80	4.68E+01	142.80	1.29E+01	2.37E+01
	Se	5000	154.50	-2.57E+01	J 3.66E+02	3.72E+02	3.69E+02	1.70	4.68E+01	157.30	8.30E+00	4.45E+01
	Ag	5000	48.10	1.00E+00	J J 9.49E-01	9.73E-01	9.61E-01		4.68E+01	31.40	1.00E+00	9.61E-01
	Na	10000	154.80	2.26E+01	J 1.04E+05	1.03E+05	1.04E+05	0.50	9.36E+01	-1593.70	2.80E+00	3.68E+04
	Zn	10000	102.10	5.64E+00	J 7.71E+01	8.50E+01	8.10E+01	9.80	9.36E+01	1355.10	2.50E+00	3.24E+01
	Bi	5000	70.00	5.80E+00	J 2.73E+04	2.70E+04	2.72E+04	1.10	4.68E+01	-1024.70	5.80E+00	4.67E+03
	B	5000	142.50	1.83E+00	J 5.76E+01	4.40E+01	5.08E+01	26.80	4.68E+01	105.00	1.00E+00	5.08E+01
	Ce	5000	86.40	-2.33E+01	J 1.92E+02	1.90E+02	1.91E+02	1.00	4.68E+01	132.90	9.80E+00	1.95E+01
	La	5000	107.70	1.60E+00	J J 1.52E+00	1.56E+00	1.54E+00		9.36E+01	40.40	1.60E+00	9.63E-01
	P	10000	111.50	9.90E+00	J 2.44E+04	2.35E+04	2.40E+04	3.70	9.36E+01	588.10	9.90E+00	2.41E+03
	Si	10000	404.60	9.18E+00	J 1.63E+03	1.86E+03	1.74E+03	13.20	9.36E+01	158.90	4.30E+00	4.05E+02
	Sr	10000	105.60	4.00E-01	J 1.85E+02	1.85E+02	1.85E+02	0.00	9.36E+01	96.20	4.00E-01	4.62E+02
	S	5000	132.70	1.75E+01	J 4.52E+03	4.43E+03	4.48E+03	2.10	4.68E+01	-29.00	4.50E+00	9.93E+02
	Sn	5000	104.30	2.30E+00	J 5.34E+00	9.04E+00	7.19E+00	51.40	4.68E+01	102.90	2.30E+00	3.13E+00
	Ti	5000	102.10	-4.30E-01	J 4.23E+00	4.94E+00	4.59E+00	15.40	4.68E+01	93.60	4.00E-01	1.15E+01
	Zr	10000	99.20	-1.02E+00	J 8.64E+01	8.95E+01	8.80E+01	3.50	9.36E+01	-23.10	8.00E-01	1.10E+02

Direct: Unhom	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g) J925-5711	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
	DSC	EXO	NA	NO EXO	NA	NA	NA	NA	NA	NA
				J925-5712	J925-5812					
	TGA %	98.30	NA	66.30	61.80	64.05	7.03	NA	NA	NA
				J935-5710	J936-5710					
	%WTR	100.60	NA	56.00	56.30	56.15	0.53	NA	1.00E-01	NA
				J925-8795	J925-8895					
HYAA	As	104.70	<2.50E-01	J 3.19E-01	4.03E-01	3.61E-01	23.27	87.60	2.50E-01	1.44
	Se	100.00	3.10E-01	2.01E+00	2.03E+00	2.02E+00	0.99	124.00	2.50E-01	8.08E+00
				J925-5798	J925-5898					
CVAA	Hg	99.9	<1.25E-01	J 5.39E-01	7.23E-01	6.31E-01	29.16	120.80	1.25E-01	5.05E+00
				J925-5778	J925-5878					
CN-Dir	CN	95.10	2.00E-02	2.88E+00	3.10E+00	2.99E+00	7.40	93.00	1.00E-01	2.99E+01

24

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

ASD 3-16-93

BX107 CORE 41 CC1

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J925-7755	Result #2 (ug/g) J925-7855	Average (ug/g)	RPD %	Spk add (ug/L)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Water	Al	5000	94.20	1.67E+01	J 7.33E+01	6.99E+01	7.16E+01	4.70	1.25E+03	50.00	3.40E+00	2.11E+01
	Sb	5000	98.10	3.56E+01	U 3.63E+01	3.62E+01	3.63E+01		1.25E+03	101.20	3.56E+01	1.02E+00
	As	5000	97.20	3.10E+00	U 3.16E+00	3.16E+00	3.16E+00		1.25E+03	98.00	3.10E+00	1.02E+00
	Ba	10000	98.40	3.00E-01	U 3.06E-01	3.05E-01	3.06E-01		2.50E+03	99.90	3.00E-01	1.02E+00
	Be	10000	99.20	3.00E-01	U 3.06E-01	3.05E-01	3.06E-01		2.50E+03	99.10	3.00E-01	1.02E+00
	Cd	10000	93.50	7.00E-01	U 7.14E-01	7.13E-01	7.13E-01		2.50E+03	94.30	7.00E-01	1.02E+00
	Ca	10000	102.80	7.88E+01	J 1.41E+02	1.54E+02	1.47E+02	8.30	2.50E+03	63.40	2.40E+00	6.12E+01
	Cr	5000	97.20	1.40E+00	1.54E+02	1.58E+02	1.56E+02	2.50	1.25E+03	-2.40	1.40E+00	1.11E+02
	Co	10000	92.90	1.20E+00	U 1.22E+00	1.22E+00	1.22E+00		2.50E+03	93.20	1.20E+00	1.02E+00
	Cu	5000	94.60	-1.82E+00	U 6.12E-01	6.11E-01	6.11E-01		1.25E+03	95.50	6.00E-01	1.02E+00
	Fe	5000	93.60	2.00E+00	6.15E+01	5.52E+01	5.84E+01	10.80	1.25E+03	54.70	2.00E+00	2.92E+01
	Pb	5000	98.70	8.50E+00	U 8.67E+00	8.65E+00	8.66E+00		1.25E+03	98.20	8.50E+00	1.02E+00
	Mg	5000	99.90	3.43E+00	6.59E+00	6.43E+00	6.51E+00	2.40	1.25E+03	97.00	6.00E-01	1.08E+01
	Mn	5000	90.60	3.00E-01	U 3.06E-01	3.05E-01	3.06E-01		1.25E+03	92.00	3.00E-01	1.02E+00
	Ni	5000	93.80	1.80E+00	U 1.84E+00	1.83E+00	1.83E+00		1.25E+03	96.40	1.80E+00	1.02E+00
	K	5000	104.00	1.33E+01	1.51E+02	1.61E+02	1.56E+02	6.30	1.25E+03	16.20	1.33E+01	1.17E+01
	Se	5000	97.70	1.31E+01	U 1.34E+01	1.33E+01	1.33E+01		1.25E+03	108.80	1.31E+01	1.02E+00
	Ag	5000	92.90	1.00E+00	U 1.02E+00	1.02E+00	1.02E+00		1.25E+03	97.40	1.00E+00	1.02E+00
	Na	10000	97.80	3.80E+01	7.94E+04	8.06E+04	8.01E+04	1.80	2.50E+03	-25777.00	8.70E+00	9.21E+03
	Zn	10000	94.80	2.50E+00	U 2.55E+00	2.54E+00	2.55E+00		2.50E+03	96.00	2.50E+00	1.02E+00
	Bi	5000	99.80	8.50E+00	J 1.16E+02	1.11E+02	1.13E+02	4.00	1.25E+03	-14.60	8.50E+00	1.33E+01
	B	5000	102.50	3.04E+00	2.05E+01	2.09E+01	2.07E+01	1.90	1.25E+03	92.00	1.90E+00	1.09E+01
	Ce	5000	100.60	8.60E+00	U 8.77E+00	8.75E+00	8.76E+00		1.25E+03	106.10	8.60E+00	1.02E+00
	La	5000	95.00	2.10E+00	U 2.14E+00	2.14E+00	2.14E+00		1.25E+03	96.90	2.10E+00	1.02E+00
	P	10000	97.40	8.00E+00	4.56E+03	4.65E+03	4.60E+03	1.90	2.50E+03	-1399.40	8.00E+00	5.75E+02
	Si	10000	108.90	4.39E+00	J 1.33E+02	1.39E+02	1.36E+02	4.40	2.50E+03	69.00	2.30E+00	5.91E+01
	Sr	10000	101.10	6.00E-01	1.48E+00	1.44E+00	1.46E+00	2.60	2.50E+03	102.40	6.00E-01	2.43E+00
	S	5000	99.80	6.00E+00	4.35E+03	4.44E+03	4.39E+03	2.00	1.25E+03	-2748.80	6.00E+00	7.32E+02
	Sn	5000	93.70	1.60E+00	U 1.63E+00	1.63E+00	1.63E+00		1.25E+03	96.80	1.60E+00	1.02E+00
	Ti	5000	99.50	5.00E-01	U 5.10E-01	5.09E-01	5.10E-01		1.25E+03	99.90	5.00E-01	1.02E+00
	Zr	10000	94.60	1.21E+00	U 1.12E+00	1.30E+00	1.21E+00	200.00	2.50E+03	95.20	1.10E+00	1.10E+00

	Ratio AA/ICP
As	0.1193388
Se	0.0054742

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

25

3-10-92

BX107 CORE 41 CC1

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J925-7771	J925-7871					
IC-Water	F	103.00	1.00E+01	J 9.04E+03	8.72E+03	8.88E+03	3.60	114.00	1.00E+01	888.00
	Cl	105.0	2.36E+01	J 1.04E+03	1.08E+03	1.06E+03	3.77	108.00	2.36E+01	44.92
	NO3	106.00	1.86E+03	J 1.24E+05	1.31E+05	1.28E+05	5.49	125.00	1.86E+03	68.55
	NO2	103.00	1.00E+02	J 1.25E+04	1.24E+04	1.25E+04	0.80	103.00	1.00E+02	124.50
	PO4	106.00	1.00E+02	J 1.34E+04	1.34E+04	1.34E+04	0.00	108.00	1.00E+02	134.00
	SO4	105.00	1.00E+02	J 1.28E+04	1.32E+04	1.30E+04	3.08	106.00	1.00E+02	130.00
	P ACID ICP/PO4 IC					5.48E+00				
	S ACID ICP/SO4 IC					1.03E+00				
				J925-7779	J925-7879					
Spec-water	NO2	103.0	<5.11E+01	1.39E+04	1.26E+04	1.33E+04	9.81	106.00	5.11E+01	259.30
	NO3 (C)/NO2 Spec.					9.62E+00				
	NO2 (C)/NO2 (SPEC)					0.94				
				J925-5715	J925-5815					
pH	pH	101.0	NA	9.95	9.69	9.82	2.65	NA		NA
				J925-7728	J925-7828					
NH3-Water	NH3	108.20	<4.50E+01	<4.5E+03	<4.5E+03	NA	NA		8.92E+01	0.00
				UJ J925-7726	J925-7826					
TOC-Water	TOC	96.70	5.50E+02	<5.00E+02	<5.00E+02	NA	NA	94.70	5.50E+02	0.00
	Acetate Eq		0.00E+00							
				J925-7727	J925-7827					
TIC-water	CO3	106.0	3.40E-01	J 1.39E+03	1.10E+03	1.24E+03	23.54	102.40	5.00E+02	2.49

26

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

ASD 9 0
3-16-93

BX107 CORE 41 CC1

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J925-6755	Result #2 (ug/g) J925-6855	Average (ug/g)	RPD %	Spk add (ug/L)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Fusion	Al	5000	97.10	6.65E+01	1.72E+04	1.73E+04	1.73E+04	0.40	1.25E+03	117.90	3.50E+01	493.08
	Sb	5000	102.80	3.66E+02	UJ1.82E+02	1.82E+02	1.82E+02		1.25E+03	100.20	3.66E+02	0.50
	As	5000	98.80	3.00E+01	UJ1.49E+01	1.49E+01	1.49E+01		1.25E+03	100.20	3.00E+01	0.50
	Ba	10000	98.20	3.00E+00	J1.20E+01	1.16E+01	1.18E+01	3.00	2.50E+03	102.30	3.00E+00	3.94
	Be	10000	96.00	3.00E+00	UJ1.49E+00	1.49E+00	1.49E+00		2.50E+03	95.80	3.00E+00	0.50
	Cd	10000	98.90	7.00E+00	J4.73E+00	3.96E+00	4.35E+00	17.80	2.50E+03	97.00	7.00E+00	0.62
	Ca	10000	96.30	2.72E+02	3.65E+02	3.72E+02	3.69E+02	2.00	2.50E+03	108.20	2.72E+02	1.36
	Cr	5000	101.20	1.20E+01	1.08E+03	1.08E+03	1.08E+03	0.50	1.25E+03	101.90	1.20E+01	90.00
	Co	10000	97.20	1.00E+01	UJ4.98E+00	4.98E+00	4.98E+00		2.50E+03	97.00	1.00E+01	0.50
	Cu	5000	98.80	7.16E+00	2.59E+01	2.71E+01	2.65E+01	4.40	1.25E+03	100.00	4.00E+00	6.62
	Fe	5000	97.30	1.50E+01	1.34E+04	1.32E+04	1.33E+04	1.20	1.25E+03	106.30	1.50E+01	885.38
	Pb	5000	102.80	7.10E+01	J1.23E+02	7.58E+01	9.95E+01	47.80	1.25E+03	107.80	7.10E+01	1.40
	Mg	5000	98.60	7.00E+00	1.31E+02	1.32E+02	1.31E+02	0.40	1.25E+03	99.50	7.00E+00	18.75
	Mn	5000	94.10	3.00E+00	J6.52E+01	6.16E+01	7.34E+01	22.30	1.25E+03	94.20	3.00E+00	24.48
	Ni	5000	98.10	1.40E+01	J4.30E+03	1.42E+03	2.86E+03	100.80	1.25E+03	87.20	1.40E+01	204.03
	K	5000	102.50				NA				1.29E+02	0.00
	Se	5000	98.10	8.30E+01	UJ4.13E+01	4.13E+01	4.13E+01		1.25E+03	105.10	8.30E+01	0.50
	Ag	5000	102.90	2.87E+01	J7.59E+00	4.98E+00	6.29E+00	200.00	1.25E+03	110.20	1.00E+01	0.63
	Na	10000	96.70	4.57E+03	1.01E+05	1.03E+05	1.02E+05	2.00	2.50E+03	126.90	2.80E+01	3640.16
	V	10000	97.70	8.00E+00	J1.05E+01	1.04E+01	1.05E+01	1.80	2.50E+03	101.20	8.00E+00	1.31
	Zn	10000	96.90	3.33E+01	J9.28E+01	8.35E+01	8.82E+01	10.50	2.50E+03	98.20	2.50E+01	3.53
	Bi	5000	103.10	5.80E+01	J2.82E+04	2.80E+04	2.81E+04	0.60	1.25E+03	84.90	5.80E+01	484.05
	B	5000	96.60	1.22E+01	J8.32E+00	4.98E+00	6.65E+00	200.00	1.25E+03	96.60	1.00E+01	0.66
	Ce	5000	103.90	9.80E+01	J2.30E+02	1.72E+02	2.01E+02	28.50	1.25E+03	119.40	9.80E+01	2.05
	La	5000	100.60	1.60E+01	UJ7.97E+00	7.97E+00	7.97E+00		1.25E+03	104.20	1.60E+01	0.50
	P	10000	102.80	9.90E+01	J2.59E+04	2.88E+04	2.74E+04	10.80	2.50E+03	145.70	9.90E+01	276.36
	Si	10000	97.20	4.84E+02	7.98E+03	7.99E+03	7.99E+03	0.20	2.50E+03	110.00	4.30E+01	185.72
	Sr	10000	98.10	4.00E+00	J1.88E+02	1.88E+02	1.88E+02	0.20	2.50E+03	102.30	4.00E+00	46.94
	S	5000	97.20	6.48E+01	J4.03E+03	4.26E+03	4.15E+03	5.50	1.25E+03	113.80	4.50E+01	92.18
	Sn	5000	98.50	2.30E+01	UJ1.15E+01	1.15E+01	1.15E+01		1.25E+03	99.10	2.30E+01	0.50
	Ti	5000	97.50	5.86E+00	J8.14E+00	6.40E+00	7.27E+00	23.90	1.25E+03	101.80	4.00E+00	1.82
	Zr	10000	111.10	1.16E+01	J1.73E+02	6.92E+01	1.21E+02	85.60				

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

27

BX107 CORE 41 CC1

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
		J922	J923	J925-6740	J925-6840					
Fluor	U	107.9	<2.33E+02	2.82E+03	2.82E+03	2.82E+03	0.00	119.70	2.30E+02	1.23E+01
	U as uCi/g					0.00				

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
				J925-6725	J925-6825						
RAD-Fus.	AT	91.2	<3.58E-03	1.23E-01	1.13E-01	1.18E-01	8.47	88.40	3.60E-03	3.28E+01	5.70E+00
	AT/Pu+Am			1.82E+00	1.56E+00						
				J925-6720	J925-6820						
	TB	94.50	<1.31E+00	5.24E+01	5.23E+01	5.24E+01	0.19	94.90	1.30E+00	4.03E+01	2.50E+00
	TB/Cs+Sr			8.22E-01	8.07E-01						
				J925-6730	J925-6830						
GEA	Cs-137	102.00	<7.75E-03	2.00E+01	2.04E+01	2.02E+01	1.78	NA	7.20E-03	2804.17	7.00E-01
	Eu-154	NA	<1.86E-02	<1.59E-02	<1.98E-02	NA	NA	NA	2.04E-02	0.00	NA
	Eu-155	NA	<1.33E-02	<3.76E-02	<3.77E-02	NA	NA	NA	1.26E-02	0.00	NA
	Am-241	NA	<2.83E-02	<8.96E-02	<9.12E-02	NA	NA	NA	2.90E-02	0.00	NA
	Co-60	101.00	<6.00E-03	<6.82E-03	<5.98E-03	NA	NA	NA	6.75E-03	0.00	NA
				J925-6781	J925-6881						
	PU239/40	97.80	<3.28E-03	5.49E-02	5.64E-02	5.56E-02	2.70	NA	NA	NA	NA
	PU-238	NONE DETECTED				NA	NA	NA	NA	NA	NA

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
Am-241	108.0	<3.28E-03	1.28E-02	1.62E-02	1.45E-02	23.45		1.80E-03	8.06E+00	8.80E+00
Cm-244					NA	NA	NA	NA	NA	NA
Am-241 (GEA)/Am-241 (ALPHA)					0.00E+00					
			J925-6783	J925-6883						
NP-237	81.50	<2.16E-02	<2.15E-02	<2.15E-02	NA	NA	92.30	2.10E-02	0.00	6.75E+01
			J925-6784	J925-6884						
TC-99	94.4	<9.38E-04	4.92E-02	4.23E-02	4.57E-02	15.08	65.60	9.40E-04	48.67	
							68.50			
			J925-6785	J925-6885						
I-129	98.0	<1.47E-02	<1.83E-02	<1.23E-02	NA	NA	51.80	1.40E-02	0.00	
							76.40			

Analyte	Std #1 % Rec	Prep Blk (uCi/g)	Result #1 (uCi/g)	Result #2 (uCi/g)	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Ct Err
			J925-6786	J925-6886						
Sr-90	102.80	<2.29E-03	<1.18E+01	1.20E+01	1.19E+01	1.68E+00		2.30E-02	5.17E+02	3.00E-01
			J925-7787	J925-7877						
H-3	97.50	<2.25E-04	4.20E-04	3.66E-04	3.93E-04	13.74	99.70	2.25E-04	1.75	6.00
			J925-7788	J925-7888						
C-14	65.10	<1.13E04	3.49E-04	2.89E-04	3.19E-04	18.61	90.30	1.13E+04	0.00	
			J925-6789	J925-6889						
Se-79	NA	<1.34E-04	<1.26E-04	<1.25E-04	NA	NA	NA	1.20E-04	0.00	4.50E+00

28

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

ATD 9
3-16-93

2

BX107 CORE 41 CORE COMP 2

	Analyte	LMCS Std add (ug/L)	% Rec	PREP BLK (ug/g)	Result #1 (ug/g) J927-8755	Result #2 (ug/g) J927-8855	Average (ug/g)	RPD %	Spk add (ug/g)	Spike % Rec	DET LIM (ug/g)	Ratio R/DL
ICP-Acid	Al	5000	220.30	2.06E+01	J 1.66E+04	1.65E+04	1.66E+04	1.00	NA	NA	3.50E+00	4.74E+03
	Sb	5000	126.90	3.66E+01	UJ 3.35E+01	3.41E+01	3.38E+01		NA	NA	3.66E+01	9.23E-01
	As	5000	96.90	3.00E+00	UJ 2.74E+00	2.80E+00	2.77E+00		NA	NA	3.00E+00	9.23E-01
	Ba	10000	101.30	3.08E-01	J 9.34E+00	9.27E+00	9.31E+00	0.70	NA	NA	3.00E-01	3.10E+01
	Be	10000	97.70	3.00E-01	UJ 2.74E-01	2.80E-01	2.77E-01		NA	NA	3.00E-01	9.23E-01
	Cd	10000	98.50	7.00E-01	J 2.69E+00	2.43E+00	2.56E+00	10.10	NA	NA	7.00E-01	3.66E+00
	Ca	10000	5552.00	7.57E+02	J 3.06E+02	2.86E+02	2.96E+02	6.80	NA	NA	2.72E+01	1.09E+01
	Cr	5000	105.30	1.20E+00	1.04E+03	1.02E+03	1.03E+03	2.40	NA	NA	1.20E+00	8.58E+02
	Co	10000	98.70	1.00E+00	UJ 9.14E-01	9.88E-01	9.51E-01	200.00	NA	NA	1.00E+00	9.51E-01
	Cu	5000	99.30	6.01E-01	J 1.72E+01	1.67E+01	1.70E+01	2.70	NA	NA	4.00E-01	4.25E+01
	Fe	5000	130.90	3.40E+00	J 1.25E+04	1.21E+04	1.23E+04	3.20	NA	NA	1.50E+00	8.20E+03
	Pb	5000	108.40	7.10E+00	J 6.92E+01	6.94E+01	6.93E+01	0.30	NA	NA	7.10E+00	9.76E+00
	Mg	5000	417.30	1.70E+01	J 1.25E+02	1.27E+02	1.26E+02	1.10	NA	NA	7.00E-01	1.80E+02
	Mn	5000	105.90	5.41E-01	J 4.39E+01	4.23E+01	4.31E+01	3.80	NA	NA	3.00E-01	1.44E+02
	Ni	5000	101.80	1.40E+00	J 1.39E+01	1.33E+01	1.36E+01	4.00	NA	NA	1.40E+00	9.71E+00
	K	5000	161.80	2.06E+01	J 2.78E+02	2.86E+02	2.82E+02	2.90	NA	NA	1.29E+01	2.19E+01
	Se	5000	110.70	8.30E+00	UJ 7.59E+00	7.74E+00	7.66E+00		NA	NA	8.30E+00	9.23E-01
	Ag	5000	76.00	1.00E+00	UJ 9.14E-01	9.33E-01	9.23E-01		NA	NA	1.00E+00	9.23E-01
	Na	10000	146.00	3.90E+01	J 1.00E+05	1.00E+05	1.00E+05	0.50	NA	NA	2.80E+00	3.57E+04
	Zn	10000	186.00	1.06E+01	J 6.65E+01	6.45E+01	6.55E+01	3.10	NA	NA	2.50E+00	2.62E+01
	Bi	5000	73.60	5.80E+00	J 2.64E+04	2.60E+04	2.62E+04	1.80	NA	NA	5.80E+00	4.52E+03
	B	5000	135.30	1.14E+01	J 2.12E+01	2.95E+01	2.53E+01	32.60	NA	NA	1.00E+00	2.53E+01
	Ce	5000	96.20	9.80E+00	J 2.05E+02	2.01E+02	2.03E+02	1.60	NA	NA	9.80E+00	2.07E+01
	La	5000	98.80	1.60E+00	UJ 1.46E+00	1.49E+00	1.48E+00		NA	NA	1.60E+00	9.25E-01
	P	10000	108.00	9.90E+00	J 2.69E+04	2.75E+04	2.72E+04	2.20	NA	NA	9.90E+00	2.75E+03
	Si	10000	366.90	2.82E+01	J 1.77E+03	1.54E+03	1.66E+03	13.80	NA	NA	4.30E+00	3.86E+02
	Sr	10000	104.00	6.20E-01	J 1.72E+02	1.68E+02	1.70E+02	1.90	NA	NA	4.00E-01	4.25E+02
	S	5000	144.00	1.42E+01	J 4.03E+03	4.03E+03	4.03E+03	0.00	NA	NA	4.50E+00	8.96E+02
	Sn	5000	107.00	5.54E+00	J 1.07E+01	1.17E+01	1.12E+01	8.50	NA	NA	2.30E+00	4.87E+00
	Ti	5000	100.40	4.00E-01	J 4.08E+00	4.05E+00	4.06E+00	0.80	NA	NA	4.00E-01	1.01E+01
	Zr	10000	111.50	8.00E-01	1.15E+02	1.05E+02	1.10E+02	9.20	NA	NA	8.00E-01	1.38E+02

Direct/Unhom.	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g) J927-5711	Result #2 (ug/g) J927-5811	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
	DSC	EXO	NA	NO EXO	NO EXO	NA	NA	NA	NA	NA
				J927-5712	J927-5812					
	TGA	99.00	NA	50.70	54.30	52.5	6.86	NA	NA	NA
				J937-5710	J938-5710					
	%WTR	100.60		55.90	56.00	55.95	0.18	NA	NA	NA
				J927-8795	J927-8895					
HYAA	As	114.30	<2.50E-01	5.17E-01	5.54E-01	5.36E-01	6.91	87.60	2.50E-01	2.14
	Se	87.30	<2.50E-01	J 5.96E-01	7.04E-01	6.50E-01	16.62	124.00	2.50E-01	2.60
				J927-5798	J927-5898					
CVAA	Hg	107.7	<1.25E-01	J 6.27E-01	6.57E-01	6.42E-01	4.67	120.80	1.25E-01	5.14
				J927-5778	J927-5878					
CN-Dir	CN	94.60	<2.00E-01	2.07E+00	2.78E+00	2.43E+00	29.20	NA	1.00E-01	24.30
	CsNiFeCN6					NA				

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

29

BX107 CORE 41 CORE COMP 2 3

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J927-6755	Result #2 (ug/g) J927-6855	Average (ug/g)	RPD %	Spk add (ug/L) NO SPIKE	Spike % Rec NO SPIKE	DET LIM (ug/g)	Ratio R/DL
ICP-Water	Al	5000	93.50	2.33E+01	J	3.50E+02	2.09E+02	2.79E+02	50.70			3.50E+00	79.83
	Sb	5000	97.00	3.66E+01	UJ	3.72E+01	3.72E+01	3.72E+01				3.66E+01	1.02
	As	5000	94.80	3.00E+00	UJ	3.05E+00	3.05E+00	3.05E+00				3.00E+00	1.02
	Ba	10000	91.90	3.00E-01	J	6.36E-01	4.69E-01	5.53E-01	30.30			3.00E-01	1.84
	Be	10000	90.30	3.17E-01	UJ	3.05E-01	3.05E-01	3.05E-01				3.00E-01	1.02
	Cd	10000	91.80	7.00E-01	UJ	7.11E-01	7.11E-01	7.11E-01				7.00E-01	1.02
	Ca	10000	92.40	8.73E+01	J	1.36E+02	1.05E+02	1.21E+02	25.60			2.72E+01	4.45
	Cr	5000	95.60	1.20E+00	J	1.71E+02	1.48E+02	1.59E+02	14.80			1.20E+00	132.85
	Co	10000	92.70	1.00E+00	J	1.17E+00	1.02E+00	1.09E+00	200.00			1.00E+00	1.09
	Cu	5000	96.50	4.00E-01	J	1.07E+00	6.70E-01	8.70E-01	46.00			4.00E-01	2.18
	Fe	5000	90.20	1.62E+00	J	4.22E+02	2.14E+02	3.18E+02	65.40			1.50E+00	212.15
	Pb	5000	96.30	7.10E+00	J	7.49E+00	8.04E+00	7.77E+00	7.10			7.10E+00	1.09
	Mg	5000	92.00	3.79E+00	J	9.57E+00	7.25E+00	8.41E+00	27.60			7.00E-01	12.02
	Mn	5000	88.40	3.00E-01	J	1.72E+00	8.88E-01	1.30E+00	63.60			3.00E-01	4.34
	Ni	5000	91.50	1.40E+00	UJ	1.42E+00	1.42E+00	1.42E+00				1.40E+00	1.02
	K	5000	94.70	1.29E+01	J	1.28E+02	1.31E+02	1.30E+02	2.80			1.29E+01	10.04
	Se	5000	101.60	1.39E+01	R	7.45E+01	6.20E+01	6.82E+01	18.30			8.30E+00	8.22
	Ag	5000	96.30	1.00E+00	UJ	1.02E+00	1.02E+00	1.02E+00				1.00E+00	1.02
	Na	10000	92.30	1.39E+01	J	7.26E+04	7.14E+04	7.20E+04	1.50			2.80E+00	25713.8
	Zn	10000	93.40	2.50E+00	J	5.28E+00	4.95E+00	5.12E+00	6.40			2.50E+00	2.05
	Bi	5000	98.00	5.60E+00	J	8.39E+02	4.31E+02	6.35E+02	64.30			5.80E+00	109.44
	B	5000	95.00	7.90E+00	J	2.32E+01	2.25E+01	2.28E+01	3.30			1.00E+00	22.84
	Ce	5000	105.00	9.80E+00	UJ	9.96E+00	9.96E+00	9.96E+00				9.80E+00	1.02
	La	5000	98.80	1.60E+00	UJ	1.63E+00	1.63E+00	1.63E+00				1.60E+00	1.02
	P	10000	100.10	9.90E+00	J	4.81E+03	4.81E+03	4.81E+03	0.10			9.90E+00	486.08
	Si	10000	92.40	1.15E+01	J	2.71E+02	2.53E+02	2.62E+02	7.20			4.30E+00	60.95
	Sr	10000	91.70	4.00E-01	J	6.50E+00	3.51E+00	5.00E+00	59.80			4.00E-01	12.51
	S	5000	100.90	5.30E+00	J	4.17E+03	4.13E+03	4.15E+03	1.00			4.50E+00	922.58
	Sn	5000	90.70	2.30E+00	UJ	2.34E+00	2.34E+00	2.34E+00				2.30E+00	1.02
	Ti	5000	93.50	4.00E-01	UJ	4.06E-01	4.06E-01	4.06E-01				4.00E-01	1.02
	Zr	10000	97.10	8.00E-01	J	7.85E+00	4.33E+00	6.09E+00	57.80			8.00E-01	

WHC-SD-WM-DP-028
ADDENDUM 2 REV 0

ADD
3-16-93

BX107 CORE 41 CORE COMP 2

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
				J927-7771	J927-7871					
IC-Water	F	100.00	1.00E+00	1.09E+04	1.10E+04	1.09E+04	0.91	114.00	1.00E+00	1.09E+04
	Cl	105	2.34E+01	1.20E+03	1.15E+03	1.18E+03	4.26	108.00	2.34E+01	5.02E+01
	NO3	103.00	1.00E+02	1.28E+05	1.31E+05	1.30E+05	2.32	119.00	1.00E+02	1.30E+03
	NO2	103.00	1.00E+02	1.21E+03	1.18E+03	1.20E+03	2.51	103.00	1.00E+02	1.19E+01
	PO4	103.00	1.00E+02	J 1.43E+04	1.41E+04	1.42E+04	1.41	108.00	1.00E+02	1.42E+02
	SO4	102.00	1.00E+02	J 1.22E+04	1.23E+04	1.23E+04	0.82	106.00	1.00E+02	1.23E+02
	P ACID ICP/PO4 IC					5.87E+00				
	S ACID ICP/SO4 IC					9.86E-01				
				J927-7779	J927-7879					
Spec-water	NO2	98.4	5.00E-01	1.24E+04	1.25E+04	1.25E+04	0.80	106.00	5.00E-01	2.49E+04
	NO3 (IC)/NO2 Spec.					10.40				
	NO2 (IC)/NO2 (SPEC)					0.10				
				J927-5715	J927-5815					
pH	pH	100.8	NA	9.72	9.71	9.72	0.10	NA	NA	NA
				J927-7728	J927-7828					
NH3-Water	NH3	100.40	<4.50E+03	<4.50E+03	<4.50E+03	NA	NA	NA	NA	NA
				J927-7726	J927-7826					
TOC-Water	TOC	97.00	5.50E+02	J 7.96E+02	9.97E+02	8.97E+02	22.42	94.70	5.50E+02	NA
	Acetate Eq		4.41E+03							
				J927-7727	J927-7827					
TIC-water	CO3	101.5	2.70E-01	J 1.10E+03	1.10E+03	1.10E+03	0.00	102.40	5.00E+02	2.20E+00

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

BX107 CORE 41 CORE COMP 2 5

	Analyte	LMCS Std added	% Rec	PREP BLK (ug/g)		Result #1 (ug/g) J927-6755	Result #2 (ug/g) J927-6855	Average (ug/g)	RPD %	Spk add (ug/L) NO SPIKE	Spike % Rec	DET LIM (ug/g) IDL/2	Ratio R/DL
ICP-Fusion	Al	5000	90.50	5.52E+01	J	1.33E+04	1.49E+04	1.41E+04	11.60			1.75E+01	803.91
	Sb	5000	93.20	1.83E+02	R	1.83E+02	1.83E+02	1.83E+02				1.83E+02	1.00
	As	5000	94.60	1.50E+01		1.50E+01	1.50E+01	1.50E+01				1.50E+01	1.00
	Ba	10000	96.30	1.50E+00		1.06E+01	1.05E+01	1.06E+01	1.20			1.50E+00	7.04
	Be	10000	97.30	1.50E+00		1.50E+00	1.50E+00	1.50E+00				1.50E+00	1.00
	Cd	10000	97.70	3.50E+00	J	4.30E+00	6.22E+00	5.26E+00	36.60			3.50E+00	1.50
	Ca	10000	94.50	1.36E+02		5.20E+02	5.76E+02	5.49E+02	10.60			1.36E+02	4.04
	Cr	5000	100.80	6.00E+00	J	9.56E+02	1.01E+03	9.83E+02	5.00			6.00E+00	163.84
	Co	10000	96.80	5.00E+00	J	9.68E+00	1.59E+01	1.28E+01	48.60			5.00E+00	2.56
	Cu	5000	96.80	2.00E+00	J	5.33E+01	2.91E+01	4.12E+01	58.70			2.00E+00	20.60
	Fe	5000	97.40	7.50E+00		1.05E+04	1.17E+04	1.11E+04	11.40			7.50E+00	1479.11
	Pb	5000	102.90	3.55E+01	J	1.01E+02	7.51E+01	8.82E+01	29.80			3.55E+01	2.49
	Mg	5000	96.80	3.50E+00		1.07E+02	1.24E+02	1.16E+02	14.70			3.50E+00	33.06
	Mn	5000	93.90	1.50E+00		6.60E+01	6.92E+01	6.76E+01	4.70			1.50E+00	45.08
	Ni	5000	97.20	7.00E+00	J	7.64E+03	1.37E+04	1.07E+04	56.60			7.00E+00	1522.50
	K	5000	100.80	0.00E+00				NA				6.45E+01	0.00
	Se	5000	101.90	4.15E+01	R	3.16E+02	3.45E+02	3.30E+02	8.80			4.15E+01	7.96
	Ag	5000	100.80	5.00E+00	J	5.92E+00	4.99E+00	5.46E+00	200.00			5.00E+00	1.09
	Na	10000	94.90	2.39E+03	J	9.45E+04	9.56E+04	9.50E+04	1.10			1.40E+01	6787.20
	Zn	10000	97.30	1.25E+01		1.11E+02	1.33E+02	1.22E+02	18.10			1.25E+01	9.74
	Bi	5000	101.20	3.80E+01	J	1.89E+04	1.83E+04	1.86E+04	3.20			2.90E+01	640.99
	B	5000	101.40	9.06E+01	UJ	1.88E+01	1.35E+01	1.62E+01	33.00			5.00E+00	3.23
	Ce	5000	96.10	4.90E+01	J	2.52E+02	2.06E+02	2.29E+02	20.30			4.90E+01	4.67
	La	5000	101.20	8.00E+00		8.00E+00	7.98E+00	7.99E+00				8.00E+00	1.00
	F	10000	92.60	4.95E+01		2.09E+04	2.20E+04	2.15E+04	4.80			4.95E+01	433.34
	Si	10000	93.80	8.88E+02		6.10E+03	6.97E+03	6.54E+03	13.30			2.15E+01	303.98
	Sr	10000	96.20	2.28E+00	J	1.44E+02	1.66E+02	1.55E+02	14.30			2.00E+00	77.65
	S	5000	97.80	2.25E+01	J	4.20E+03	4.06E+03	4.13E+03	3.20			2.25E+01	183.60
	Sn	5000	94.10	1.15E+01		1.15E+01	1.15E+01	1.15E+01				1.15E+01	1.00
	Ti	5000	97.20	2.00E+00	J	6.89E+00	1.12E+01	9.05E+00	47.80			2.00E+00	4.52
	Zr	10000	94.40	1.03E+01	J	1.35E+02	1.97E+02	1.66E+02	36.90			4.00E+00	-

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

ASD
3-16-93

6

BX107 CORE 41 CORE COMP 2

	Analyte	Std #1 % Rec	PREP BLK (ug/g)		Result #1 (ug/g) J927-6740	Result #2 (ug/g) J927-6840	Average (ug/g)	RPD %	Spk Rec %	DET LIM (ug/g)	Ratio R/DL
	U	94.10	2.29E+04	J	2.29E+04	2.52E+04	2.41E+04	9.60	119.70	2.30E+03	
Fluor	U as uCi/g						NA	NA			NA

	Analyte	Std #1 % Rec	Prep Blk (uCi/g)		Result #1 (uCi/g) J927-6725	Result #2 (uCi/g) J927-6825	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
RAD-Fus.	AT	109.8	<1.79E-03	R	1.15E-01	1.01E-01	1.08E-01	12.96	88.40	1.80E-03	60.00	5.30
	AT/Pu+Am				1.98E+00	1.50E+00						
					J927-6720	J927-6820						
	TB	98.00	1.14E-02	C	4.58E+01	5.12E+01	4.85E+01	11.13	94.90	2.10E-02	2309.52	0.20
	TB/Cs+Sr				7.45E-01	7.74E-01						
					J927-6730	J927-6830						
GEA	Cs-137	102.00	8.20E-03	C	2.43E+01	2.51E+01	2.47E+01	3.24	NA	7.20E-03	3430.56	0.50
	Eu-154	NA	<1.90E-02	C	<2.10E-02	<2.10E-02	NA	NA	NA	2.00E-02	0.00	N/A
	Eu-155	NA	<1.20E-02	C	<3.90E-02	<4.10E-02	NA	NA	NA	1.30E-02	0.00	N/A
	Am-241	NA	<2.90E-02	C	<9.70E-02	<9.80E-02	NA	NA	NA	2.90E-02	0.00	N/A
	Co-60	100.00	<6.0E-03	C	<6.60E-03	<7.50E-03	NA	NA	NA	6.70E-03	0.00	N/A
					J927-6781	J927-6881						
	PU239/40	95.30	<3.38E-03	C	4.49E-02	5.41E-02	4.95E-02	18.50	34.40	3.40E-03	14.56	3.20
	PU-238	NA	NA	C	<4.50E-03	<4.50E-03	NA	NA	80.40	4.50E-03	0.00	4.30

Analyte	Std #1 % Rec	Prep Blk (uCi/g)		Result #1 (uCi/g) J927-6782	Result #2 (uCi/g) J927-6882	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Rel. Ct Err
Am-241	91.4	<5.69E-03	R	1.31E-02	1.34E-02	1.33E-02	2.60	15.30	5.60E-03	2.37	16.30
Cm-244						NA	NA	13.60		NA	
Am-241 (GEA)/Am-241 (ALPHA)						NA					
				J927-6783	J927-6883						
NP-237	89.50	<3.24E-02	C	<3.24E-03	<3.24E-02	NA	NA	76.40	3.20E-02	0.00	177.00
				J927-6784	J927-6884						
TC-99	105.9	<7.69E-04	C	3.74E-02	3.24E-02	3.49E-02	14.33	70.40	7.70E-04	45.32	2.20
								71.10			
				J927-6785	J927-6885						
I-129	88.8	<1.37E-02	R	<5.04E-02	<6.74E-02	NA	NA	18.00	1.40E-02	0.00	
								15.40			

Analyte	Std #1 % Rec	Prep Blk (uCi/g)		Result #1 (uCi/g) J927-6786	Result #2 (uCi/g) J927-6886	Average (uCi/g)	RPD %	Spk Rec %	DET LIM (uCi/g)	Ratio R/DL	Ct Err
Sr-90	97.60	3.37E-03	C	8.74E+00	9.96E+00	9.35E+00	13.05		4.10E-03	2280.5	0.30
				J927-7787	J927-7887						
H-3	88.60	<3.60E-04	C	6.97E-04	1.08E-03	8.89E-04	43.11	99.70	3.60E-04	2.47	5.00
				J927-7788	J927-7888						
C-14	90.10	<2.25E-04	C	<2.24E-04	<2.99E-04	NA	NA	NA	2.24E-04	0.00	
				J927-6789	J927-6889						
Se-79	NA	<1.77E-04	C	<1.47E-04	<1.44E-04	NA	NA	NA	1.40E-04	0.00	4.90

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

33

BX107 BLANKS

FIELD BLANK

	Analyte	Std #1 % Rec	PREP BLK (ug/mL)	Result #1 (ug/mL)	Result #2 (ug/mL)	Average (ug/mL)	RPD %	Spk Rec %	DET LIM (ug/mL)	Ratio R/DL	RELATIVE COUNT ERR
		J997-5595	J998-5695	J1000-5795	J1000-5895			J1000-5995			
CVAA	As	93.80	<2.50E-03	<1.00E-02	<1.00E-02	NA	NA	107.40	1.00E-02		
		J997-5597	J998-5697	J1000-797	J1000-5897						
CVAA	Hg	105.50	<5.00E-03	UJ <5.00E-03	<5.00E-03	NA	NA	NA	5.00E-03	NA	
		J997-5596	J998-5696	J1000-5796	J1000-5896						
	Se	99.10	<2.50E-03	UJ <1.00E-02	<1.00E-02	NA	NA	101.50	1.00E-02		
		J997-5526	J998-5626	J1000-5726	J1000-5826			J999-5926			
TOC-Water	TOC	95.30	1.70E+01	UJ <5.50E+00	<5.50E+00	NA	NA	98.30		NA	

	Analyte	Std #1 % Rec	PREP BLK (uCi/mL)	Result #1 (uCi/mL)	Result #2 (uCi/mL)	Average (uCi/mL)	RPD %	Spk Rec %	DET LIM (ug/mL)	Ratio R/DL	Relative Count Err
		J997-5525	J998-5625	J1000-5725	J1000-5825			J999-5920			
RAD-Water	AT	93.10	<1.13E-06	C <1.13E-06	<1.13E-06	NA	NA	96.80	1.10E-06	NA	5.54E+01
		J999-5520	J998-5620	J1000-5720	J1000-5820						
	TB	92.90	<5.00E-06	C 1.36E-04	1.52E-04	1.44E-04	10.80	111.50	5.00E-06	NA	5.00E-01

	Analyte	Std #1 % Rec	PREP BLK (ug/g)	Result #1 (ug/g)	Result #2 (ug/g)	Average (ug/g)	RPD %	Spk Rec (ug/g)	DET LIM %	Ratio (ug/g)	Relative R/DL
		J997-5571	J998-5671	J1000-5771	J1000-5871						
IC WATER	F	107.00	<1.00E-01	J 4.87E-01	4.91E-01	4.89E-01	0.82	NO SPIKE	1.00E-01	NA	0.70
	CL	105.00	<1.00E-01	J 6.62E-01	5.63E-01	6.13E-01	16.16	NO SPIKE	1.00E-01	NA	NA
	NO3	108.00	<1.00E+00	J 2.95E+00	2.95E+00	2.95E+00	0.00	NO SPIKE	1.00E+00	NA	NA
	NO2	105.00	<1.00E+00	J 3.52E-01	3.95E-01	3.73E-01	11.51	NO SPIKE	1.00E+00	NA	NA
	PO4	90.20	<1.00E+00	J 9.26E-01	8.39E-01	8.83E-01	9.86	NO SPIKE	1.00E+00	NA	NA
	SO4	103.00	<1.00E+00	J 1.12E+00	8.88E-01	1.00E+00	23.11	NO SPIKE	1.00E+00	NA	NA

	Analyte	Std #1 % Rec	PREP BLK (uCi/mL)	Result #1 (uCi/mL)	Result #2 (uCi/mL)	Average (uCi/mL)	RPD %	Spk Rec %	DET LIM (ug/mL)	Ratio R/DL	Relative Count Err
		J997-5530	998-5630	J1000-5730	J1000-55830						
GEA	CS-137	98.00	<6.52E-07	1.76E-04	INSUFF SAM	NA	NA	NA	7.00E-07	NA	NA
	EU-154	NA	<1.50E-06	<1.79E-06		NA	NA	NA	2.30E-06	NA	NA
	EU-155	NA	<1.16E-06	<1.53E-06		NA	NA	NA	1.18E-06	NA	NA
	AM-241	NA	<2.48E-06	<3.36E-06		NA	NA	NA	2.19E-06	NA	NA
	CO-60	99.00	<6.19E-04	<5.45E-07		NA	NA	NA	6.47E-07	NA	NA

3-16-93

BX107 BLANKS

HOT CELL

	ANALYTE	STD ADDED	Std % Rec J997-5550	PREP BLK ug/L J998-5650		RESULT #1 ug/L J999-5750	RESULT #2 ug/L J999-5850	AVERAGE ug/L	RPD %	SPK ADD ug/L %	SPIKE % J999-5950	DET LIM ug/L	RATIO R/DL
ICP	Al	5000	91.6	3.40E+01	R	2.04E+02	2.04E+02	2.04E+02		7500.0	93.8	3.40E+01	6.00E+00
	Sb	5000	101.3	3.56E+02		2.14E+03	2.14E+03	2.14E+03		7500.0	112.8	3.56E+02	6.01E+00
	As	5000	99.9	3.10E+01		1.86E+02	1.86E+02	1.86E+02		7500.0	95.6	3.10E+01	6.00E+00
	Ba	10000	96.9	3.00E+00		1.80E+01	1.80E+01	1.80E+01		15000.0	95.9	3.00E+00	6.00E+00
	Be	10000	101.8	3.75E+00		1.80E+01	1.80E+01	1.80E+01		15000.0	97.9	3.00E+00	6.00E+00
	Cd	10000	101.2	7.00E+00		4.20E+01	4.20E+01	4.20E+01		15000.0	99.2	7.00E+00	6.00E+00
	Ca	10000	96.0	2.40E+01		2.54E+03	2.48E+03	2.51E+03	2.40	15000.0	96.6	2.40E+01	1.05E+02
	Cr	50000	102.6	1.40E+01		8.40E+01	8.40E+01	8.40E+01		7500.0	102.1	1.40E+01	6.00E+00
	Co	10000	97.7	1.20E+01		7.20E+01	7.20E+01	7.20E+01		15000.0	96.0	1.20E+01	6.00E+00
	Cu	5000	97.5	6.00E+00		3.60E+01	3.60E+01	3.60E+01		7500.0	97.2	6.00E+00	6.00E+00
	Fe	5000	97.9	2.00E+01		1.20E+02	1.20E+02	1.20E+02		7500.0	100.7	2.00E+01	6.00E+00
	Pb	5000	105.4	8.50E+01	UJ	5.10E+02	5.10E+02	5.10E+02		7500.0	103.2	8.50E+01	6.00E+00
	Mg	5000	96.6	6.00E+00	J	1.06E+02	8.53E+01	9.56E+01	21.60	7500.0	95.8	6.00E+00	1.59E+01
	Mn	5000	96.0	3.00E+00		8.82E+01	8.02E+01	8.42E+01	9.50	7500.0	94.9	3.00E+00	2.81E+01
	Ni	5000	99.4	1.80E+01		1.08E+02	1.08E+02	1.08E+02		7500.0	99.7	1.80E+01	6.00E+00
	K	5000	101.7	1.63E+02	UJ	7.98E+02	1.11E+03	9.55E+02	200.00	7500.0	119.6	1.33E+02	7.18E+00
	Se	5000	96.6	1.31E+02	UJ	7.86E+02	7.86E+02	7.86E+02		7500.0	96.2	1.31E+02	6.00E+00
	Ag	5000	104.6	1.14E+01	R	6.00E+01	6.00E+01	6.00E+01		7500.0	96.0	1.00E+01	6.00E+00
	Na	10000	93.9	8.70E+01		4.63E+03	4.61E+03	4.62E+03	.40	15000.0	95.3	8.70E+01	5.31E+01
	Zn	10000	100.1	5.12E+01		1.50E+02	1.50E+02	1.50E+02		15000.0	99.3	2.50E+01	6.00E+00
	Bi	5000	101.2	8.50E+01	UJ	5.10E+02	5.10E+02	5.10E+02		7500.0	72.3	8.50E+01	6.00E+00
	B	5000	102.7	1.90E+01		1.13E+03	1.10E+03	1.11E+03	2.50	7500.0	101.9	1.90E+01	5.84E+01
	Ce	5000	99.5	8.60E+01		5.16E+02	5.16E+02	5.16E+02		7500.0	105.3	8.60E+01	6.00E+00
	La	5000	101.3	2.10E+01		1.26E+02	1.26E+02	1.26E+02		7500.0	99.8	2.10E+01	6.00E+00
	P	10000	97.0	8.00E+01		4.80E+02	4.80E+02	4.80E+02		15000.0	96.0	8.00E+01	6.00E+00
	Si	10000	109.1	8.50E+01	J	3.36E+03	3.20E+03	3.28E+03	4.90	15000.0	153.4	2.30E+01	1.43E+02
	Sr	10000	96.6	6.00E+00		3.60E+01	3.60E+01	3.60E+01		15000.0	95.7	6.00E+00	6.00E+00
	S	5000	94.8	6.00E+01	J	5.69E+02	3.78E+02	4.74E+02	40.30	7500.0	90.1	6.00E+01	7.90E+00
	Sn	5000	97.6	1.60E+01		9.60E+01	9.60E+01	9.60E+01		7500.0	97.5	1.60E+01	6.00E+00
	Ti	5000	99.3	5.00E+00		3.00E+01	3.00E+01	3.00E+01		7500.0	96.6	5.00E+00	6.00E+00
	Zr	10000	96.2	1.10E+01		6.60E+01	6.60E+01	6.60E+01		15000.0	93.0	1.10E+01	6.00E+00

3-16-93

BX107 BLANKS 9

HOT CELL BLANK

	Analyte	Std #1 % Rec	PREP BLK (ug/mL)		Result #1 (ug/mL)	Result #2 (ug/mL)	Average (ug/mL)	RPD %	Spk Rec %	DET LIM (ug/mL)	Ratio R/DL
		J997-5595	J998-5695		J999-5795	J999-5895					
CVAA	As	93.80	<2.50E-03		<1.00E-02	<1.00E-02	NA	NA	107.40	1.00E-02	NA
		J997-5597	J998-5697		J999-5797	J999-5897					
CVAA	Hg	105.50	<5.00E-03	UJ	<5.00E-03	<5.00E-03	NA	NA	136.30	5.00E-03	NA
		J997-5596	J998-5696		J999-5796	J999-5896					
	Se	99.10	<2.50E-03	UJ	<1.00E-02	<1.00E-02	NA	NA	101.50	1.00E-02	NA
		J997-5526	J998-5626		J999-5726	J999-5826			J999-5926		
TOC-Water	TOC	95.30	1.70E+01	J	7.10E+00	<5.50E+00	NA	NA	98.30	5.50E+00	NA

	Analyte	Std #1 % Rec	PREP BLK (uCi/mL)		Result #1 (uCi/mL)	Result #2 (uCi/mL)	Average (uCi/mL)	RPD %	Spk Rec %	DET LIM (ug/mL)	Ratio R/DL	Relative Count Err
		J997-5525	J998-5625		J999-5725	J999-5825			J999-5925			
RAD-Water	AT	93.10	<1.13E-06	UJ	<1.13E-06	<1.13E-06	NA	NA	96.80	1.10E-05	NA	5.54E+01
		J999-5520	J998-5620		J999-5720	J999-5820			J999-58920			
	TB	92.90	<5.00E-06	J	7.82E-04	7.46E-04	7.64E-04	4.71	91.20	1.10E-05	NA	5.54E+01
		J997-5571	J998-5671		J999-5771	J999-5871			J999-5971			
IC WATER	F	107.00	<1.00E-01	J	2.94E-01	2.83E-01	2.88E-01	3.81	118.00	1.00E-01	NA	NA
	CL	105.00	<1.00E-01	J	9.35E-01	7.76E-01	8.56E-01	18.59	116.00	1.00E-01	NA	NA
	NO3	108.00	<1.00E+00	J	1.41E+00	1.30E+00	1.35E+00	8.12	96.70	1.00E+00	NA	NA
	NO2	105.00	<1.00E+00	J	3.39E-01	3.42E-01	3.41E-01	0.88	109.00	1.00E+00	NA	NA
	PO4	90.20	<1.00E+00	UJ	NA	NA	NA	NA	86.40	1.00E+00	NA	NA
	SO4	103.00	<1.00E+00	J	1.05E+00	9.66E-01	1.01E+00	8.33	97.90	1.00E+00	NA	NA
		J997-5530	998-5630		J999-5730	J999-5830						
GEA	CS-137	98.00	<6.52E-07	J	4.12E-04	NA*	NA	NA		7.00E-07	NA	0.70
	EU-154	NA	<1.50E-06	UJ	<1.62E-06	NA	NA	NA		2.30E-06	NA	NA
	EU-155	NA	<1.16E-06	UJ	<1.86E-06	NA	NA	NA		1.18E-06	NA	NA
	AM-241	NA	<2.48E-06	UJ	<4.31E-06	NA	NA	NA		2.19E-06	NA	NA
	CO-60	99.00	<6.19E-04	UJ	<5.45E-07	NA	NA	NA		6.47E-07	NA	NA

*=INSUFFICIENT SAMPLE

BX107 BLANKS

RJD
3-16-93

FIELD BLANK

	ANALYTE	STD ADDED	Std % Rec J997-5550	PREP BLK (ug/g) J998-5650	RESULT #1 (ug/g) J1000-5750	RESULT #2 (ug/g) J1000-5850	AVERAGE (ug/g)	RPD %	SPK ADD (ug/g)	SPIKE % F#:2223	DET LIM (ug/g)	RATIO R/DL
ICP	Al	5000	91.6	3.40E+01	2.04E+02 R	2.04E+02	2.04E+02		7500.0	93.8	3.40E+01	6.00E+00
	Sb	5000	101.3	3.56E+02	2.14E+03	2.14E+03	2.14E+03		7500.0	112.8	3.56E+02	6.01E+00
	As	5000	99.9	3.10E+01	1.86E+02	1.86E+02	1.86E+02		7500.0	95.6	3.10E+01	6.00E+00
	Ba	10000	96.9	3.00E+00	1.80E+01	1.80E+01	1.80E+01		15000.0	95.9	3.00E+00	6.00E+00
	Be	10000	101.8	3.75E+00	1.80E+01	1.80E+01	1.80E+01		15000.0	97.9	3.00E+00	6.00E+00
	Cd	10000	101.2	7.00E+00	4.20E+01	4.20E+01	4.20E+01		15000.0	99.2	7.00E+00	6.00E+00
	Ca	10000	96.0	2.40E+01	2.37E+02	2.02E+02	2.19E+02	16.10	15000.0	96.6	2.40E+01	9.12E+00
	Cr	5000	102.6	1.40E+01	8.40E+01	8.40E+01	8.40E+01		7500.0	102.1	1.40E+01	6.00E+00
	Co	10000	97.7	1.20E+01	7.20E+01	7.20E+01	7.20E+01		15000.0	96.0	1.20E+01	6.00E+00
	Cu	5000	97.5	6.00E+00	3.60E+01	3.60E+01	3.60E+01		7500.0	97.2	6.00E+00	6.00E+00
	Fe	5000	97.9	2.00E+01	1.20E+02	1.20E+02	1.20E+02		7500.0	100.7	2.00E+01	6.00E+00
	Pb	5000	105.4	8.50E+01	5.10E+02 UJ	5.10E+02	5.10E+02		7500.0	103.2	8.50E+01	6.00E+00
	Mg	5000	96.6	6.00E+00	3.60E+01	3.60E+01	3.60E+01		7500.0	95.8	6.00E+00	6.00E+00
	Mn	5000	96.0	3.00E+00	1.80E+01	1.80E+01	1.80E+01		7500.0	94.9	3.00E+00	6.00E+00
	Ni	5000	99.4	1.80E+01	1.08E+02	1.08E+02	1.08E+02		7500.0	99.7	1.80E+01	6.00E+00
	K	5000	101.7	1.63E+02	9.87E+02 J	7.98E+02	8.92E+02	200.00	7500.0	119.6	1.33E+02	6.71E+00
	Se	5000	96.6	1.31E+02	7.86E+02 UJ	7.86E+02	7.86E+02		7500.0	96.2	1.31E+02	6.00E+00
	Ag	5000	104.6	1.14E+01	6.00E+01 R	6.00E+01	6.00E+01		7500.0	98.0	1.00E+01	6.00E+00
	Na	10000	93.9	8.70E+01	4.61E+03	4.52E+03	4.57E+03	1.90	15000.0	95.3	8.70E+01	5.25E+01
	Zn	10000	100.1	5.12E+01	1.50E+02	1.50E+02	1.50E+02		15000.0	99.3	2.50E+01	6.00E+00
	Bi	5000	101.2	8.50E+01	5.10E+02 UJ	5.10E+02	5.10E+02		7500.0	72.3	8.50E+01	6.00E+00
	B	5000	102.7	1.90E+01	8.88E+02	8.55E+02	8.72E+02	3.80	7500.0	101.9	1.90E+01	4.59E+01
	Ce	5000	99.5	8.60E+01	5.16E+02	5.16E+02	5.16E+02		7500.0	105.3	8.60E+01	6.00E+00
	La	5000	101.3	2.10E+01	1.26E+02	1.26E+02	1.26E+02		7500.0	99.8	2.10E+01	6.00E+00
	P	10000	97.0	8.00E+01	4.96E+02 J	4.80E+02	4.88E+02	200.00	15000.0	96.0	8.00E+01	6.10E+00
	Si	10000	109.1	6.50E+01	5.34E+02 J	3.58E+02	4.46E+02	39.30	15000.0	153.4	2.30E+01	1.94E+01
	Sr	10000	96.6	6.00E+00	3.60E+01	3.60E+01	3.60E+01		15000.0	95.7	6.00E+00	6.00E+00
	S	5000	94.6	6.00E+01	3.60E+02	3.60E+02	3.60E+02		7500.0	90.1	6.00E+01	6.00E+00
	Sn	5000	97.6	1.60E+01	9.60E+01	9.60E+01	9.60E+01		7500.0	97.5	1.60E+01	6.00E+00
	Ti	5000	99.3	5.00E+00	3.00E+01	3.00E+01	3.00E+01		7500.0	96.6	5.00E+00	6.00E+00
	Zr	10000	96.2	1.10E+01	6.60E+01	6.60E+01	6.60E+01		15000.0	93.0	1.10E+01	6.00E+00

Comparison of Water, Fusion and Acid Digest ICP Results for BX-107

	Acid/Water Digest Det. Lim (ug/g)	Fusion Digest Det. Lim (ug/g)	ICP WATER Core 40 Comp 1 (ug/g)	ICP WATER Core 40 Comp 2 (ug/g)	ICP WATER Core 41 Comp 1 (ug/g)	ICP WATER core 41 Comp2 (ug/g)	ICP Fusion Core 40 Comp 1 (ug/g)	ICP Fusion Core 40 Comp 2 (ug/g)	ICP Fusion Core 41 Comp 1 (ug/g)	ICP Fusion core 41 Comp2 (ug/g)	ICP Acid Core 40 Comp 1 (ug/g)	ICP Acid Core 40 Comp 2 (ug/g)	ICP Acid Core 41 Comp 1 (ug/g)	ICP Acid core 41 Comp2 (ug/g)	Atomic Absorption Core 40 Comp 1 (ug/g)	Atomic Absorption Core 40 Comp 2 (ug/g)	Atomic Absorption Core 41 Comp 1 (ug/g)	Atomic Absorption Core 41 Comp 2 (ug/g)
J#:			J924	J926	J925	J927	J924	J926	J925	J927	J924	J926	J925	J927	K175	K176	K179	K180
ANALYTE																		
Al	3.4	17	105	80.4	71.6	279	13000	12000	17300	14100	11900	12300	16200	16600				
Sb	35.6	178	37.3	37.3	36.3	37.2	183	183	182	183	34.1	34.9	35.2	33.8				
As	3.1	15.5	3.06	3.06	3.16	3.05	15	15	14.9	15	2.8	2.86	3.03	2.77	0.430	0.393	0.361	0.536
Ba	0.3	1.5	0.379	0.531	0.306	0.553	6.07	8.07	11.8	10.6	6.75	6.38	10.3	9.31				
Be	0.3	1.5	0.306	0.306	0.306	0.305	1.5	1.5	1.49	1.5	0.28	0.286	0.288	0.277				
Cd	0.7	3.5	0.713	0.713	0.713	0.711	3.68	3.51	4.35	5.26	1.86	1.93	2.74	2.56				
Ca	2.4	12	752	714	147	121	360	306	369	549	2140	547	1170	296				
Cr	1.4	7	157	133	156	159	972	838	1080	983	854	877	1070	1030				
Co	1.2	6	1.02	1.02	1.22	1.09	4.99	5	4.98	12.8	2.08	1.69	2.32	0.951				
Cu	0.6	3	0.726	0.776	0.611	0.87	67.3	71.6	26.5	41.2	62.7	72.5	18.7	17				
Fe	2	10	54.7	42	58.4	318	11000	8870	13300	11100	9450	9430	12900	12300				
Pb	8.5	42.5	7.23	7.23	8.66	7.77	45	65.2	99.5	88.2	54.3	50.5	77.1	69.3				
Mg	0.6	3	16.5	34.4	6.51	8.41	111	89.8	131	116	170	149	189	126				
Mn	0.3	1.5	1.08	1.25	0.306	1.3	62.8	54.4	73.4	67.6	35.4	33.3	47.2	43.1				
Ni	1.8	9	1.43	1.43	1.83	1.42	7200	1990	2860	10700	10.9	10.4	14	13.6				
K	13.3	66.5	167	137	156	130	NA	NA	NA	NA	264	199	306	282				
Se	13.1	65.5	8.46	8.46	13.3	68.2	41.4	41.5	41.3	330	312	295	369	7.66	1.500	1.915	2.020	0.623
Ag	1	5	1.02	1.02	1.02	1.02	4.99	7.02	6.29	5.46	0.932	0.952	0.961	0.923				
Na	8.7	43.5	53300	67000	80100	72000	104000	101000	102000	95000	100000	102000	103000	100000				
Zn	2.5	12.5	25.6	23.8	2.55	5.12	75.3	48.1	88.2	122	56.1	35.5	81	65.5				
Bi	8.5	42.5	106	80.2	113	635	21900	20600	28100	18600	21200	22100	27100	26200				
B	1.9	9.5	27.9	28.7	20.7	22.8	18.4	18.8	6.65	16.2	49.8	62.5	50.8	25.3				
Ce	8.6	43	9.99	9.99	8.76	9.96	92.1	178	201	229	151	169	191	203				
La	2.1	10.5	1.63	1.63	2.14	1.63	7.98	7.99	7.97	7.99	1.49	1.52	1.54	1.48				
P	8	40	4750	5000	4600	4810	24200	20800	27400	21500	19700	21300	23900	27200				
Si	2.3	11.5	414	364	136	262	6600	6000	7990	6540	1540	1720	1740	1660				
Sr	0.6	3	1.7	1.66	1.46	5	171	160	188	155	154	157	185	170				
S	6	30	4560	4630	4390	4150	4830	4650	4150	4130	4760	5000	4470	4030				
Sn	1.6	8	2.34	2.34	1.63	2.34	11.5	11.5	11.5	11.5	3.28	6.3	7.19	11.2				
Ti	0.5	2.5	0.408	0.408	0.51	0.406	3.25	5.8	7.27	9.05	3.18	3.59	4.59	4.06				
Zr	1.1	5.5	1.54	1.11	1.21	6.09	189	66.2	121	166	94.6	92.2	87.9	110				
Hg															0.611	0.375	0.631	0.642

38

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ADDENDUM 2 REV 0

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Evaluation and Comparison of BX-107 Analytical Results For Determination of Material and Charge Balance

Analyte	Acid/Water Digest Det. Lim (ug/g)	Fusion Digest Det. Lim (ug/g)	prep Type	Core 40 Comp 1 (ug/g)	Core 40 Comp 2 (ug/g)	Core 41 Comp 1 (ug/g)	Core 41 Comp 2 (ug/g)	Notes
Al	3.4	17	W	105	80.4	71.6	279	Speciation of Al as H2O soluble Aluminate
Al	3.4	17	F	13900	12000	17300	14100	Compare with Acid for insoluble refractory oxides
Al	3.4	17	A	11900	12300	16200	16600	Normally Used unless Fusion is much greater
Sb	35.6	178	A	34.1	34.1	34.9	35.2	
As	3.1	15.5	AA	0.43	0.393	0.3610	0.5355	
Ba	0.3	1.5	A	6.75	6.38	10.3	9.31	
Be	0.3	1.5	A	0.28	0.286	0.288	0.277	
Cd	0.7	3.5	A	1.86	1.93	2.74	2.56	
Ca	2.4	12	A	2140	547	1170	296	
Cr	1.4	7	W	157	133	156	159	Speciation of H2O soluble Chromate (VI)
Cr	1.4	7	A	854	877	1070	1030	Use for evaluation
Co	1.2	6	A	1.02	1.02	1.22	1.09	
Cu	0.6	3	A	0.726	0.776	0.611	0.87	
Fe	2	10	W	54.7	42	58.4	318	Speciation of H2O soluble Fe complexes
Fe	2	10	F	11000	8870	13300	11100	Compare with Acid for insoluble refractory oxides
Fe	2	10	A	9450	9430	12900	12300	Normally Used unless Fusion is much greater
Pb	8.5	42.5	A	54.3	50.5	77.1	69.3	
Mg	0.6	3	A	170	149	189	126	
Mn	0.3	1.5	W	1.08	1.25	0.306	1.3	Speciation of H2O soluble manganate (VII)
Mn	0.3	1.5	A	35.4	33.3	47.2	43.1	
Ni	1.8	9	A	10.9	10.4	14	13.6	
K	13.3	66.5	A	264	199	306	282	
Se	13.1	65.5	AA	1.5	1.915	2.02	0.623	
Ag	1	5	A	0.932	0.952	0.961	0.923	
Na	8.7	43.5	W	53300	67000	80100	72000	Indicates H2O digest efficiency by sodium solubility
Na	8.7	43.5	F	104000	101000	102000	95000	Compare with acid for insoluble refractory oxides
Na	8.7	43.5	A	100000	102000	103000	100000	Normally Used unless Fusion is much greater
Zn	2.5	12.5	A	56.1	35.5	81	65.5	
Bi	8.5	42.5	F	21900	20600	28100	18600	Compare with acid for insoluble refractory oxides
Bi	8.5	42.5	A	21200	22100	27100	26200	
B	1.9	9.5	A	49.8	62.3	50.8	25.3	
Ce	8.6	43	A	151	169	191	203	
La	2.1	10.5	A	1.49	1.52	1.54	1.48	
P	8	40	W	4750	5000	4600	4810	Compare to IC Phosphate Results
P	8	40	F	24200	20800	27400	21500	Compare with acid for insoluble refractory oxides
P	8	40	A	19700	21300	23900	27200	Normally Used unless Fusion is much greater
Si	2.3	11.5	W	414	364	136	262	Indication of H2O soluble silicates
Si	2.3	11.5	F	6600	6000	7990	6540	Always use Fusion
Sr	0.6	3	A	154	157	185	170	
S	6	30	W	4560	4630	4390	4150	Compare to IC Sulfate Results
S	6	30	A	4760	5000	4470	4030	
Sn	1.6	8	A	3.28	6.3	7.19	11.2	
Ti	0.5	2.5	A	3.18	3.59	4.59	4.06	
Zr	1.1	5.5	A	94.6	92.2	87.9	110	
Hg			AA	0.6105	0.3745	0.631	0.642	
F			IC	8510	8415	8880	10950	
Cl			IC	1155	1175	1040	1175	
NO3			IC	142000	149500	126000	129500	
NO2			IC	9685	9155	12450	1195	
PO4			IC	14400	14950	13400	14200	
SO4			IC	14050	14150	13000	12250	
Calc'd PO4			ICP Water	14564	15330	14104	14747	* Use H2O soluble P from water digest mult. by 3.066
Calc'd SO4			ICP Water	13662	13871	13152	12433	* Use H2O soluble P from water digest mult. by 2.996
TOC			TOC/TIC	7.00E+02	550	550	8.97E+02	
Acetate Equiv.			TOC/TIC	3441.2	2703.8	2703.8	4407.194	
TIC			TOC/TIC	1.15E+03	1.15E+03	1.24E+03		
Carbonate Equiv.			TOC/TIC	5745.4	5732.91	6217.522	0	
U ug/g			Flourimetry	1.82E+03	2.02E+03	2.82E+03	2.41E+04	
U (Calc'd uCi/g)			Fluorimetry	0.00060984	0.00067872	0.00094752	0.0080976	
Water (%)			% water	57.75	57.1	56.25	55.95	
pH			Electrode	9.63E+00	9.68E+00	9.82E+00	9.72E+00	
Calc'd [OH-] (M)			From pH	0.000042	0.000047	0.000066	0.000052	
CN- (ug/g)			Direct CN	3.11E+00	1.43E+00	2.99E+00	2.43E+00	

WHC-SD-WM-DP-028
REV 0
ADDENDUM 2 REV 0

Analyte	Atomic / Molecular Weight	Oxide Form	Method	No. Main Atoms	No. Oxygens	Element Wt. to Oxide Wt. Conv. Factor	Wt. Percent Core 40 Comp 1	Wt. Percent Core 40 Comp 2	Wt. Percent Core 41 Comp 1	Wt. Percent Core 41 Comp 2
Al	26.98	Al2O3	ICP Acid	2	3	1.889	2.25	2.32	3.06	3.1
Sb	121.75	Sb2O5	ICP Acid	2	5	1.329				
As	74.92	As2O5	Direct AA	2	5	1.534				
Ba	137.34	BaO	ICP Acid	1	1	1.116				
Be	9.01	BeO	ICP Acid	1	1	2.776				
Cd	112.4	CdO	ICP Acid	1	1	1.142				
Ca	40.08	CaO	ICP Acid	1	1	1.399	0.30		0.16	
Cr	52	CrO3	ICP Acid	1	3	1.923	0.16	0.17	0.21	0.2
Co	58.93	CoO	ICP Acid	1	1	1.271				
Cu	63.55	CuO	ICP Acid	1	1	1.252				
Fe	55.85	Fe3O4	ICP Acid	3	4	1.382	1.31	1.30	1.78	1.7
Pb	207.2	PbO	ICP Acid	1	1	1.077				
Mg	24.31	MgO	ICP Acid	1	1	1.658				
Mn	54.94	MnO2	ICP Acid	1	2	1.582				
Ni	58.71	NiO	ICP Acid	1	1	1.273				
K	39.1	K	ICP Acid	1	0	1.000				
Se	78.96	SeO3	Direct AA	1	3	1.608				
Ag	107.87	Ag2O	ICP Acid	2	1	1.074				
Na	22.99	Na	ICP Acid	1	0	1.000	10.00	10.20	10.30	10.0
Zn	65.37	ZnO	ICP Acid	1	1	1.245				
Bi	208.98	Bi2O3	ICP Acid	2	3	1.115	2.36	2.46	3.02	2.9
B	10.81	B2O3	ICP Acid	2	3	3.220				
Ce	140.12	Ce2O3	ICP Acid	2	3	1.171				
La	138.91	La2O3	ICP Acid	2	3	1.173				
Si	28.09	SiO2	ICP Fusion	1	2	2.139	1.41	1.28	1.71	1.4
Sr	87.62	SrO	ICP Acid	1	1	1.183				
Ti	47.9	TiO2	ICP Acid	1	2	1.668				
Zr	91.22	ZrO2	ICP Acid	1	2	1.351				
F	19	F	Direct IC	1	0	1.000	0.85	0.84	0.89	1.1
Cl	35.45	Cl	Direct IC	1	0	1.000	0.12	0.12	0.10	0.1
NO3	62	NO3	Direct IC	1	0	1.000	14.20	14.95	12.60	12.9
NO2	46	NO2	Direct IC	1	0	1.000	0.97	0.92	1.25	0.1
P	30.97	PO4	ICP Acid	1	4	3.066	4.47	4.70	4.32	4.5
S	32.06	SO4	ICP Acid	1	4	2.996	4.09	4.16	3.94	3.7
CN	26.01	CN	Direct CN	1	0	1.000				
Org. Carbon	59.04	Acetate	TOC	1	0	4.916				0.4
Inorg. Carbon	60.01	Carbonate	TIC	1	0	4.997	0.57	0.57	0.62	
% Water		Water	% Water				57.75	57.10	56.25	55.9
U	238.029	UO2	Fluorimetry	1	2	1.134	0.21	0.23	0.32	2.7
						TOTAL %	101.02	101.33	100.54	101.0

WHC-SD-WM-DP-028
REV 0

ADDENDUM 2 REV 0

BX-107 Charge Balance

ADDENDUM 2 REV 0

Analyte	Atomic/ Molecular Weight	Prep Type	Oxidation State Used For Calc's.	Oxidation Number	meq Wt. (g/meq)	miliequivalents Core 40 Comp 1	miliequivalents Core 40 Comp 2	miliequivalents Core 41 Comp 1	miliequivalents Core 41 Comp 2
Al	26.98	ICP Acid	Al+3	3	0.00899	1.323	1.368	1.801	1.846
Sb	121.75	ICP Acid	Sb+3	5	0.02435				
As	74.92	AA	As+3	5	0.01498				
Ba	137.34	ICP Acid	Ba+2	2	0.06867				
Be	9.01	ICP Acid	Be+2	2	0.00451				
Cd	112.4	ICP Acid	Cd+2	2	0.05620				
Ca	40.08	ICP Acid	Ca+2	2	0.02004	0.107		0.058	
Cr	52	ICP Acid	Cr+3	3	0.01733	0.049	0.051	0.062	0.059
Co	58.93	ICP Acid	Co+2	2	0.02946				
Cu	63.55	ICP Acid	Cu+2	2	0.03178				
Fe	55.85	ICP Acid	Fe+3	3	0.01862	0.508	0.507	0.693	0.661
Pb	207.2	ICP Acid	Pb+2	2	0.10360				
Mg	24.31	ICP Acid	Mg+2	2	0.01216				
Mn	54.94	ICP Acid	Mn+4	4	0.01373				
Ni	58.71	ICP Acid	Ni+2	2	0.02936				
K	39.1	ICP Acid	K+	1	0.03910				
Se	78.96	AA	Se+4	6	0.01316				
Ag	107.87	ICP Acid	Ag+	1	0.10787				
Na	22.99	ICP Acid	Na+	1	0.02299	4.350	4.437	4.480	4.350
Zn	65.37	ICP Acid	Zn+2	2	0.03269				
Bi	208.98	ICP Acid	Bi+3	3	0.06966	0.304	0.317	0.389	0.376
B	10.81	ICP Acid	B+3	3	0.00360				
Ce	140.12	ICP Acid	Ce+3	3	0.04671				
La	138.91	ICP Acid	La+3	3	0.04630				
Sr	87.62	ICP Acid	Sr+2	2	0.04381				
Sn	118.69	ICP Acid	Sn+4	4	0.02967				
Ti	47.9	ICP Acid	Ti+4	4	0.01198				
Zr	91.22	ICP Acid	Zr	4	0.02281				
Hg	200.59	AA	Hg+2	2	0.10030				
U ug/g	238.02	Fluorimetry	UO2+2	2	0.11901	0.015	0.017	0.024	0.203
F	19	Direct IC	F-	-1	0.01900	0.448	0.443	0.467	0.576
Cl	35.45	Direct IC	Cl-	-1	0.03545	0.033	0.033	0.029	0.033
NO3	62	Direct IC	NO3-	-1	0.06200	2.290	2.411	2.032	2.089
NO2	46	Direct IC	NO2-	-1	0.04600	0.211	0.199	0.271	0.026
P	30.97	Acid ICP	PO4-3	-3	0.01032	1.908	2.063	2.315	2.635
S	32.06	Acid ICP	SO4-2	-2	0.01603	0.297	0.312	0.279	0.251
Si	28.09	Fusion ICP	SiO3=	-2	0.01405	0.470	0.427	0.569	0.466
TOC	59.02	TOC/TIC	Acetate	-1	0.05902				0.015
TIC	60	TOC/TIC	CO3=	-2	0.03000	0.038	0.038	0.041	
CN-	26.02	Direct CN	CN-	-1	0.02602				
					TOTAL CATIONS				
					(meq)	6.641	6.679	7.484	7.292
					TOTAL ANIONS				
					(meq)	5.695	5.927	6.004	6.091
					Ratio	1.166	1.127	1.246	1.197

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