JUN 25 1993 (11)
Station # 12

ENGINEERING DATA TRANSMITTAL

1. EDT 142858

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) Env. Restoration Engineering	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: ER/81310	6. Cog. Engr.: S. G. Weiss	7. Purchase Order No.: N/A
8. Originator Remarks: Release		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: N/A
11. Receiver Remarks:		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: N/A

JUL 1993 RECEIVED EDMC

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Impact Level	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-EN-TI-161		0	Final Data Validation Summary Report, Columbia River Sediment Data	3Q	1/2	1	

16. KEY

Impact Level (F)	Reason for Transmittal (G)		Disposition (H) & (I)	
1, 2, 3, or 4 (see MRP 5.43)	1. Approval 2. Release 3. Information	4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment	4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
1	1	Cog. Eng.: S.G. Weiss	SG Weiss		H6-02	ERC			H6-07	3	
1	1	Cog. Mgr.: R.P. Henckel			H6-02						
1	2	QA: T.L. Bennington		6/14/93							
	1	Safety		6/17/93							
		Env.									
3		EDMC (2)			H6-08						
3		Central Files (2)			L8-04						

18.	19.	20.	21. DOE APPROVAL (if required)
S.W. Weiss Signature of EDT Originator — Date 6/4/93	Authorized Representative for Receiving Organization — Date	R.P. Henckel Cognizant/Project Engineer's Manager — Date 6/4/93	Ltr. No. [] Approved [] Approved w/comments [] Disapproved w/comments

BD-7400-172-2 (07/91) GEF097

9312968.1507

BD-7400-172-1 (02/89)

THIS PAGE INTENTIONALLY
LEFT BLANK

SUPPORTING DOCUMENT

1. Total Pages 171

2. Title

Final Data Validation Summary Report, Columbia River Sediment Data

3. Number

WHC-SD-EN-TI-161

4. Rev No.

0

5. Key Words

Metals, Gross alpha, Gross beta, Alpha spectroscopy, Gamma spectroscopy, Strontium-90

APPROVED FOR PUBLIC RELEASE

6. Author

Name: S. G. Weiss

Signature 6/4/93

Organization/Charge Code 81310/PE71F

7. Abstract 6/8/93 D. Solis

WHC, 1993, *Final Data Validation Summary Report, Columbia River Sediment Data*, WHC-SD-EN-TI-161, Rev. 0, prepared by Golder Associates, Inc., for Westinghouse Hanford Company, Richland, Washington.

8. PURPOSE AND USE OF DOCUMENT - This document was prepared for use within the U.S. Department of Energy and its contractors. It is to be used only to perform, direct, or integrate work under U.S. Department of Energy contracts. This document is not approved for public release until reviewed.

PATENT STATUS - This document copy, since it is transmitted in advance of patent clearance, is made available in confidence solely for use in performance of work under contracts with the U.S. Department of Energy. This document is not to be published nor its contents otherwise disseminated or used for purposes other than specified above before patent approval for such release or use has been secured, upon request, from the Patent Counsel, U.S. Department of Energy Field Office, Richland, WA.

DISCLAIMER - This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

9. Impact Level 3Q

10. RELEASE STAMP

OFFICIAL RELEASE BY WHC (11)
DATE JUN 25 1993
Station #12

9312968.1508

A-6400-073 (11/91) (EF) WEF124

THIS PAGE INTENTIONALLY
LEFT BLANK

Date Received: 6-7-93	INFORMATION RELEASE REQUEST	Reference: WHC-CM-3-4

Complete for all Types of Release

Purpose

- [] Speech or Presentation
  - [] Full Paper
  - [] Summary
  - [] Abstract
  - [] Visual Aid
  - (Check only one suffix)
- [] Speakers Bureau
- [] Poster Session
- [] Videotape
- [] Reference
- [X] Technical Report
- [] Thesis or Dissertation
- [] Manual
- [] Brochure/Flier
- [] Software/Database
- [] Controlled Document
- [] Other

ID Number (include revision, volume, etc.): WHC-SD-EN-TI-161, Rev.0

List attachments.: none

Date Release Required: June 7, 1993

Title: Final Data Validation Summary Report, Columbia River Sediment Data

Unclassified Category: UC-NA

Impact Level: 3Q

New or novel (patentable) subject matter? [X] No [] Yes
If "Yes", has disclosure been submitted by WHC or other company?
[] No [] Yes Disclosure No(s).

Information received from others in confidence, such as proprietary data, trade secrets, and/or inventions?
[X] No [] Yes (Identify)

Copyrights? [X] No [] Yes
If "Yes", has written permission been granted?
[] No [] Yes (Attach Permission)

Trademarks?
[X] No [] Yes (Identify)

Complete for Speech or Presentation

Title of Conference or Meeting: NA

Group or Society Sponsoring: NA

Date(s) of Conference or Meeting: NA

City/State: NA

Will proceedings be published? [] Yes [X] No
Will material be handed out? [] Yes [X] No

Title of Journal: NA

CHECKLIST FOR SIGNATORIES

Review Required per WHC-CM-3-4	Yes	No	Reviewer - Signature Indicates Approval: Name (printed)	Signature	Date
Classification/Unclassified Controlled Nuclear Information	[]	[X]			
Patent - General Counsel	[X]	[]	OGC Memo 2/4/93	J.S.	6/2/93
Legal - General Counsel	[X]	[]	"	"	"
Applied Technology/Export Controlled Information or International Program	[]	[X]			
WHC Program/Project	[X]	[]	J.K. Patterson - No review req'd per foncon	J.S.	6/2/93
Communications	[]	[X]			
RL Program/Project	[X]	[]	E. Goller - No review req'd per foncon	J.S.	6/2/93
Publication Services	[X]	[]	Nishi [illegible] for Rinda Hermann per telecon		6/8/93 D. [illegible]
Other Program/Project	[]	[X]			

Information conforms to all applicable requirements. The above information is certified to be correct.

	Yes	No
References Available to Intended Audience	[X]	[]
Transmit to DOE-HQ/Office of Scientific and Technical Information	[X]	[]

Author/Requestor (Printed/Signature): S. G. Weiss — Date: 6/2/93

Intended Audience: [] Internal [] Sponsor [X] External

Responsible Manager (Printed/Signature): For R.P. Henckel — Date: 6/4/93

INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP

Stamp is required before release. Release is contingent upon resolution of mandatory comments.

APPROVED FOR RELEASE — OFFICIAL DOCUMENT — NS — Date 6-8-93

Date Cancelled | Date Disapproved

9312968.1509

THIS PAGE INTENTIONALLY
LEFT BLANK

CONTENTS

1.0 INTRODUCTION 1-1
1.1 OBJECTIVES AND SCOPE 1-1
1.2 SAMPLE CROSS REFERENCE 1-2

2.0 METALS DATA VALIDATION SUMMARY 2-1
2.1 SUMMARY 2-1
2.2 CALIBRATIONS 2-2
2.2.1 Initial Calibrations 2-2
2.2.2 Continuing Calibration 2-2
2.3 BLANKS 2-2
2.3.1 Laboratory Blanks 2-3
2.3.2 Equipment Blanks 2-3
2.4 ACCURACY 2-3
2.4.1 Spike Sample Recovery 2-3
2.4.2 Laboratory Control Sample 2-4
2.4.3 ICP Interference Check Sample 2-4
2.4.4 Graphite Furnace (GFAA) Analytical Spikes 2-4
2.5 PRECISION 2-4
2.5.1 Laboratory Duplicates 2-4
2.5.2 ICP Serial Dilution 2-4
2.5.3 Field Duplicates 2-5
2.6 SPLIT SAMPLES 2-5
2.7 METHOD OF STANDARD ADDITION (MSA) 2-5
2.8 HOLDING TIMES 2-6
2.9 SAMPLE RESULT VERIFICATION, QUANTITATION AND DETECTION LIMITS 2-6
2.10 SYSTEM PERFORMANCE 2-6

3.0 RADIOCHEMISTRY DATA VALIDATION SUMMARY 3-1
3.1 SUMMARY 3-1
3.2 CALIBRATIONS 3-3
3.3 BLANKS 3-3
3.3.1 Laboratory Blanks 3-3
3.3.2 Equipment Blanks 3-3
3.4 ACCURACY 3-3
3.4.1 Tracer Yield 3-4
3.4.2 Laboratory Control Sample 3-4
3.5 PRECISION 3-5
3.5.1 Replicate Sample 3-5
3.5.2 Field Duplicates 3-5
3.6 SPLIT SAMPLES 3-5
3.7 HOLDING TIMES 3-5
3.8 SAMPLE RESULT VERIFICATION, QUANTITATION AND MINIMUM DETECTABLE ACTIVITIES 3-6
3.9 SYSTEM PERFORMANCE 3-6

4.0 REFERENCES 4-1

9312968.1510

CONTENTS (Cont.)

APPENDIXES:

A - Validated Metals Data Summary
B - Validated Metals Laboratory Reports
C - Validated Radiochemistry Data Summary
D - Validated Radiochemistry Laboratory Reports

TABLES:

1-1 Columbia River Sediment Sample Cross-Reference 1T-1

2-1 Laboratory Blank Contaminants 2T-1
2-2 Equipment Blank Results 2T-2
2-3 Equipment Blank Results 2T-3
2-4 GFAA Analytical Spike Recovery Exceedances 2T-4
2-5 Metals Field Duplicate and Split Sample Results 2T-5

3-1 Radiochemistry Equipment Blank Results 3T-1
3-2 Radiochemistry Equipment Blank Results 3T-2
3-3 Radiochemistry Field Duplicate and Split Sample Results 3T-3

9312988.1511

1.0 INTRODUCTION

This report presents a summary of data limitations and data validation performed on sediment samples collected for the Columbia River Sediment evaluation project. Fifty-two samples were analyzed for metals and radiochemistry parameters. A total of nine sample delivery groups (data packages) were validated. The analyses performed consisted of:

- Metals
- Gross alpha and beta radioactivity
- Alpha spectrometry analysis for selected plutonium, uranium and americium isotopes
- Gamma spectrometry for selected isotopes (see Section 3.0)
- Strontium-90
- Technetium-99

The primary laboratory used for analysis was Thermo Analytical Laboratories (TMA/Norcal) with Roy F. Weston laboratories and their subcontractor, EcoTek used as the QA laboratory for the analysis of split samples.

Data verification and validation was performed in accordance with the project statement of work (WHC 1993) and validation procedures (Bechtold 1992). As required by the task order and statement of work, 100% of the data were validated which consisted of verifying sample results against the raw data to assure accuracy of the reported results, recalculating 20% of all reported results and comparing with reported values, and by checking 100% of the associated quality control analyses (calibrations, blanks, spikes, duplicates and control samples). At the completion of verification and validation of each data package, data validation technical memoranda were prepared for each data package and transmitted with the original documentation to HASM for inclusion in the project QA record.

The report is organized into sections as follows: section one is a summary of the objectives and scope of the Columbia River Sediment data validation project. Section two is the metals data validation summary and section 3 is the radiochemistry data validation summary. Appendix A provides a validated metals data summary, appendix B contains validated metals laboratory reports, appendix C contains a validated radiochemistry data summary and appendix D contains validated radiochemistry laboratory reports.

1.1 OBJECTIVES AND SCOPE

The objectives of the project were to verify and validate all sample analyses against defined laboratory performance criteria and project-specific data quality objectives to assure all data are acceptable for use in the Columbia River sediment evaluation project. For the purposes of this report, the validated results were reviewed against the following data quality indicators:

9312968.1512

- Precision of laboratory and field duplicate measurements
- Accuracy in terms of laboratory spikes, tracer yields, control samples, laboratory and field blanks and proper reporting
- Representativeness in terms of field duplicate analyses
- Completeness in terms of the percentage of valid measurements versus the total number of measurements performed
- Comparability in terms of split samples and reporting units

1.2 SAMPLE CROSS REFERENCE

Table 1-1 provides a cross-reference list of all samples validated including sample locations (Figure 1-1), sample dates, sample depths and NAD 83 coordinates.

9312968.159

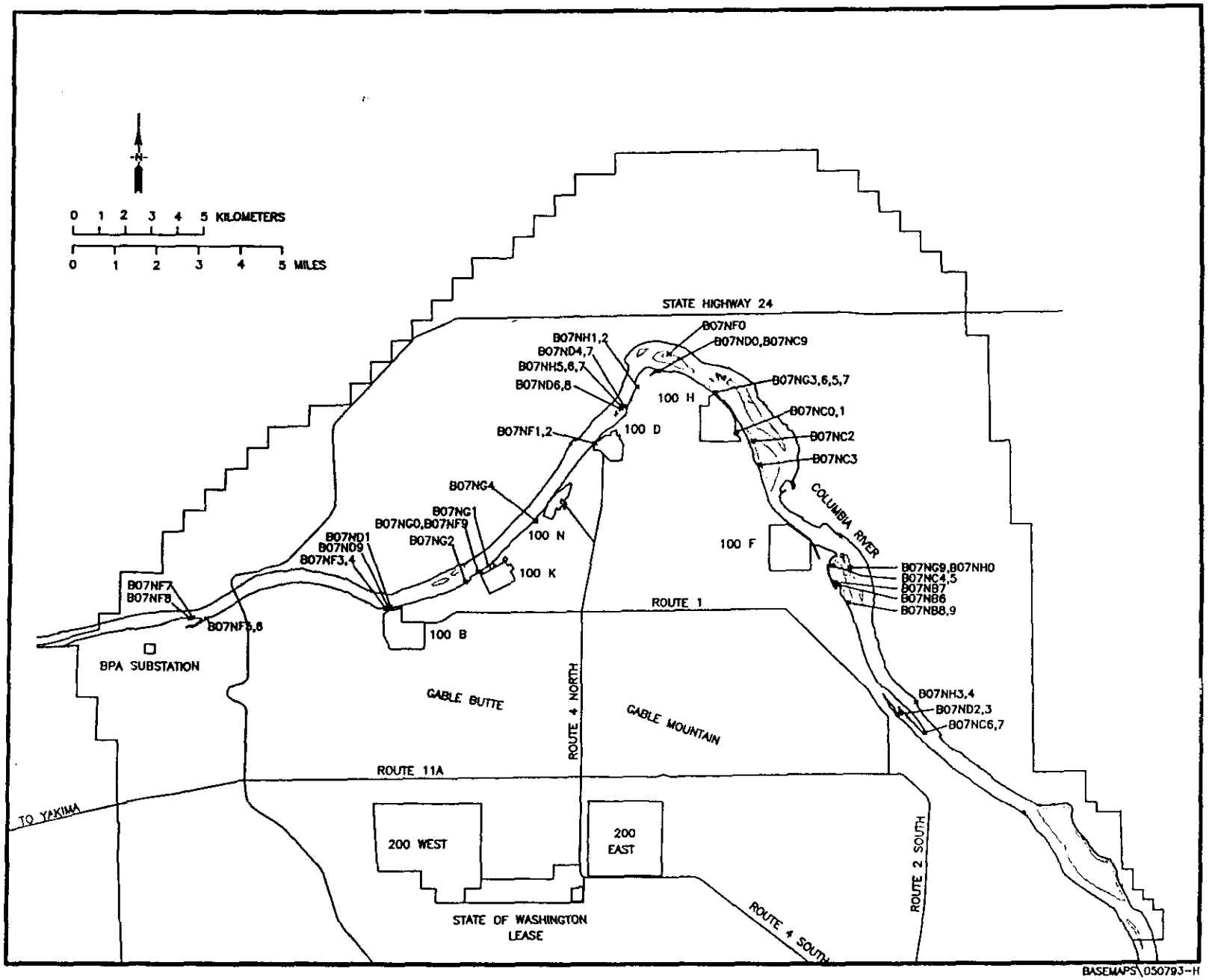

Figure 1-1. Sample Locations.

THIS PAGE INTENTIONALLY
LEFT BLANK

Table 1-1. Columbia River Sediment Sample Cross Reference
(Sheet 1 of 2)

HEIS NO.	SAMPLE DATE	SAMPLE LOCATION	SAMPLE INTERVAL, INCHES		COMMENTS	NAD 83 COORD.	
			TOP	BOTTOM		EASTING	NORTHING
B07NB6	12-Nov-92	SITE F1	0	6		582262.2	146193.7
B07NB7	12-Nov-92	SITE F2	0	6		582149.9	146304.3
B07NB8	12-Nov-92	SITE F3	0	6		582692.1	145485
B07NB9	12-Nov-92	SITE F3	12	24		582692.1	145485
B07NC0	13-Nov-92	SITE H1	0	6		578263	152108.2
B07NC1	13-Nov-92	SITE H1	12	18		578263	152108.2
B07NC2	13-Nov-92	SITE H2	0	6		578910.9	151754.4
B07NC3	13-Nov-92	SITE H3	0	6		579164	150833.8
B07NC4	16-Nov-92	SITE F4	0	6		582032.7	146961.3
B07NC5	16-Nov-92	SITE F4	12	16		582032.7	146961.3
B07NC6	16-Nov-92	SITE HAN1	0	6		585736.8	140407.7
B07NC7	16-Nov-92	SITE HAN1	12	16		585736.8	140407.7
B07NC8	19-Nov-92				Eq Blk		
B07NC9	17-Nov-92	SITE D/H	12	18		575174.1	154444.1
B07ND0	17-Nov-92	SITE D/H	0	6		575174.1	154444.1
B07ND1	20-Nov-92	SITE BC1	0	6	Duplicate		
B07ND2	17-Nov-92	SITE HAN2	0	6		584739.5	141117.5
B07ND3	17-Nov-92	SITE HAN2	12	18		584739.5	141117.5
B07ND4	19-Nov-92	SITE DI1	0	6		573793.6	153078
B07ND5	19-Nov-92	*					
B07ND6	19-Nov-92	SITE DI2	0	6		573687.5	152981.9
B07ND7	19-Nov-92	SITE DI1	0	6	Duplicate	573793.6	153078
B07ND8	19-Nov-92	SITE DI2	12	20		573687.5	152981.9
B07ND9	20-Nov-92	SITE BC1	0	6		564712	145348.6
B07NF0	19-Nov-92	SITE D4	0	6		575580.4	155101.1
B07NF1	19-Nov-92	SITE D5	0	6		572658.7	151684.5
B07NF2	19-Nov-92	SITE D5	12	18		572658.7	151684.5
B07NF3	20-Nov-92	SITE BC2	0	6		564535.5	145606.7
B07NF4	20-Nov-92	SITE BC2	12	18		564535.5	145606.7
B07NF5	20-Nov-92	SITE VBU1	0	6		557603.1	144860.7
B07NF6	20-Nov-92	SITE VBU1	12	22		557603.1	144860.7
B07NF7	20-Nov-92	SITE VBU2	0	6		557066.3	144898.2
B07NF8	20-Nov-92	SITE VBU3	0	3		556975.5	144852.6
B07NF9	21-Nov-92	SITE KU1	12	18		568105.9	146712.5
B07NG0	21-Nov-92	SITE KU1	0	6		568105.9	146712.5
B07NG1	21-Nov-92	SITE K2	0	3		568519.7	146960.5
B07NG2	21-Nov-92	SITE K3	0	6		567619.7	146308.7

9312968.1515

Table 1-1. Columbia River Sediment Sample Cross Reference
(Sheet 2 of 2)

HEIS NO.	SAMPLE DATE	SAMPLE LOCATION	SAMPLE INTERVAL, INCHES		COMMENTS	NAD 83 COORD.	
			TOP	BOTTOM		EASTING	NORTHING
B07NG3	22-Nov-92	SITE HU1	0	6		577389.5	153623.9
B07NG4	22-Nov-92	SITE N	0	3		570348.6	148672.4
B07NG5	22-Nov-92	SITE HU1	12	18		577389.5	153623.9
B07NG6	22-Nov-92	SITE HU1	0	6	Duplicate	577389.5	153623.9
B07NG7	22-Nov-92	SITE HU1	12	18	Split	577389.5	153623.9
B07NG8	23-Nov-92				Eq Blk		
B07NG9	23-Nov-92	SITE FI1	0	6		582731.8	146871.7
B07NH0	23-Nov-92	SITE FI1	12	18		582731.8	146871.7
B07NH1	23-Nov-92	SITE DA1	0	6		574306.1	153825.1
B07NH2	23-Nov-92	SITE DA1	12	20		574306.1	153825.1
B07NH3	23-Nov-92	SITE FF1	0	6		585380.6	141598.9
B07NH4	23-Nov-92	SITE FF1	12	20		585380.6	141598.9
B07NH5	24-Nov-92	SITE DI3	0	6		573711.3	153053.2
B07NH6	24-Nov-92	SITE DI3	0	6	Duplicate	573711.3	153053.2
B07NH7	24-Nov-92	SITE DI3	0	6	Split	573711.3	153053.2

* - SITE LOCATION NOT PROVIDED

9312968.1516

2.0 METALS DATA VALIDATION SUMMARY

2.1 SUMMARY

The following presents a summary of the metals data validation results and review against the data quality objectives. Where appropriate minor deficiencies are identified which resulted in qualification of associated data as estimated (J for detected values, UJ for undetected values) or undetected (U). No major deficiencies were identified during validation and data review which resulted in data rejection or qualification as unusable (R for detected values, UR for undetected values).

Precision

- Laboratory duplicate relative percent difference (RPD) results were acceptable
- Laboratory ICP serial dilution percent difference (%D) performance was acceptable with the exception of minor exceedances for copper, barium and zinc
- Laboratory GFAA duplicate injection performance was acceptable
- Field duplicate RPD values were acceptable with the exception of manganese as noted in the minor deficiencies
- Field split RPD values were acceptable with the exception of aluminum, chromium, iron and magnesium

Accuracy

- Laboratory spike recoveries were acceptable with the exception of some low recoveries for antimony, arsenic, selenium, silver, lead, and manganese
- Laboratory graphite furnace atomic absorption (GFAA) analytical spike recoveries were acceptable with the exception of some low recoveries for arsenic, lead, selenium, and thallium
- Laboratory blank results were acceptable with the exception that cadmium and silver were detected in blanks associated with several samples resulting in qualification of the associated results as undetected (U)
- Equipment blank results show low concentrations of arsenic, barium, calcium, chromium, cobalt, copper, lead, manganese, magnesium, potassium, sodium and zinc at levels near the instrument detection limit. Aluminum and iron were the only analytes detected at concentrations above the contract required detection limits (CRDL), however the field blank samples were identified as silica sand matrices which in the authors opinion do not provide comparable data on the cleanliness of the sampling equipment and containers. Qualification of data against the field blank results was not conducted

- All sample results and detection limits were verified and recalculated as required against the raw data and no deficiencies were identified

Representativeness

- Field duplicate RPD values were acceptable as described above indicating sampling locations and technique were sufficient to provide comparable results

Completeness

- A total of 52 samples were validated as part of this project with a total of 1196 measurements reported. All measurements were deemed valid or qualified due to minor deficiencies. Since no measurements were rejected as part of the validation the completeness percentage for this data set is 100%.

Comparability

- All results were reported in common units, milligrams per kilogram (mg/kg) to facilitate comparison of results

- CLP analytical protocols were used by the both primary and split laboratories allowing comparison of results and detection limits

2.2 CALIBRATIONS

Compliance with calibration requirements demonstrates the analytical instrument was capable of producing acceptable quantitative results prior to the analysis of samples.

2.2.1 Initial Calibrations

All initial calibration criteria as specified in the validation procedure were met.

2.2.2 Continuing Calibration

All continuing calibration criteria specified in the validation procedures were met.

2.3 BLANKS

A blank is an artificial sample designed to monitor the introduction of artifacts into the measurement process.

2.3.1 Laboratory Blanks

A laboratory blank is a blank that is taken through sample preparation and analysis and is a test for contamination in sample preparation and analyses. Table 2-1 is a summary of the contaminants detected in the laboratory blanks for each data package.

For data package 9212L888-WES-914, no analytes were detected in the laboratory blanks.

2.3.2 Equipment Blanks

Samples B07NC8 and B07NG8 were identified as silica sand equipment blanks. Aluminum, barium, chromium, iron, lead, manganese and sodium were detected in the equipment blanks. Results of the equipment blanks are summarized in the Tables 2-2 and 2-3.

2.4 ACCURACY

Laboratory accuracy was assessed by evaluation of spike samples, control samples and GFAA analytical spikes as summarized in the following paragraphs.

2.4.1 Spike Sample Recovery

For data package B07NB6-TMA-351, the antimony spike results exceeded the QC limits of 75% to 125% with results qualified as estimated (J for detects and UJ for nondetects).

For data package 9212L888-WES-914, the arsenic, selenium and silver spike results exceeded the QC limits of 75% to 125% with results qualified as estimated (J for detects and UJ for nondetects).

For data package B07ND4-TMA-353, the antimony spike results exceeded the QC limits of 75% to 125% with results qualified as estimated (J for detects and UJ for nondetects).

For data package B07NC4-TMA-356, the antimony, lead, manganese and selenium spike results exceeded the QC limits of 75% to 125% with results qualified as estimated (J for detects and UJ for nondetects).

For data package B07NF9-TMA-354, the antimony and manganese spike results exceeded the QC limits of 75% to 125% with results qualified as estimated (J for detects and UJ for nondetects).

For data package B07NC8-TMA-355, the arsenic, antimony and manganese spike results exceeded the QC limits of 75% to 125% with results qualified as estimated (J for detects and UJ for nondetects).

9312968.1519

2.4.2 Laboratory Control Sample

The laboratory control sample (LCS) is a control sample of known composition and serves as a monitor of the overall performance of all steps in the analysis, including sample preparation.

All LCS recoveries were within control limits with the following exception:

For data package B07NF9-TMA-354, the laboratory control sample exceeded the QC limits of 80% to 120% for barium and the associated sample results were qualified as estimated (J).

2.4.3 ICP Interference Check Sample

Interference check samples (ICS) provide a means of monitoring for false identification and quantitation of ICP analytes during sample analysis. All ICS sample recoveries were within the control limit of 80% to 120%.

2.4.4 Graphite Furnace (GFAA) Analytical Spikes

Graphite furnace analytical spikes are conducted on every sample analyzed. The GFAA percent recoveries were within the limits of ≥ 85% and ≤ 115% with the following exceptions:

The analytical spike percent recoveries exceeded the QC limits for the samples and analytes shown in Table 2-4. Therefore, the associated sample results have been qualified as estimated (J for detects and UJ for nondetects).

9312968.1520

2.5 PRECISION

Precision was evaluated through the review of laboratory duplicate samples, serial dilutions and field duplicates. A summary of results of precision analyses are provided in the following sections.

2.5.1 Laboratory Duplicates

Laboratory duplicate relative percent differences (RPDs) were reviewed and recalculated to ensure samples were within control limits specified in the validation procedure. All duplicate samples analyzed were within the control limits.

2.5.2 ICP Serial Dilution

The ICP Serial Dilution is used to determine whether significant physical or chemical interferences exist due to sample matrix. All serial dilution percent differences were within a control limit of ± 10% with the following exception:

For data package B07NC4-TMA-356, the serial dilution result for copper exceeded the QC limit for analyte concentrations greater than 50 times the IDL. Results were qualified as estimated (J).

2.5.3 Field Duplicates

A total of four field duplicate samples were collected and analyzed. A summary of field duplicate samples is provided in Table 2-5. Field duplicates are not evaluated and sample results are not qualified in the same manner as laboratory duplicates because the field duplicate results are an indicator of the representativeness of field sampling procedures and handling and the homogeneity of the sample.

Field duplicate relative percent differences (RPDs) were reviewed and recalculated to ensure the samples were within control limits specified in the validation procedure. All samples analyzed were within the control limits with the exception of duplicate samples B07ND1/B07ND9 for which the manganese RPD was 75% for results greater than five times the CRQL.

2.6 SPLIT SAMPLES

A total of two split samples shown in Table 2-5 were collected. Evaluation of the split samples does not differ from the original samples. Field duplicate relative percent differences (RPDs) were reviewed and recalculated to ensure the samples were within control limits specified in the validation procedure. The RPDs were within control limits with the exception of the following:

- For split sample set B07NH5/B07NH7, aluminum, chromium, iron and magnesium RPDs were outside the control limits.
- For split sample set B07NG5/B07NG7, aluminum, chromium and iron RPDs were outside the control limits.

Field split sample RPDs outside the control limits are not used to qualify sample results.

2.7 METHOD OF STANDARD ADDITION (MSA)

The method of standard addition for analyte quantitation is necessary in GFAA analysis when sample absorbance is >50% of the analytical spike absorbance and the analytical spike recovery is outside of control limits. The MSA analyses were completed correctly with the exception of the following.

For data package B07NB6-TMA-351, the MSA correlation coefficient was <0.995 for selenium for samples B07NC0 and B07NC1. Sample results were qualified as estimated (J).

For data package 9212L888-WES-914, an MSA was performed and reported on sample B07NG7 for arsenic but was not required. The sample result was corrected on the results form to reflect the original correct concentration.

9312968.1521

For data package B07NC4-TMA-356, an MSA was performed on sample B07NC7 for lead but was not required. The sample result was corrected on the results form to reflect the original correct concentration.

For data package B07NF9-TMA-354, an MSA was required for sample B07NG3 for lead, but was not performed. The sample result was qualified as estimated (J).

2.8 HOLDING TIMES

The chain-of-custody forms and the analysis run logs were reviewed for the holding time from the date and time of collection to the date and time of analysis. All holding times were met with the following exception:

For data package 9212L888-WES-914, the holding time was exceeded for mercury analysis by one day. All mercury results were qualified as estimated (J for detects and UJ for nondetects).

2.9 SAMPLE RESULT VERIFICATION, QUANTITATION AND DETECTION LIMITS

A verification of all sample results was done with no errors noted except as previously identified. Sample results were recalculated at a frequency of 20% and detection limits were reviewed with no errors identified.

2.10 SYSTEM PERFORMANCE

The raw data was reviewed for anomalies that may occur as a result of problems with system performance and no anomalies were identified.

9312968.1522

Table 2-1. Laboratory Blank Contaminants

Data Package	Analyte	Sample
B07NB6-TMA-351	Cadmium	B07NB6,B07NC0,B07NC3
	Silver	B07NB6,B07NB8,B07NC0,B07NC2
	Antimony	B07NB8
B07ND4-TMA-353	Cadmium	B07ND4, B07ND5, B07ND7, B07NF0, B07NF1, B07NF2
B07NC4-TMA-356	Cadmium	B07NC7, B07NC9, B07ND0, B07ND2
B07NF9-TMA-354	Cadmium	B07NG0, B07NG1, B07NG5, B07NG7, B07NH0
	Silver	B07NG0, B07NG1, B07NH2, B07NF9, B07NH6, B07NH5, B07NG8, B07NG9, B07NH1, B07NH3, B07NH5
	Magnesium, Sodium, Vanadium, Zinc	B07NG8
B07NC8-TMA-355	Cobalt	B07NC8, B07ND1
	Silver	B07ND9
	Vanadium	B07ND9

9312968.1623

Table 2-2. Equipment Blank Results

Sample B07NG8			
Analyte	Concentration, mg/kg	Analyte	Concentration, mg/kg
Aluminum	572	Arsenic	0.7 J
Barium	13.6 J	Calcium	162 B
Chromium	1.2 B	Cobalt	0.81 B
Iron	1940	Lead	2.8
Manganese	58.6 J	Potassium	147 B

9312968.1524

Table 2-3. Equipment Blank Results

Sample B07NC8			
Analyte	Concentration, mg/kg	Analyte	Concentration, mg/kg
Aluminum	387	Arsenic	0.57 BJ
Barium	8.0 B	Calcium	127 B
Copper	1.3 B	Iron	1940
Lead	1.7 J	Magnesium	61.8 B
Manganese	42.1 J	Potassium	76.6 B
Sodium	22.4 B	Zinc	7.1 J

9312990.1525

Table 2-4. GFAA Analytical Spike Recovery Exceedances

Data Package	Analyte	Sample ID
B07NB6-TMA-351	Thallium	B07NB7, B07NB6, B07NB8, B07NB9, B07NC0, B07NC1, B07NC2
9212L888-WES-914	Arsenic	B07NG7
	Thallium	B07NG7
B07ND4-TMA-353	Selenium	B07ND7, B07NF2
	Thallium	B07NF1
B07NC4-TMA-356	Selenium	B07NC4, B07NC6, B07ND2, B07ND3
	Lead	B07NC7
B07NF9-TMA-354	Selenium	B07NG1, B07NG2, B07NG4, B07NG6, B07NG9, B07NH2, B07NH3, B07NF9, B07NH5
	Arsenic	B07NG8, B07NH0
	Thallium	B07NG3, B07NG5, B07NG6, B07NG2
B07NC8-TMA-355	Arsenic	B07ND1
	Selenium	B07ND9, B07NF7
	Thallium	B07NC8, B07ND1, B07ND9, B07NF3, B07NF4, B07NF5, B07NF6, B07NF7, B07NF8
	Lead	B07NF5, B07NC8

9312968.1525

Table 2-5. Metals Field Duplicate and Split Sample Results (Page 1 of 3)

FIELD DUPLICATE RESULTS, mg/Kg										
HEIS NO:	B07ND4		B07ND7			B07ND9		B07ND1		
DATE:	11/20/92		11/20/92			11/20/92		11/20/92		
LOCATION:	DI1		DI1			BC1		BC1		
DEPTH:	0"-6"		0"-6"			0"-6"		0"-6"		
COMMENTS:			DUPLICATE					DUPLICATE		
PARAMETER	Result	Q	Result	Q	RPD	Result	Q	Result	Q	RPD
Aluminum	5290.00		6020.00		13	3650.00		4720.00		26
Antimony	4.10	UJ	4.20	UJ	NC	3.80	UJ	4.70	UJ	NC
Arsenic	2.90	B	3.10		7	1.60	BJ	1.89	J	17
Barium	45.50	B	53.10		15	45.80		58.30		24
Beryllium	0.10	U	0.10	U	NC	0.09	U	0.11	U	NC
Cadmium	0.33	U	0.39	U	NC	0.22	U	0.28	U	NC
Calcium	3650.00		3880.00		6	1850.00		2140.00		15
Chromium	10.30		12.90		22	50.60		47.60		6
Cobalt	5.40	B	6.00	B	11	4.60	B	6.40	U	200
Copper	26.00		27.50		6	7.00		10.20		37
Iron	13100.00		14200.00		8	8690.00		9700.00		11
Lead	18.00		20.60		13	7.30		9.00		21
Magnesium	3800.00		4230.00		11	2210.00		2630.00		17
Manganese	193.00		250.00		26	100.00	J	220.00	J	75
Mercury	0.06	U	0.06	U	NC	0.06	U	0.07	U	NC
Nickel	10.00		12.60		23	9.30		12.60		30
Potassium	716.00	B	797.00	B	11	640.00	B	819.00	B	25
Selenium	3.40	U	0.66	UJ	NC	0.67	UJ	0.82	U	NC
Silver	0.61	U	0.63	U	NC	0.78	U	0.70	U	NC
Sodium	279.00	B	299.00	B	7	96.60	B	114.00	B	17
Thallium	0.30	U	0.39	B	200	0.30	UJ	0.37	UJ	NC
Vanadium	27.90		30.00		7	19.10		23.40		20
Zinc	192.00		203.00		6	73.10	J	83.10	J	13

Q = data qualifier
RPD = relative percent difference
NC = not calculated

9312968.1527

Table 2-5. Metals Field Duplicate and Split Sample Results (Page 2 of 3)

FIELD DUPLICATE RESULTS, mg/Kg										
HEIS NO:	B07NG3		B07NG6			B07NH5		B07NH6		
DATE:	11/22/92		11/22/92			11/24/92		11/24/92		
LOCATION:	Site HU1		Site HU1			Site DI3		Site DI3		
DEPTH:	0-6"		0-6"			0-6"		0-6"		
COMMENTS:			DUPLICATE					DUPLICATE		
PARAMETER	Result	Q	Result	Q	RPD	Result	Q	Result	Q	RPD
Aluminum	7640.00		7430.00		3	4400.00		5630.00		25
Antimony	4.40	UJ	4.60	UJ	NC	3.90	UJ	4.20	UJ	NC
Arsenic	4.50		3.90		14	3.00		2.80		7
Barium	58.40	J	58.50	J	NC	42.30	J	53.30	J	23
Beryllium	0.10	U	0.11	U	NC	0.09	U	0.10	U	NC
Cadmium	2.00		1.70		16	0.23	U	0.25	U	NC
Calcium	3720.00		3520.00		6	2770.00		3460.00		22
Chromium	22.80		21.70		5	9.10		11.30		22
Cobalt	8.50	B	7.80	B	9	4.20	B	5.90	B	34
Copper	18.90		18.40		3	18.20		23.70		26
Iron	15500.00		15000.00		3	10200.00		12500.00		20
Lead	32.70	J	31.30		4	24.10		24.80		3
Magnesium	4450.00		4350.00		2	3010.00		3830.00		24
Manganese	193.00	J	193.00	J	0	206.00	J	234.00	J	13
Mercury	0.07	B	0.08	B	13	0.06	U	0.06	U	NC
Nickel	13.80		14.50		5	8.40	B	11.20		29
Potassium	1040.00	B	1050.00	B	1	560.00	B	726.00	B	26
Selenium	1.00	U	0.97	UJ	NC	0.81	UJ	0.89	U	NC
Silver	0.65	U	0.68	U	NC	0.61	U	0.89	U	NC
Sodium	205.00	B	209.00	B	2	199.00	B	272.00	B	31
Thallium	1.10	UJ	1.00	UJ	NC	0.85	U	0.94	U	NC
Vanadium	29.90		28.70		4	18.30		23.60		25
Zinc	397.00		369.00		7	185.00		209.00		12

Q = data qualifier
RPD = relative percent difference
NC = not calculated

9312968.1528

Table 2-5. Metals Field Duplicate and Split Sample Results (Page 3 of 3)

FIELD SPLIT RESULTS, mg/Kg										
HEIS NO:	B07NH5		B07NH7			B07NG5		B07NG7		
DATE:	11/24/92		11/24/92			11/22/92		11/22/92		
LOCATION:	Site DI3		Site DI3			Site HU1		Site HU1		
DEPTH:	0-6"		0-6"			12-18"		12-18"		
COMMENTS:			SPLIT					SPLIT		
PARAMETER	Result	Q	Result	Q	RPD	Result	Q	Result	Q	RPD
Aluminum	4400.00		2460.00		57	8620.00		4830.00		56
Antimony	3.90	UJ	14.70	U	NC	4.00	UJ	17.80	U	NC
Arsenic	3.00		2.20	BJ	31	4.80		4.30	J	11
Barium	42.30	J	36.20	B	16	88.5	J	76.50		15
Beryllium	0.09	U	0.25	U	NC	0.09	U	0.42	B	200
Cadmium	0.23	U	1.72	U	NC	1.20	U	2.08	U	NC
Calcium	2770.00		2740.00		1	3970.00		3280.00		19
Chromium	9.10		5.30		53	20.8		13.30		44
Cobalt	4.20	B	3.30	B	24	8.60	B	7.00	B	21
Copper	18.20		23.00		23	21.50		17.20		22
Iron	10200.00		6480.00	J	45	16700.00		10500.00	J	46
Lead	24.10		18.10		28	27.80		27.90		0.4
Magnesium	3010.00		1480.00		68	4990.00		3040.00		49
Manganese	206.00	J	144.00		35	182.00	J	130.00		33
Mercury	0.06	U	0.06	UJ	NC	0.05	U	0.07	UJ	NC
Nickel	8.40	B	7.40	B	13	15.10		11.80	B	25
Potassium	560.00	B	424.00	B	28	1420.00		1080.00	B	27
Selenium	0.81	UJ	0.50	UJ	200	0.89	U	0.59	UJ	NC
Silver	0.61	U	5.30	J	NC	1.00	U	2.97	UJ	NC
Sodium	199.00	B	219.00	B	10	194.00	B	131.00	B	39
Thallium	0.85	U	0.52	BJ	200	0.94	UJ	0.59	UJ	NC
Vanadium	18.30		6.50	B	95	33.90		14.50	B	80
Zinc	185.00		167.00		10	253.00		230.00		10

Q = data qualifier
RPD = relative percent difference
NC = not calculated

9312968.1629

THIS PAGE INTENTIONALLY
LEFT BLANK

3.0 RADIOCHEMISTRY DATA VALIDATION SUMMARY

This section presents the results of the validation of the radiochemical analyses for the radioisotopes and analytical methods shown in the following table.

Primary Laboratory - TMA	
Analytical Method	Radiochemical Analyte
Alpha Spectroscopy	Americium-241, Plutonium-238, 239/240
Beta Counting	Strontium-90
Gas Proportional Counting	Gross alpha, Gross Beta
Gamma Spectroscopy	Potassium-40, Iron-59, Chromium-51, Cobalt-60, Zinc-65, Ruthenium-106, Cesium-134, Cesium-137, Europium-152, Europium-154, Radium-226, Thorium-228, Thorium-232
Secondary Laboratory - Ecotek	
Analytical Method	Radiochemical Analyte
Gas Proportional Counting	Gross Beta
Beta Counting	Strontium-90
Alpha Spectroscopy	Americium-241, Plutonium-239/240
Gamma Spectroscopy	Cobalt-58, Iron-59, Cobalt-60, Cesium-134, Cesium-137, Cerium-144, Europium-152, Europium-154, Europium-155, Radium-223, Potassium-40, Thorium-231, Thorium-234, Neptunium-237

9312968.1530

3.1 SUMMARY

The following presents a summary of the radiochemistry data validation results and review against the data quality objectives. Where appropriate minor deficiencies are identified which resulted in qualification of associated data as estimated (J for detected values, UJ for undetected values) or undetected (U) and major deficiencies are identified which resulted in qualification of associated data as unusable (R for detects, UR for undetected values).

Precision

- Laboratory duplicate relative percent difference (RPD) results were acceptable with the exception of minor exceedances for cesium-137, europium-152 and europium-154, americium-241 and gamma spectroscopy

- Field duplicate RPD values were acceptable

- Field split RPD values were acceptable with the exception minor exceedances of americium-241 and europium-154

Accuracy

- Tracer yield recoveries were acceptable with the exception of major exceedances for isotopic plutonium, americium and uranium

- Laboratory control sample recoveries were acceptable with the exception of major exceedances for uranium-235 and americium-241, and minor exceedances for gamma spectroscopy

- Laboratory blank results were acceptable with the exception of uranium-238 which was detected in the blanks associated with several samples resulting in qualification of the associated results as undetected (U)

- Equipment blank results show low concentrations of gross beta, potassium-40, radium-226, thorium-228 and thorium-232, however the field blank samples were identified as silica sand matrices which in the authors opinion do not provide comparable data on the cleanliness of the sampling equipment and containers. Qualification of data against the field blank results was not conducted

Sample Result Verification

- All sample results and minimum detectable activity (MDA) values were supported in the raw data. However, split sample MDA values and results for gross beta and strontium-90 and MDA values for isotopic uranium, isotopic plutonium and gamma spectroscopy could not be verified by recalculation, therefore the results required qualification as estimated

Representativeness

- Field duplicate RPD values were acceptable as described above indicating sampling locations and technique were sufficient to provide comparable results

Completeness

- A total of 52 samples were validated as part of this project with a total of 1146 measurements reported. Of the 1146 measurements reported, 1090 were deemed valid or qualified due to minor deficiencies. The completeness percentage for this data set is 95% which meets the completeness goal of 90%.

Comparability

- All results were reported in common units, or picocuries per gram (pCi/g) to facilitate comparison of results.
- Similar analytical protocols were used by the both primary and split laboratories allowing comparison of results and detection limits

3.2 CALIBRATIONS

Initial and continuing calibration of all instruments were reviewed to ensure the instruments were calibrated prior to sample analysis. The calibrations were acceptable with the following exceptions:

For data package B07NB6-TMA-351, the gross alpha background QC value exceeded the control limits for samples B07NC1, B07NC4 and the reagent blank. Therefore, the sample results were qualified as estimated (J) for detects and unusable (UR) for non-detects.

For data package 30015-WES-1088, the background counts for isotopic uranium analysis were not provided, resulting in qualification of all associated results as estimated (J for detects, UJ for non-detects).

3.3 BLANKS

A blank is an artificial sample designed to monitor the introduction of artifacts into the measurement process. The following sections are a summary of the blank analysis and results.

3.3.1 Laboratory Blanks

A laboratory blank is a blank that is taken through sample preparation and analysis and is a test for contamination in sample preparation and analyses. Laboratory blank results were acceptable with the following exception:

For data package 30015-WES-1088, uranium-238 sample results were less than five times the associated method blank results, resulting in qualification of all detected values as undetected (U).

3.3.2 Equipment Blanks

Two equipment blanks, B07NC8 and B07NG8 were collected and analyzed. Results of the equipment blank analysis are summarized in Tables 3-1 and 3-2.

3.4 ACCURACY

The goals for accuracy were met with the following exceptions:

3.4.1 Tracer Yield

For data package B07NC8-TMA-355, the plutonium-242 tracer recovery was below the 30% control limit for samples B07NF5 and B07NF6. Therefore, the associated sample results for plutonium 238, 239/240 have been qualified as unusable (R for detects and UR for non-detects).

For data package B07NC8-TMA-355, the americium-243 tracer recovery was below the 30% control limit for samples B07NF6 and B07ND9. Therefore, the associated sample results have been qualified as unusable (R for detects and UR for non-detects).

For data package B07NB6-TMA-351, the plutonium-242 tracer recovery was below the 30% control limit for samples B07NB7, B07NC2, B07NC7, B07ND1 and the reagent blank. Therefore, the associated sample results for plutonium 238, 239/240 have been qualified as unusable (R for detects and UR for non-detects).

For data package B07NB6-TMA-351, the americium-243 tracer recovery was below the 30% control limit for sample B07NB9. Therefore, the associated sample result has been qualified as unusable (R for detects and UR for non-detects).

For data package B07NF9-TMA-354, the uranium tracer recovery was below the 30% control limit for samples B07NG3 and B07NG4. Therefore, the associated sample result for uranium-233/234, 235 and 238 have been qualified as unusable (R for detects and UR for non-detects).

For data package 30015-WES-1088, the plutonium tracer recovery was below the 30% control limit for matrix spike samples, therefore accuracy could not be determined for the plutonium analysis.

3.4.2 Laboratory Control Sample

The laboratory control sample results were within limits with the following exceptions:

For data package B07NB6-TMA-351, the laboratory control sample percent recovery for gross alpha was outside the control limit. Therefore, all associated sample results have been qualified as estimated (J for detects and UJ for non-detects).

For data package B07NB6-TMA-351, the laboratory control sample percent recovery for americium-241 was 0% which is below the lower control limit of 80%. Therefore, all associated sample results have been qualified as unusable (R for detects and UR for non-detects).

For data package 30015-WES-1088, an LCS was not analyzed for gamma spectroscopy, therefore all results have been qualified as estimated (J for detects, UJ for non-detects).

For data package B07NC8-TMA-355, the laboratory control sample percent recovery for uranium-235 exceeded the control limit. Therefore, all associated sample results have been qualified as unusable (R for detects, UR for non-detects).

3.5 PRECISION

The goals for precision were met with the following exceptions:

3.5.1 Replicate Sample

For data package B07NC8-TMA-355, the replicate sample relative percent differences (RPD) for cesium-137, europium-152 and europium-154 exceeded the control limits. Therefore, associated sample results have been qualified as estimated (J for detects and UJ for non-detects).

For data package B07NB6-TMA-351, the RPD value for cesium-137, was out of specified control limits. Therefore, associated sample results have been qualified as estimated (J for detects and UJ for non-detects).

For data package 30015-WES-1088, a replicate sample was not analyzed for gamma spectroscopy, therefore all sample results have been qualified as estimated (J for detects and UJ for non-detects).

For data package 30015-WES-1088, the RPDs were >35% for americium-241, therefore all sample results have been qualified as estimated (J for detects and UJ for non-detects).

3.5.2 Field Duplicates

A total of four duplicate samples were collected and analyzed and the results are summarized in Table 3-3. Field duplicates are not evaluated in the same manner as laboratory duplicates because the field duplicates results are an indicator of field sampling procedures, handling and homogeneity of the sample, in addition to laboratory sample handling and analysis.

All field duplicate RPDs were within control limits.

9312968.1534

3.6 SPLIT SAMPLES

Two split samples were collected and analyzed and the results are summarized in Table 3-3. Sample results were not qualified based on split sample comparability.

The split RPDs were within control limits with the exception of americium-241 and europium-154 for split set B07NH5/B07NH7.

3.7 HOLDING TIMES

The chain-of-custody forms and the analysis run logs were reviewed for holding time from the date and time of collection to the date and time of analysis. All holding times were met.

3.8 SAMPLE RESULT VERIFICATION, QUANTITATION AND MINIMUM DETECTABLE ACTIVITIES

Samples were recalculated at a frequency of 20% and were verified at a frequency of 100% with no errors identified. In addition, the quantitation limits and minimum detectable Activities (MDAs) were reviewed with no problems noted with the following exceptions:

For data package 30015-WES-1088, sample results and MDAs could not be verified by recalculation for gross beta and strontium-90 analyses because the laboratory did not provide the necessary standard operating procedures (SOPs). Therefore, all sample results have been qualified as estimated (J for detects, UJ for non-detects). In addition, MDA values could not be verified for uranium-235, uranium-238, plutonium-239/240 and gamma spectroscopy, therefore all MDA results have been qualified as estimated (UJ). All QC samples were reviewed for this data package with results deemed valid.

3.9 SYSTEM PERFORMANCE

The raw data was reviewed for anomalies that may occur as a result of system performance with no problems identified.

9312968.1535

Table 3-1. Radiochemistry Equipment Blank Results

Sample B07NC8	
Radiochemical Analyte	Concentration, pCi/g
Gross Beta	27
Potassium-40	22
Radium-228	0.28
Thorium-228	0.55
Thorium-232	0.51

9312966.1535

Table 3-2. Radiochemistry Equipment Blank Results

Sample B07NG8	
Radiochemical Analyte	Concentration, pCi/g
Gross Beta	30
Uranium-233/234	0.22 J
Uranium-238	0.20 J
Potassium-40	23
Radium-226	0.24
Thorium-228	0.46
Thorium-232	0.34

9312966.1537

Table 3-3. Radiochemistry Field Duplicate and Split Sample Results (Sheet 1 of 3)

FIELD DUPLICATE SAMPLE RESULTS, pCi/g										
HEIS NO:	B07ND9		B07ND1			B07ND4		B07ND7		
DATE:	11/20/92		11/20/92			11/19/92		11/19/92		
LOCATION:	Site BC1		Site BC1			Site DI1		Site DI1		
DEPTH:	0-6"		0-6"			0-6"		0-6"		
COMMENTS:			DUPLICATE					DUPLICATE		
PARAMETER	Result	Q	Result	Q	RPD	Result	Q	Result	Q	RPD
Gross Alpha	5.000	U	6.700	J	200	4.900	J	4.5	J	9
Gross Beta	14.000		13.000		7	17.000		13		27
Uranium-233/234	0.450		0.590		27	0.580		0.44		27
Uranium-235	0.300	UR	0.200	UR	NC	0.200	UR	0.2	UR	NC
Uranium-238	0.260	J	0.440		51	0.680		0.44		43
Plutonium-238	0.020	U	.060	U	NC	0.050	U	0.03	U	NC
Plutonium-239	0.020	U	0.040	U	NC	0.030	U	0.01	U	NC
Americium-241	0.100	UR	0.030	U	NC	0.060	U	0.03	U	NC
Strontium-90	0.200	U	0.200	U	NC	0.200	U	0.2	U	NC
Potassium-40	12.000		12.000		0	14.000		13		7
Iron-59	0.100	U	0.300	U	NC	0.300	U	0.3	U	NC
Chromium-51	0.800	U	2.000	U	NC	2.000	U	2	U	NC
Cobalt-60	0.020	U	0.050	U	NC	0.180		0.19		5
Zinc-65	0.060	U	0.100	U	NC	0.200	U	0.2	U	NC
Ruthenium-106	0.200	U	0.400	U	NC	0.400	U	0.4	U	NC
Cesium-134	0.040	U	0.050	U	NC	0.050	U	0.06	U	NC
Cesium-137	0.031	J	0.050	UJ	200	0.560	J	0.62	J	10
Europium-152	0.050	UJ	0.090	UJ	NC	0.220	J	0.25	J	13
Europium-154	0.030	UJ	0.060	UJ	NC	0.100	UJ	0.2	UJ	NC
Radium-226	0.520		0.510		2	0.460		0.48		4
Thorium-228	0.820		1.100		29	0.500		0.53		6
Thorium-232	0.790		0.750		5	0.580		0.5		15

9312968.1539

Table 3-3. Radiochemistry Field Duplicate and Split Sample Results (Sheet 2 of 3)

FIELD DUPLICATE SAMPLE RESULTS, pCi/g										
HEIS NO:	B07NG3		B07NG6			B07NH5		B07NH6		
DATE:	11/22/92		11/22/92			11/24/92		11/24/92		
LOCATION:	Site HU1		Site HU1			Site DI3		Site DI3		
DEPTH:	0-6"		0-6"			0-6"		0-6"		
COMMENTS:			DUPLICATE					DUPLICATE		
PARAMETER	Result	Q	Result	Q	RPD	Result	Q	Result	Q	RPD
Gross Alpha	6.000	U	5.000	U	NC	5.300	J	5.000	U	200
Gross Beta	14.000		9.300	J	40	17.000		16.000		6
Uranium-233/234	0.450	R	0.850		NC	0.490		0.440		11
Uranium-235	0.300	UR	0.200	U	NC	0.200	U	0.200	U	NC
Uranium-238	0.750	R	0.710		NC	0.300		0.360		18
Plutonium-238	0.040	U	0.040	U	NC	0.050	U	0.070	U	NC
Plutonium-239	0.020	U	0.020	U	NC	0.020	U	0.030	U	NC
Americium-241	0.030	U	0.040	U	NC	0.030	U	0.060	U	NC
Strontium-90	0.800	U	0.800	U	NC	0.700	U	0.700	U	NC
Potassium-40	15.000		14.000		7	15.000		13.000		14
Iron-59	0.500	U	0.500	U	NC	0.400	U	0.400	U	NC
Chromium-51	3.000	U	4.000	U	NC	2.000	U	3.000	U	NC
Cobalt-60	0.380		0.370		3	0.250		0.200		22
Zinc-65	0.200	U	0.200	U	NC	0.200	U	0.200	U	NC
Ruthenium-106	0.600	U	0.600	U	NC	0.500	U	0.500	U	NC
Cesium-134	0.070	U	0.080	U	NC	0.060	U	0.060	U	NC
Cesium-137	0.760		0.790		4	0.500		0.540		8
Europium-152	0.500		0.560		11	0.320		0.320		0
Europium-154	0.200	U	0.200	U	NC	0.200	U	0.200	U	NC
Radium-226	0.640		0.660		3	0.590		0.540		9
Thorium-228	0.850		0.900		6	0.780		0.590		28
Thorium-232	0.840		0.940		11	0.510		0.600		16

Table 3-3. Radiochemistry Field Duplicate and Split Sample Results (Sheet 3 of 3)

FIELD SPLIT SAMPLE RESULTS, pCi/g										
HEIS NO:	B07NG5		B07NG7			B07NH5		B07NH7		
DATE:	11/22/92		11/22/92			11/24/92		11/24/92		
LOCATION:	Site HU1		Site HU1			Site DI3		Site DI3		
DEPTH:	12-18"		12-18"			0-6"		0-6"		
COMMENTS:			Split					Split		
PARAMETER	Result	Q	Result	Q	RPD	Result	Q	Result	Q	RPD
Gross Alpha	5.000	U	NR		NC	5.300	J	NR		NC
Gross Beta	13.000		16.000	J	21	17.000		15.700	J	8
Uranium-233/234	0.490		NR		NC	0.490		NR		NC
Uranium-235	0.100	U	0.022	J	200	0.200	U	0.017	J	200
Uranium-238	0.410		0.464	UJ	200	0.300		0.365	UJ	200
Plutonium-238	0.040	U	NR		NC	0.050	U	NR		NC
Plutonium-239	0.020	U	0.071		200	0.020	U	0.187	UJ	NC
Americium-241	0.040	U	0.080	UJ	NC	0.030	U	0.242	J	200
Strontium-90	0.900	U	0.914	UJ	NC	0.700	U	0.837	UJ	NC
Potassium-40	14.000		15.200	J	8	15.000		17.800	J	17
Iron-59	0.500	U	0.054	UJ	NC	0.400	U	0.054	UJ	NC
Chromium-51	3.000	U	NR		NC	2.000	U	NR		NC
Cobalt-60	0.120		0.111	J	8	0.250		0.216	J	15
Zinc-65	0.200	U	NR		NC	0.200	U	NR		NC
Ruthenium-106	0.600	U	NR		NC	0.500	U	NR		NC
Cesium-134	0.070	U	0.008 NR	UJ	NC	0.060	U	0.006	UJ	NC
Cesium-137	1.500		1.610	J	7	0.500		0.519	J	4
Europium-152	1.500		1.330	J	12	0.320		0.269	J	17
Europium-154	0.210		0.141	J	39	0.200	U	0.041	J	200
Radium-226	0.650		NR		NC	0.590		NR		NC
Thorium-228	0.880		NR		NC	0.780		NR		NC
Thorium-232	0.930		NR		NC	0.510		NR		NC
Europium-155	NR		0.035	UJ	NC	NR		0.043	J	NC
Cobalt-58	NR		0.017	UJ	NC	NR		0.014	UJ	NC
Cerium-144	NR		0.060	UJ	NC	NR		0.050	UJ	NC
Neptunium-237	NR		0.606	J	NC	NR		0.482	J	NC
Thorium-231	NR		0.454	J	NC	NR		0.294	J	NC
Thorium-234	NR		0.812	J	NC	NR		0.687	J	NC
Radium-228	NR		NR		NC	NR		54.200	J	NC
Radium-223	NR		6.96	UJ	NC	NR		0.032	UJ	NC

NR - NOT REPORTED NC - NOT CALCULATED

9312968.1540

THIS PAGE INTENTIONALLY
LEFT BLANK

4.0 REFERENCES

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Radiochemical Analyses, WHC-SD-EN-SPP-001, Rev. 0, 1992. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

WHC, 1993, Westinghouse Hanford Company, Validation of Columbia River Sediment Data, Statement of Work, Revision 0, January 1993. Westinghouse Hanford Company, Richland, Washington.

9312968.1541

THIS PAGE INTENTIONALLY
LEFT BLANK

APPENDIX A - VALIDATED METALS SUMMARY

9312988.1542

THIS PAGE INTENTIONALLY
LEFT BLANK

Parameter	Samp# / Date / Site / Depth / Type	B07NC8 11-19-92 Eq Blk 0.00 - 0.00 Eq Blk		B07NG8 11-23-92 Eq Blk 0.00 - 0.00 Eq Blk		B07ND1 11-20-92 SITE BC1 0.00 - 6.00 Duplicate		B07ND9 11-20-92 SITE BC1 0.00 - 6.00		B07NF3 11-20-92 SITE BC2 0.00 - 6.00		B07NF4 11-20-92 SITE BC2 12.00 - 18.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Inorganics													
ALUMINUM	MG/KG	387.000		572.000		4720.000		3650.000		5670.000		7460.000	
ANTIMONY	MG/KG	3.200	UJ	4.400	UJ	4.700	UJ	3.800	UJ	4.800	UJ	3.900	UJ
ARSENIC	MG/KG	0.570	BJ	0.700	J	1.890	J	1.600	BJ	1.200	BJ	1.200	BJ
BARIUM	MG/KG	8.000	B	13.600	J	58.300		45.800		50.400	B	71.800	
BERYLLIUM	MG/KG	0.080	U	0.100	U	0.110	U	0.090	U	0.110	U	0.090	U
CADMIUM	MG/KG	0.190	U	0.260	U	0.280	U	0.220	U	0.280	U	0.230	U
CALCIUM	MG/KG	127.000	B	162.000	B	2140.000		1850.000		2960.000		3110.000	
CHROMIUM	MG/KG	0.850	U	1.200	B	47.600		50.600		65.200		131.000	
COBALT	MG/KG	0.600	U	0.810	B	6.400	U	4.600	B	5.400	B	7.300	B
COPPER	MG/KG	1.300	B	0.910	U	10.200		7.000		11.500		19.200	
IRON	MG/KG	1940.000		1940.000		9700.000		8690.000		10900.000		14100.000	
LEAD	MG/KG	1.700	J	2.800		9.000		7.300		19.300		39.200	
MAGNESIUM	MG/KG	61.800	B	88.600	U	2630.000		2210.000		3400.000		3950.000	
MANGANESE	MG/KG	42.100	J	58.600	J	220.000	J	100.000	J	110.000	J	140.000	J
MERCURY	MG/KG	0.040	U	0.060	U	0.070	U	0.060	U	0.070	U	0.060	U
NICKEL	MG/KG	1.000	U	1.400	U	12.600		9.300		11.200	B	15.200	
POTASSIUM	MG/KG	76.600	B	147.000	B	819.000	B	640.000	B	789.000	B	1150.000	
SELENIUM	MG/KG	0.580	U	0.920	U	0.820	U	0.670	UJ	0.820	U	0.630	U
SILVER	MG/KG	0.470	U	0.860	U	0.700	U	0.780	U	0.710	U	0.570	U
SODIUM	MG/KG	22.400	B	51.600	U	114.000	B	96.600	B	167.000	B	145.000	B
THALLIUM	MG/KG	0.260	UJ	0.970	U	0.370	UJ	0.300	UJ	0.370	UJ	0.280	UJ
VANADIUM	MG/KG	1.800	U	1.800	U	23.400		19.100		28.200		34.800	
ZINC	MG/KG	7.100	J	8.300	U	83.100	J	73.100	J	159.000	J	192.000	J

Parameter	Samp# / Date / Site / Depth / Type	B07ND0 11-17-92 SITE D/H 0.00 - 6.00		B07NC9 11-17-92 SITE D/H 12.00 - 18.00		B07NF0 11-19-92 SITE D4 0.00 - 6.00		B07NF1 11-19-92 SITE D5 0.00 - 6.00		B07NF2 11-19-92 SITE D5 12.00 - 18.00		B07NH1 11-23-92 SITE DA1 0.00 - 6.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Inorganics													
ALUMINUM	MG/KG	5340.000		5960.000		7400.000		5220.000		9680.000		8030.000	
ANTIMONY	MG/KG	6.800	BJ	3.600	UJ	7.500	UJ	3.800	UJ	4.300	UJ	4.200	UJ
ARSENIC	MG/KG	2.300	B	6.300		1.900	B	2.000	B	4.400		6.100	
BARIUM	MG/KG	40.900	B	83.000		55.200	B	52.800		89.300		73.200	J
BERYLLIUM	MG/KG	0.200	B	0.310	B	0.180	U	0.110	B	0.100	U	0.100	U
CADMIUM	MG/KG	0.870	U	0.910	U	3.400	U	1.100	U	1.700	U	1.600	
CALCIUM	MG/KG	3180.000		2750.000		5070.000		3990.000		4470.000		4260.000	
CHROMIUM	MG/KG	15.000		17.900		14.100		47.000		21.900		22.300	
COBALT	MG/KG	5.400	B	8.300	B	5.700	B	8.800	B	8.800	B	7.700	B
COPPER	MG/KG	23.300	J	22.300	J	23.100		15.900		21.300		23.800	
IRON	MG/KG	11500.000		16200.000		13900.000		17800.000		18500.000		16700.000	
LEAD	MG/KG	23.300	J	11.900	J	32.000		18.600		27.300		59.800	
MAGNESIUM	MG/KG	3130.000		3380.000		3870.000		3700.000		5230.000		4640.000	
MANGANESE	MG/KG	168.000	J	244.000	J	181.000		207.000		209.000		202.000	J
MERCURY	MG/KG	0.070	U	0.050	U	0.100	B	0.060	U	0.060	U	0.070	B
NICKEL	MG/KG	12.000		14.900		11.200	B	7.900	B	16.200		14.300	
POTASSIUM	MG/KG	614.000	B	552.000	B	962.000	B	661.000	B	1500.000		993.000	B
SELENIUM	MG/KG	1.100	UJ	0.870	UJ	1.200	U	0.690	U	0.780	UJ	0.860	U
SILVER	MG/KG	1.000	U	0.890	U	1.100	U	0.810	J	0.640	U	1.400	U
SODIUM	MG/KG	242.000	B	122.000	B	364.000	B	213.000	B	237.000	B	224.000	B
THALLIUM	MG/KG	1.100	U	0.870	U	0.820	B	0.610	J	0.460	B	0.910	U
VANADIUM	MG/KG	26.800		36.600		35.900		44.400		40.600		35.400	
ZINC	MG/KG	221.000		279.000		377.000		221.000		257.000		294.000	

Parameter	Samp# / Date / Site / Depth / Type	B07NH2 11-23-92 SITE DA1 12.00 - 20.00		B07ND4 11-19-92 SITE DI1 0.00 - 6.00		B07ND7 11-19-92 SITE DI1 0.00 - 6.00 Duplicate		B07ND6 11-19-92 SITE DI2 0.00 - 6.00		B07ND8 11-19-92 SITE DI2 12.00 - 20.00		B07NH5 11-24-92 SITE DI3 0.00 - 6.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Inorganics													
ALUMINUM	MG/KG	11100.000		5290.000		6020.000		5580.000		5260.000		4400.000	
ANTIMONY	MG/KG	4.700	J	4.100	UJ	4.200	UJ	3.300	UJ	3.400	UJ	3.900	UJ
ARSENIC	MG/KG	6.000		2.900	B	3.100		2.700		2.200		3.000	
BARIUM	MG/KG	111.000	J	45.500	B	53.100		51.900		40.000	B	42.300	J
BERYLLIUM	MG/KG	0.540	B	0.100	U	0.100	U	0.080	U	0.080	U	0.090	U
CADMIUM	MG/KG	0.200	U	0.330	U	0.390	U	0.200	U	0.200	U	0.230	U
CALCIUM	MG/KG	2830.000		3650.000		3880.000		9120.000		2140.000		2770.000	
CHROMIUM	MG/KG	31.900		10.300		12.900		10.600		9.200		9.100	
COBALT	MG/KG	9.700	B	5.400	B	6.000	B	5.100	B	4.000	B	4.200	B
COPPER	MG/KG	31.100		26.000		27.500		20.700		6.900		18.200	
IRON	MG/KG	31100.000		13100.000		14200.000		13400.000		11400.000		10200.000	
LEAD	MG/KG	11.400		18.000		20.600		23.600		3.400		24.100	
MAGNESIUM	MG/KG	3880.000		3800.000		4230.000		3840.000		3690.000		3010.000	
MANGANESE	MG/KG	168.000	J	193.000		250.000		195.000		164.000		206.000	J
MERCURY	MG/KG	0.050	U	0.060	U	0.060	U	0.050	U	0.050	U	0.060	U
NICKEL	MG/KG	21.600		10.000		12.600		10.500		10.700		8.400	B
POTASSIUM	MG/KG	619.000	B	716.000	B	797.000	B	653.000	B	563.000	B	560.000	B
SELENIUM	MG/KG	0.740	UJ	3.400	U	0.660	UJ	0.580	U	0.580	U	0.810	UJ
SILVER	MG/KG	0.940	U	0.610	U	0.630	U	0.490	U	0.500	U	0.610	U
SODIUM	MG/KG	113.000	B	279.000	B	299.000	B	224.000	B	103.000	B	199.000	B
THALLIUM	MG/KG	0.780	UJ	0.300	U	0.390	B	0.260	U	0.260	U	0.850	U
VANADIUM	MG/KG	86.200		27.900		30.000		26.900		23.200		18.300	
ZINC	MG/KG	85.100		192.000		203.000		144.000		26.800		185.000	

Parameter	Samp#	B07NH6		B07NH7		B07NB7		B07NB8		B07NB9		B07NC4	
	Date	11-24-92		11-24-92		11-12-92		11-12-92		11-12-92		11-16-92	
	Site	SITE DI3		SITE DI3		SITE F2		SITE F3		SITE F3		SITE F4	
	Depth	0.00 - 6.00		0.00 - 6.00		0.00 - 6.00		0.00 - 6.00		12.00 - 24.00		0.00 - 6.00	
	Type	Duplicate		Split									
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Inorganics													
ALUMINUM	MG/KG	5630.000		2460.000		7380.000		7260.000		8490.000		6030.000	
ANTIMONY	MG/KG	4.200	UJ	14.700	U	4.700	UJ	4.300	UJ	4.000	UJ	4.100	UJ
ARSENIC	MG/KG	2.800		2.200	BJ	6.000		5.400		6.200		5.700	
BARIUM	MG/KG	53.300	J	36.200	B	68.400		56.100		70.300		56.100	
BERYLLIUM	MG/KG	0.100	U	0.250	U	0.460	B	0.530	B	0.630	B	0.220	B
CADMIUM	MG/KG	0.250	U	1.720	U	0.280	U	0.240	U	0.240	U	0.410	U
CALCIUM	MG/KG	3460.000		2740.000		4180.000		4100.000		4300.000		4850.000	
CHROMIUM	MG/KG	11.300		5.300		17.700		28.100		45.700		16.800	
COBALT	MG/KG	5.900	B	3.300	B	7.600	B	8.100	B	8.900	B	7.700	B
COPPER	MG/KG	23.700		23.000		51.400		37.400		42.100		69.600	J
IRON	MG/KG	12500.000		6480.000	J	16100.000		17400.000		18300.000		19300.000	
LEAD	MG/KG	24.800		18.100		49.700		31.400		44.300		50.000	J
MAGNESIUM	MG/KG	3830.000		1480.000		4440.000		4630.000		5140.000		3690.000	
MANGANESE	MG/KG	234.000	J	144.000		165.000		197.000		254.000		179.000	J
MERCURY	MG/KG	0.060	U	0.060	UJ	0.060	U	0.080	B	0.090	B	0.060	U
NICKEL	MG/KG	11.200		7.400	B	14.000		12.800		16.300		11.100	
POTASSIUM	MG/KG	726.000	B	424.000	B	1010.000	B	1080.000	B	1200.000		887.000	B
SELENIUM	MG/KG	0.890	U	0.500	UJ	0.750	U	0.730	U	0.840	B	1.000	UJ
SILVER	MG/KG	0.890	U	5.300	J	0.980	U	0.800	U	0.760	U	0.990	U
SODIUM	MG/KG	272.000	B	219.000	B	227.000	B	215.000	B	209.000	B	346.000	B
THALLIUM	MG/KG	0.940	U	0.520	BJ	0.980	UJ	0.960	UJ	0.940	UJ	1.000	U
VANADIUM	MG/KG	23.600		6.500	B	33.200		38.300		39.100		43.700	
ZINC	MG/KG	209.000		167.000		309.000		246.000		195.000		315.000	

Parameter	Samp# / Date / Site / Depth / Type	B07NC5 11-16-92 SITE F4 12.00 - 16.00		B07NH3 11-23-92 SITE FF1 0.00 - 6.00		B07NH4 11-23-92 SITE FF1 12.00 - 20.00		B07NG9 11-23-92 SITE FI1 0.00 - 6.00		B07NH0 11-23-92 SITE FI1 12.00 - 18.00		B07NC0 11-13-92 SITE H1 0.00 - 6.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Inorganics													
ALUMINUM	MG/KG	5940.000		6410.000		7700.000		6700.000		5040.000		9060.000	
ANTIMONY	MG/KG	3.500	UJ	4.100	UJ	4.200	UJ	4.000	UJ	4.200	UJ	3.600	UJ
ARSENIC	MG/KG	3.000		4.500		3.500		4.900		4.900	J	7.900	
BARIUM	MG/KG	48.800		100.000	J	97.100	J	48.700	J	48.100	J	89.500	
BERYLLIUM	MG/KG	0.240	B	0.100	U	0.100	U	0.090	U	0.100	U	0.570	B
CADMIUM	MG/KG	0.350	U	0.240	U	0.250	U	0.530	U	0.380	U	1.200	U
CALCIUM	MG/KG	1760.000		5450.000		6210.000		4060.000		2300.000		4530.000	
CHROMIUM	MG/KG	16.100		10.100		12.500		15.400		12.500		22.600	
COBALT	MG/KG	7.200	B	8.000	B	7.200	B	6.600	B	4.800	B	8.500	B
COPPER	MG/KG	27.200	J	13.400		16.500		29.300		12.800		34.000	
IRON	MG/KG	22000.000		12800.000		13400.000		14700.000		11700.000		17300.000	
LEAD	MG/KG	3.800	J	22.600		12.100		49.700		11.100		43.400	
MAGNESIUM	MG/KG	2890.000		3940.000		4420.000		4190.000		3760.000		5320.000	
MANGANESE	MG/KG	146.000	J	344.000	J	286.000	J	156.000	J	170.000	J	284.000	
MERCURY	MG/KG	0.050	U	0.060	U	0.070	U	0.070	U	0.060	U	0.060	B
NICKEL	MG/KG	16.100		10.400		9.900	B	11.700		13.900		16.200	
POTASSIUM	MG/KG	573.000	B	952.000	B	1210.000	B	855.000	B	570.000	B	1550.000	
SELENIUM	MG/KG	0.890	UJ	0.850	UJ	0.870	U	0.880	UJ	0.830	U	1.800	J
SILVER	MG/KG	1.500	B	0.770	U	0.630	U	1.300	U	0.620	U	1.000	U
SODIUM	MG/KG	98.300	B	144.000	B	141.000	B	291.000	B	147.000	B	225.000	B
THALLIUM	MG/KG	0.890	U	0.890	U	0.920	U	0.930	U	0.880	U	0.820	UJ
VANADIUM	MG/KG	40.300		25.400		25.900		29.800		21.100		35.300	
ZINC	MG/KG	27.600		82.000		96.000		296.000		97.300		287.000	

Parameter	Samp# / Date / Site / Depth / Type	B07NC1 11-13-92 SITE H1 12.00 - 18.00		B07NC2 11-13-92 SITE H2 0.00 - 6.00		B07NC3 11-13-92 SITE H3 0.00 - 6.00		B07NC6 11-16-92 SITE HAN1 0.00 - 6.00		B07NC7 11-16-92 SITE HAN1 12.00 - 16.00		B07ND2 11-17-92 SITE HAN2 0.00 - 6.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Inorganics													
ALUMINUM	MG/KG	9690.000		5480.000		5790.000		5930.000		6030.000		6790.000	
ANTIMONY	MG/KG	3.500	UJ	4.400	UJ	4.900	UJ	3.700	BJ	3.400	UJ	3.800	UJ
ARSENIC	MG/KG	12.600		2.400	B	4.500		2.500		5.600		3.400	
BARIUM	MG/KG	82.300		54.300		44.300	B	48.800	B	48.200		63.500	
BERYLLIUM	MG/KG	0.210	B	0.420	B	0.500	B	0.180	B	0.170	B	0.290	B
CADMIUM	MG/KG	0.200	U	0.260	U	0.630	U	0.370	U	0.990	U	1.400	U
CALCIUM	MG/KG	2790.000		3780.000		3940.000		2960.000		3040.000		4060.000	
CHROMIUM	MG/KG	28.900		18.800		28.300		13.400		13.200		20.000	
COBALT	MG/KG	9.400	B	6.200	B	5.900	B	5.900	B	6.400	B	6.700	B
COPPER	MG/KG	42.700		32.600		26.100		23.900	J	24.500	J	29.100	J
IRON	MG/KG	29700.000		13500.000		13600.000		12800.000		13000.000		13700.000	
LEAD	MG/KG	16.400		35.700		28.300		14.900	J	39.100	J	42.800	J
MAGNESIUM	MG/KG	3610.000		3450.000		3620.000		3830.000		3810.000		3920.000	
MANGANESE	MG/KG	296.000		206.000		117.000		161.000	J	146.000	J	130.000	J
MERCURY	MG/KG	0.060	B	0.060	U	0.080	U	0.060	U	0.680		0.080	B
NICKEL	MG/KG	22.600		9.800	B	10.000	B	13.000		12.400		11.800	
POTASSIUM	MG/KG	541.000	B	687.000	B	706.000	B	697.000	B	822.000	B	802.000	B
SELENIUM	MG/KG	0.600	UJ	0.830	B	1.100	B	0.900	UJ	0.930	UJ	0.970	UJ
SILVER	MG/KG	1.800	U	0.770	U	0.730	U	0.880	U	0.820	U	0.920	U
SODIUM	MG/KG	137.000	B	249.000	B	267.000	B	161.000	B	155.000	B	198.000	B
THALLIUM	MG/KG	0.780	UJ	0.940	UJ	1.000	U	0.900	U	0.930	U	0.970	U
VANADIUM	MG/KG	83.200		28.900		41.000		25.200		25.300		33.600	
ZINC	MG/KG	79.400		168.000		141.000		123.000		219.000		293.000	

Parameter	Samp# / Date / Site / Depth / Type	B07ND3 11-17-92 SITE HAN2 12.00 - 18.00		B07NG3 11-22-92 SITE HU1 0.00 - 6.00		B07NG6 11-22-92 SITE HU1 0.00 - 6.00 Duplicate		B07NG5 11-22-92 SITE HU1 12.00 - 18.00		B07NG7 11-22-92 SITE HU1 12.00 - 18.00 Split		B07NG1 11-21-92 SITE K2 0.00 - 3.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Inorganics													
ALUMINUM	MG/KG	7430.000		7640.000		7430.000		8620.000		4830.000		6040.000	
ANTIMONY	MG/KG	3.600	UJ	4.400	UJ	4.600	UJ	4.000	UJ	17.800	U	4.800	UJ
ARSENIC	MG/KG	3.200		4.500		3.900		4.800		4.300	J	6.000	
BARIUM	MG/KG	68.200		58.400	J	58.500	J	88.500	J	76.500		58.000	J
BERYLLIUM	MG/KG	0.340	B	0.100	U	0.110	U	0.090	U	0.420	B	0.110	U
CADMIUM	MG/KG	0.610	U	2.000		1.700		1.200	U	2.080	U	0.650	U
CALCIUM	MG/KG	3610.000		3720.000		3520.000		3970.000		3280.000		3580.000	
CHROMIUM	MG/KG	17.600		22.800		21.700		20.800		13.300		24.300	
COBALT	MG/KG	8.500	B	8.500	B	7.800	B	8.600	B	7.000	B	6.700	B
COPPER	MG/KG	25.400	J	18.900		18.400		21.500		17.200		23.200	
IRON	MG/KG	18800.000		15500.000		15000.000		16700.000		10500.000	J	14900.000	
LEAD	MG/KG	17.100	J	32.700	J	31.300		27.800		27.900		30.500	
MAGNESIUM	MG/KG	4090.000		4450.000		4350.000		4990.000		3040.000		3870.000	
MANGANESE	MG/KG	155.000	J	193.000	J	193.000	J	182.000	J	130.000		231.000	J
MERCURY	MG/KG	0.060	U	0.070	B	0.080	B	0.050	U	0.070	UJ	0.070	U
NICKEL	MG/KG	15.000		13.800		14.500		15.100		11.800	B	12.300	
POTASSIUM	MG/KG	864.000	B	1040.000	B	1050.000	B	1420.000		1080.000	B	831.000	B
SELENIUM	MG/KG	0.910	UJ	1.000	U	0.970	UJ	0.890	U	0.590	UJ	1.000	UJ
SILVER	MG/KG	0.870	U	0.650	U	0.680	U	1.000	U	2.970	UJ	0.890	U
SODIUM	MG/KG	179.000	B	205.000	B	209.000	B	194.000	B	131.000	B	237.000	B
THALLIUM	MG/KG	0.910	U	1.100	UJ	1.000	UJ	0.940	UJ	0.590	UJ	1.100	U
VANADIUM	MG/KG	43.600		29.900		28.700		33.900		14.500	B	31.800	
ZINC	MG/KG	155.000		397.000		369.000		253.000		230.000		209.000	

Parameter	Samp# / Date / Site / Depth / Type	B07NG2 11-21-92 SITE K3 0.00 - 6.00		B07NG0 11-21-92 SITE KU1 0.00 - 6.00		B07NF9 11-22-92 SITE KU1 12.00 - 18.00		B07NG4 11-22-92 SITE N 0.00 - 3.00		B07NF5 11-20-92 SITE VBU1 0.00 - 6.00		B07NF6 11-20-92 SITE VBU1 12.00 - 22.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Inorganics													
ALUMINUM	MG/KG	7550.000		7250.000		9850.000		5110.000		7470.000		5990.000	
ANTIMONY	MG/KG	3.700	UJ	5.100	UJ	4.900	UJ	4.500	UJ	4.200	UJ	4.200	UJ
ARSENIC	MG/KG	2.900		5.100		6.200		10.700		9.400	J	1.900	BJ
BARIUM	MG/KG	55.100	J	61.300	J	87.500	J	60.500	J	70.900		57.000	
BERYLLIUM	MG/KG	0.090	U	0.120	U	0.120	U	0.110	U	0.100	U	0.100	U
CADMIUM	MG/KG	0.220	U	1.500	U	5.600		0.270	U	0.300	B	0.250	U
CALCIUM	MG/KG	3760.000		4070.000		5040.000		3310.000		3480.000		2760.000	
CHROMIUM	MG/KG	18.800		25.800		64.100		56.400		15.000		13.200	
COBALT	MG/KG	6.700	B	7.300	B	10.100	B	6.700	B	7.200	B	6.400	B
COPPER	MG/KG	17.700		20.500		42.700		14.900		24.700		9.900	
IRON	MG/KG	15400.000		15300.000		17600.000		15800.000		15400.000		12600.000	
LEAD	MG/KG	10.600		40.200		59.300		23.900		57.700	J	5.800	
MAGNESIUM	MG/KG	4640.000		4320.000		5520.000		3310.000		4540.000		4060.000	
MANGANESE	MG/KG	222.000	J	203.000	J	173.000	J	305.000	J	189.000	J	160.000	J
MERCURY	MG/KG	0.060	U	0.060	U	0.090	B	0.070	U	0.060	U	0.060	U
NICKEL	MG/KG	15.200		13.700		19.100		10.900		15.600		13.100	
POTASSIUM	MG/KG	877.000	B	1010.000	B	1650.000		630.000	B	1100.000	B	836.000	B
SELENIUM	MG/KG	0.830	UJ	1.100	U	1.100	UJ	0.920	UJ	0.700	U	0.720	U
SILVER	MG/KG	0.550	U	0.920	U	1.400	U	0.660	U	0.620	U	0.630	U
SODIUM	MG/KG	168.000	B	232.000	B	213.000	B	166.000	B	138.000	B	102.000	B
THALLIUM	MG/KG	0.880	U	1.100	U	1.100	U	0.970	U	0.310	UJ	0.320	UJ
VANADIUM	MG/KG	30.500		30.800		41.700		32.700		28.900		23.800	
ZINC	MG/KG	94.800		378.000		454.000		152.000		226.000	J	43.700	J

Parameter	Samp# / Date / Site / Depth / Type	B07NF7 11-20-92 SITE VBU2 0.00 - 6.00		B07NF8 11-20-92 SITE VBU3 0.00 - 3.00		B07NB6 11-12-92 SITE_F1 0.00 - 6.00		B07ND5 11-19-92 Unknown 0.00 - 0.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q
Inorganics									
ALUMINUM	MG/KG	4790.000		5040.000		7230.000		5740.000	
ANTIMONY	MG/KG	4.000	UJ	4.000	UJ	4.500	UJ	4.000	UJ
ARSENIC	MG/KG	2.400	J	5.800	J	7.400		3.500	
BARIUM	MG/KG	33.100	B	51.000		73.000		50.900	
BERYLLIUM	MG/KG	0.100	U	0.100	U	0.430	B	0.100	U
CADMIUM	MG/KG	0.650	B	0.620	B	0.410	U	0.450	U
CALCIUM	MG/KG	3640.000		3300.000		3730.000		4020.000	
CHROMIUM	MG/KG	14.800		11.200		15.200		9.400	
COBALT	MG/KG	6.300	B	6.300	B	8.000	B	5.400	B
COPPER	MG/KG	20.400		20.600		62.900		34.200	
IRON	MG/KG	14900.000		13200.000		15900.000		13100.000	
LEAD	MG/KG	15.300		27.000		55.700		21.600	
MAGNESIUM	MG/KG	3440.000		3290.000		4440.000		3870.000	
MANGANESE	MG/KG	160.000	J	263.000	J	194.000		251.000	
MERCURY	MG/KG	0.050	U	0.060	U	0.070	U	0.060	U
NICKEL	MG/KG	12.400		11.000		14.100		8.900	B
POTASSIUM	MG/KG	565.000	B	659.000	B	955.000	B	736.000	B
SELENIUM	MG/KG	0.690	U	0.690	UJ	0.790	U	0.720	U
SILVER	MG/KG	0.590	U	0.590	UJ	0.990	U	0.590	U
SODIUM	MG/KG	208.000	B	213.000	B	215.000	B	339.000	B
THALLIUM	MG/KG	0.350	BJ	0.560	BJ	1.000	UJ	0.320	U
VANADIUM	MG/KG	40.300		27.600		28.600		26.400	
ZINC	MG/KG	151.000	J	205.000	J	335.000		216.000	

THIS PAGE INTENTIONALLY
LEFT BLANK

APPENDIX B - VALIDATED METALS LABORATORY REPORTS

9312968.1552

THIS PAGE INTENTIONALLY
LEFT BLANK

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NC8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-191SAS No.: SDG No.: B07NC8

Matrix (soil/water): SOIL Lab Sample ID: 12020-01S

Level (low/med): LOW Date Received: 12/01/92

% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	387			P	
7440-36-0	Antimony	3.2	~~U~~	N	P	UJ
7440-38-2	Arsenic	0.57	~~B~~	N	F	BJ
7440-39-3	Barium	8.0	B		P	
7440-41-7	Beryllium	0.08	U		P	
7440-43-9	Cadmium	0.19	U		P	
7440-70-2	Calcium	127	B		P	
7440-47-3	Chromium	0.85	U		P	
7440-48-4	Cobalt	0.60	~~B~~		P	U
7440-50-8	Copper	1.3	B		P	
7439-89-6	Iron	1940			P	
7439-92-1	Lead	1.7	~~L~~	W	F	J
7439-95-4	Magnesium	61.8	B		P	
7439-96-5	Manganese	42.1	~~L~~	N	P	J
7439-97-6	Mercury	0.04	U		CV	
7440-02-0	Nickel	1.0	U		P	
7440-09-7	Potassium	76.6	B		P	
7782-49-2	Selenium	0.58	U		F	
7440-22-4	Silver	0.47	U		P	
7440-23-5	Sodium	22.4	B		P	
7440-28-0	Thallium	0.26	~~U~~	W	F	UJ
7440-62-2	Vanadium	1.8	~~B~~		P	U
7440-66-6	Zinc	7.1	~~L~~	E	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROCKS

gj 3/31/93

002

9312968.1659

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NG8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-08S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 74.3

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	572			P	
7440-36-0	Antimony	4.4	~~U~~	N	P	UJ
7440-38-2	Arsenic	0.70	~~B~~		F	J
7440-39-3	Barium	13.6	~~B~~	E	P	J
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.26	U		P	
7440-70-2	Calcium	162	B		P	
7440-47-3	Chromium	1.2	B		P	
7440-48-4	Cobalt	0.81	B		P	
7440-50-8	Copper	0.91	U		P	
7439-89-6	Iron	1940			P	
7439-92-1	Lead	2.8			F	
7439-95-4	Magnesium	88.6	~~B~~		P	U
7439-96-5	Manganese	58.6	—	N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	1.4	U		P	
7440-09-7	Potassium	147	B		P	
7782-49-2	Selenium	0.92	U		F	
7440-22-4	Silver	0.86	~~B~~		P	U
7440-23-5	Sodium	51.6	~~B~~		P	U
7440-28-0	Thallium	0.97	U		F	
7440-62-2	Vanadium	1.8	~~B~~		P	U
7440-66-6	Zinc	8.3	—		P	U
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

8/16/93

010

9312968.1551

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07ND1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-191SAS No.: SDG No.: B07NC8

Matrix (soil/water): SOIL Lab Sample ID: 12020-02S

Level (low/med): LOW Date Received: 12/01/92

% Solids: 67.7

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4720			P	
7440-36-0	Antimony	4.7	~~U~~	N	P	UJ
7440-38-2	Arsenic	1.89 ~~0.34~~	~~U~~	+N	F	J
7440-39-3	Barium	58.3			P	
7440-41-7	Beryllium	0.11	U		P	
7440-43-9	Cadmium	0.28	U		P	
7440-70-2	Calcium	2140			P	
7440-47-3	Chromium	47.6			P	
7440-48-4	Cobalt	6.4	~~B~~		P	U
7440-50-8	Copper	10.2			P	
7439-89-6	Iron	9700			P	
7439-92-1	Lead	9.0			F	
7439-95-4	Magnesium	2630			P	
7439-96-5	Manganese	220	—	N	P	J
7439-97-6	Mercury	0.07	U		CV	
7440-02-0	Nickel	12.6			P	
7440-09-7	Potassium	819	B		P	
7782-49-2	Selenium	0.82	U		F	
7440-22-4	Silver	0.70	U		P	
7440-23-5	Sodium	114	B		P	
7440-28-0	Thallium	0.37	~~U~~	W	F	UJ
7440-62-2	Vanadium	23.4			P	
7440-66-6	Zinc	83.1	—	E	P	J
	Cyanide				NR	

Q

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROCKS AND WOOD

q 3/31/93

003

FORM IB-3 IN TI M02 1

9312968.1555

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07ND9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-191SAS No.: SDG No.: B07NC8

Matrix (soil/water): SOIL Lab Sample ID: 12020-03S

Level (low/med): LOW Date Received: 12/01/92

% Solids: 81.9

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	3650			P	
7440-36-0	Antimony	3.8	~~U~~	N	P	UJ
7440-38-2	Arsenic	1.6	~~B~~	N	F	BJ
7440-39-3	Barium	45.8			P	
7440-41-7	Beryllium	0.09	U		P	
7440-43-9	Cadmium	0.22	U		P	
7440-70-2	Calcium	1850			P	
7440-47-3	Chromium	50.6			P	
7440-48-4	Cobalt	4.6	B		P	
7440-50-8	Copper	7.0			P	
7439-89-6	Iron	8690			P	
7439-92-1	Lead	7.3			F	
7439-95-4	Magnesium	2210			P	
7439-96-5	Manganese	100		N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	9.3			P	
7440-09-7	Potassium	640	B		P	
7782-49-2	Selenium	0.67	~~U~~	W	F	UJ
7440-22-4	Silver	0.78	~~B~~		P	U
7440-23-5	Sodium	96.6	B		P	
7440-28-0	Thallium	0.30	~~U~~	W	F	UJ
7440-62-2	Vanadium	19.1			P	
7440-66-6	Zinc	73.1		E	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROCKS AND WOOD

S 3/3/93

9312968.1555

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

B07NF3

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-191SAS No.: SDG No.: B07NC8

Matrix (soil/water): SOIL Lab Sample ID: 12020-04S

Level (low/med): LOW Date Received: 12/01/92

% Solids: 67.6

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5670			P	
7440-36-0	Antimony	4.8	~~U~~	N	P	UJ
7440-38-2	Arsenic	1.2	~~B~~	N	F	BJ
7440-39-3	Barium	50.4	B		P	
7440-41-7	Beryllium	0.11	U		P	
7440-43-9	Cadmium	0.28	U		P	
7440-70-2	Calcium	2960			P	
7440-47-3	Chromium	65.2			P	
7440-48-4	Cobalt	5.4	B		P	
7440-50-8	Copper	11.5			P	
7439-89-6	Iron	10900			P	
7439-92-1	Lead	19.3			F	
7439-95-4	Magnesium	3400			P	
7439-96-5	Manganese	110		N	P	J
7439-97-6	Mercury	0.07	U		CV	
7440-02-0	Nickel	11.2	B		P	
7440-09-7	Potassium	789	B		P	
7782-49-2	Selenium	0.82	U		F	
7440-22-4	Silver	0.71	U		P	
7440-23-5	Sodium	167	B		P	
7440-28-0	Thallium	0.37	~~W~~	W	F	UJ
7440-62-2	Vanadium	28.2			P	
7440-66-6	Zinc	159		E	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROCKS

GJ 2/31/93

005

9312968.1557

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

B07NF4

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-191SAS No.: SDG No.: B07NC8

Matrix (soil/water): SOIL Lab Sample ID: 12020-05S

Level (low/med): LOW Date Received: 12/01/92

% Solids: 85.7

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7460			P	
7440-36-0	Antimony	3.9	~~U~~	N	P	UJ
7440-38-2	Arsenic	1.2	~~B~~	N	F	BJ
7440-39-3	Barium	71.8			P	
7440-41-7	Beryllium	0.09	U		P	
7440-43-9	Cadmium	0.23	U		P	
7440-70-2	Calcium	3110			P	
7440-47-3	Chromium	131			P	
7440-48-4	Cobalt	7.3	B		P	
7440-50-8	Copper	19.2			P	
7439-89-6	Iron	14100			P	
7439-92-1	Lead	39.2			F	
7439-95-4	Magnesium	3950			P	
7439-96-5	Manganese	140		N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	15.2			P	
7440-09-7	Potassium	1150			P	
7782-49-2	Selenium	0.63	U		F	
7440-22-4	Silver	0.57	U		P	
7440-23-5	Sodium	145	B		P	
7440-28-0	Thallium	0.28	~~U~~	W	F	UJ
7440-62-2	Vanadium	34.8			P	
7440-66-6	Zinc	192		E	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROCKS

6/3/93

006

9312968.1558

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07ND0

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-156$AS No.: SDG No.: B07NC4

Matrix (soil/water): SOIL Lab Sample ID: 11276-06S

Level (low/med): LOW Date Received: 11/21/92

% Solids: 67.6

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5340			P	
7440-36-0	Antimony	6.8	~~B~~	N	P	BJ
7440-38-2	Arsenic	2.3	B		F	
7440-39-3	Barium	40.9	B		P	
7440-41-7	Beryllium	0.20	B		P	
7440-43-9	Cadmium	0.87	~~B~~		P	U
7440-70-2	Calcium	3180			P	
7440-47-3	Chromium	15.0			P	
7440-48-4	Cobalt	5.4	B		P	
7440-50-8	Copper	23.3	—	E	P	J
7439-89-6	Iron	11500		*	P	
7439-92-1	Lead	23.3	—	N	F	J
7439-95-4	Magnesium	3130			P	
7439-96-5	Manganese	168	—	N	P	J
7439-97-6	Mercury	0.07	U		CV	
7440-02-0	Nickel	12.0			P	
7440-09-7	Potassium	614	B		P	
7782-49-2	Selenium	1.1	~~U~~	N	F	UJ
7440-22-4	Silver	1.0	U		P	
7440-23-5	Sodium	242	B		P	
7440-28-0	Thallium	1.1	U		F	
7440-62-2	Vanadium	26.8		*	P	
7440-66-6	Zinc	221			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: BROWN Clarity After: Artifacts:

Comments:

4/2/93

007

FORM I - IN ILM02.1

9312968.1559

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NC9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-156$AS No.: SDG No.: B07NC4

Matrix (soil/water): SOIL Lab Sample ID: 11276-05S

Level (low/med): LOW Date Received: 11/21/92

% Solids: 81.2

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5960			P	
7440-36-0	Antimony	3.6	~~U~~	N	P	UJ
7440-38-2	Arsenic	6.3			F	
7440-39-3	Barium	83.0			P	
7440-41-7	Beryllium	0.31	B		P	
7440-43-9	Cadmium	0.91	~~B~~		P	U
7440-70-2	Calcium	2750			P	
7440-47-3	Chromium	17.9			P	
7440-48-4	Cobalt	8.3	B		P	
7440-50-8	Copper	22.3		E	P	J
7439-89-6	Iron	16200		*	P	
7439-92-1	Lead	11.9		N	F	J
7439-95-4	Magnesium	3380			P	
7439-96-5	Manganese	244		N	P	J
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	14.9			P	
7440-09-7	Potassium	552	B		P	
7782-49-2	Selenium	0.87	~~U~~	N	F	UJ
7440-22-4	Silver	0.89	U		P	
7440-23-5	Sodium	122	B		P	
7440-28-0	Thallium	0.87	U		F	
7440-62-2	Vanadium	36.6		*	P	
7440-66-6	Zinc	279			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: BROWN Clarity After: Artifacts:

Comments:

J 4/2/93

006

FORM I-8- IN ILM02.1

9312968.1560

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07NF0

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-183SAS No.: SDG No.: B07ND4

Matrix (soil/water): SOIL Lab Sample ID: 11332-06S

Level (low/med): LOW Date Received: 11/25/92

% Solids: 43.5

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7400			P	
7440-36-0	Antimony	7.5	~~U~~	N	P	UJ
7440-38-2	Arsenic	1.9	B		F	
7440-39-3	Barium	55.2	B		P	
7440-41-7	Beryllium	0.18	U		P	
7440-43-9	Cadmium	3.4	-		P	~~J~~ UL
7440-70-2	Calcium	5070			P	
7440-47-3	Chromium	14.1			P	
7440-48-4	Cobalt	5.7	B		P	
7440-50-8	Copper	23.1			P	
7439-89-6	Iron	13900			P	
7439-92-1	Lead	32.0			F	
7439-95-4	Magnesium	3870			P	
7439-96-5	Manganese	181			P	
7439-97-6	Mercury	0.10	B		CV	
7440-02-0	Nickel	11.2	B		P	
7440-09-7	Potassium	962	B		P	
7782-49-2	Selenium	1.2	U		F	
7440-22-4	Silver	1.1	U		P	
7440-23-5	Sodium	364	B		P	
7440-28-0	Thallium	0.82	B		F	
7440-62-2	Vanadium	35.9			P	
7440-66-6	Zinc	377			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

cj 4/8/93

FORM I - IN ILM02.0

007

9312968.1561

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07NF1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-183SAS No.: SDG No.: B07ND4

Matrix (soil/water): SOIL Lab Sample ID: 11332-07S

Level (low/med): LOW Date Received: 11/25/92

% Solids: 78.8

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

CAS No.	Analyte	Concentration	C	Q	M	
						Q
7429-90-5	Aluminum	5220			P	
7440-36-0	Antimony	3.8	~~U~~	N	P	UJ
7440-38-2	Arsenic	2.0	B		F	
7440-39-3	Barium	52.8			P	
7440-41-7	Beryllium	0.11	B		P	
7440-43-9	Cadmium	1.1	~~B~~		P	J U
7440-70-2	Calcium	3990			P	
7440-47-3	Chromium	47.0			P	
7440-48-4	Cobalt	8.8	B		P	
7440-50-8	Copper	15.9			P	
7439-89-6	Iron	17800			P	
7439-92-1	Lead	18.6			F	
7439-95-4	Magnesium	3700			P	
7439-96-5	Manganese	207			P	
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	7.9	B		P	
7440-09-7	Potassium	661	B		P	
7782-49-2	Selenium	0.69	U		F	
7440-22-4	Silver	0.81	~~B~~		P	J
7440-23-5	Sodium	213	B		P	
7440-28-0	Thallium	0.61	~~B~~	W	F	J
7440-62-2	Vanadium	44.4			P	
7440-66-6	Zinc	221			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: BROWN Clarity After: Artifacts:

Comments:

cj 4/8/93

FORM I - IN ILM02.0

008

9312968.1562

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07NF2

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-183SAS No.: SDG No.: B07ND4

Matrix (soil/water): SOIL Lab Sample ID: 11332-08S

Level (low/med): LOW Date Received: 11/25/92

% Solids: 70.4

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	9680			P	
7440-36-0	Antimony	4.3	~~U~~	N	P	UJ
7440-38-2	Arsenic	4.4			F	
7440-39-3	Barium	89.3			P	
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	1.7	~~U~~		P	~~J~~U
7440-70-2	Calcium	4470			P	
7440-47-3	Chromium	21.9			P	
7440-48-4	Cobalt	8.8	B		P	
7440-50-8	Copper	21.3			P	
7439-89-6	Iron	18500			P	
7439-92-1	Lead	27.3			F	
7439-95-4	Magnesium	5230			P	
7439-96-5	Manganese	209			P	
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	16.2			P	
7440-09-7	Potassium	1500			P	
7782-49-2	Selenium	0.78	~~U~~		F	UJ
7440-22-4	Silver	0.64	U		P	
7440-23-5	Sodium	237	B		P	
7440-28-0	Thallium	0.46	B		F	
7440-62-2	Vanadium	40.6			P	
7440-66-6	Zinc	257			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:
WOOD

4/9/93

FORM I - IN ILM02.0

009

9312968.1569

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NH1

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-11S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 76.2

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	8030			P	
7440-36-0	Antimony	4.2	~~U~~	N	P	UJ
7440-38-2	Arsenic	6.1			F	
7440-39-3	Barium	73.2		E	P	J
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	1.6			P	
7440-70-2	Calcium	4260			P	
7440-47-3	Chromium	22.3			P	
7440-48-4	Cobalt	7.7	B		P	
7440-50-8	Copper	23.8			P	
7439-89-6	Iron	16700			P	
7439-92-1	Lead	59.8			F	
7439-95-4	Magnesium	4640			P	
7439-96-5	Manganese	202		N	P	J
7439-97-6	Mercury	0.07	B		CV	
7440-02-0	Nickel	14.3			P	
7440-09-7	Potassium	993	B		P	
7782-49-2	Selenium	0.86	U		F	
7440-22-4	Silver	1.4	~~B~~		P	U
7440-23-5	Sodium	224	B		P	
7440-28-0	Thallium	0.91	U		F	
7440-62-2	Vanadium	35.4			P	
7440-66-6	Zinc	294			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

5/16/93

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NH2

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-12S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 95.2

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	11100			P	Q
7440-36-0	Antimony	4.7	~~B~~	N	P	J
7440-38-2	Arsenic	6.0		S	F	
7440-39-3	Barium	111		E	P	J
7440-41-7	Beryllium	0.54	B		P	
7440-43-9	Cadmium	0.20	U		P	
7440-70-2	Calcium	2830			P	
7440-47-3	Chromium	31.9			P	
7440-48-4	Cobalt	9.7	B		P	
7440-50-8	Copper	31.1			P	
7439-89-6	Iron	31100			P	
7439-92-1	Lead	11.4			F	
7439-95-4	Magnesium	3880			P	
7439-96-5	Manganese	168		N	P	J
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	21.6			P	
7440-09-7	Potassium	619	B		P	
7782-49-2	Selenium	0.74	~~U~~	W	F	UJ
7440-22-4	Silver	0.94	~~B~~		P	U
7440-23-5	Sodium	113	B		P	
7440-28-0	Thallium	0.78	~~U~~	W	F	UJ
7440-62-2	Vanadium	86.2			P	
7440-66-6	Zinc	85.1			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS AND STONES

5-4/6/93

014

9312968.1665

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07ND4

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-183SAS No.: SDG No.: B07ND4

Matrix (soil/water): SOIL Lab Sample ID: 11332-01S

Level (low/med): LOW Date Received: 11/25/92

% Solids: 76.2

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5290			P	
7440-36-0	Antimony	4.1	~~U~~	N	P	UJ
7440-38-2	Arsenic	2.9	B		F	
7440-39-3	Barium	45.5	B		P	
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.33	~~B~~		P	U
7440-70-2	Calcium	3650			P	
7440-47-3	Chromium	10.3			P	
7440-48-4	Cobalt	5.4	B		P	
7440-50-8	Copper	26.0			P	
7439-89-6	Iron	13100			P	
7439-92-1	Lead	18.0		S	F	
7439-95-4	Magnesium	3800			P	
7439-96-5	Manganese	193			P	
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	10.0			P	
7440-09-7	Potassium	716	B		P	
7782-49-2	Selenium	3.4	U		F	
7440-22-4	Silver	0.61	U		P	
7440-23-5	Sodium	279	B		P	
7440-28-0	Thallium	0.30	U		F	
7440-62-2	Vanadium	27.9			P	
7440-66-6	Zinc	192			P	
	Cyanide				NR	

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts:

Comments:

g 4/8/93

FORM I - IN ILM02.0

9312968.1566

SAMPLE NUMBER:

B07ND7

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-183SAS No.: SDG No.: B07ND4

Matrix (soil/water): SOIL Lab Sample ID: 11332-04S

Level (low/med): LOW Date Received: 11/25/92

% Solids: 78.2

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	6020			P	Q
7440-36-0	Antimony	4.2	~~U~~	N	P	UJ
7440-38-2	Arsenic	3.1			F	
7440-39-3	Barium	53.1			P	
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.39	~~B~~		P	U
7440-70-2	Calcium	3880			P	
7440-47-3	Chromium	12.9			P	
7440-48-4	Cobalt	6.0	B		P	
7440-50-8	Copper	27.5			P	
7439-89-6	Iron	14200			P	
7439-92-1	Lead	20.6		S	F	
7439-95-4	Magnesium	4230			P	
7439-96-5	Manganese	250			P	
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	12.6			P	
7440-09-7	Potassium	797	B		P	
7782-49-2	Selenium	0.66	~~U~~	W	F	UJ
7440-22-4	Silver	0.63	U		P	
7440-23-5	Sodium	299	B		P	
7440-28-0	Thallium	0.39	B		F	
7440-62-2	Vanadium	30.0			P	
7440-66-6	Zinc	203			P	
	Cyanide				NR	

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts:

Comments:

gj 4/8/93

FORM I - IN ILM02.0

005

9312968.1567

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07ND6

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-183SAS No.: SDG No.: B07ND4

Matrix (soil/water): SOIL Lab Sample ID: 11332-03S

Level (low/med): LOW Date Received: 11/25/92

% Solids: 96.4

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5580			P	Q
7440-36-0	Antimony	3.3	~~U~~	N	P	UJ
7440-38-2	Arsenic	2.7			F	
7440-39-3	Barium	51.9			P	
7440-41-7	Beryllium	0.08	U		P	
7440-43-9	Cadmium	0.20	U		P	
7440-70-2	Calcium	9120			P	
7440-47-3	Chromium	10.6			P	
7440-48-4	Cobalt	5.1	B		P	
7440-50-8	Copper	20.7			P	
7439-89-6	Iron	13400			P	
7439-92-1	Lead	23.6			F	
7439-95-4	Magnesium	3840			P	
7439-96-5	Manganese	195			P	
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	10.5			P	
7440-09-7	Potassium	653	B		P	
7782-49-2	Selenium	0.58	U		F	
7440-22-4	Silver	0.49	U		P	
7440-23-5	Sodium	224	B		P	
7440-28-0	Thallium	0.26	U		F	
7440-62-2	Vanadium	26.9			P	
7440-66-6	Zinc	144			P	
	Cyanide				NR	

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts: YES

Comments:
SHELLS

CJ 4/8/93

FORM I - IN ILM02.0

004

9312968.1568

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07ND8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-183SAS No.: SDG No.: B07ND4

Matrix (soil/water): SOIL Lab Sample ID: 11332-05S

Level (low/med): LOW Date Received: 11/25/92

% Solids: 97.9

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5260			P	Q
7440-36-0	Antimony	3.4	~~U~~	N	P	UJ
7440-38-2	Arsenic	2.2			F	
7440-39-3	Barium	40.0	B		P	
7440-41-7	Beryllium	0.08	U		P	
7440-43-9	Cadmium	0.20	U		P	
7440-70-2	Calcium	2140			P	
7440-47-3	Chromium	9.2			P	
7440-48-4	Cobalt	4.0	B		P	
7440-50-8	Copper	6.9			P	
7439-89-6	Iron	11400			P	
7439-92-1	Lead	3.4			F	
7439-95-4	Magnesium	3690			P	
7439-96-5	Manganese	164			P	
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	10.7			P	
7440-09-7	Potassium	563	B		P	
7782-49-2	Selenium	0.58	U		F	
7440-22-4	Silver	0.50	U		P	
7440-23-5	Sodium	103	B		P	
7440-28-0	Thallium	0.26	U		F	
7440-62-2	Vanadium	23.2			P	
7440-66-6	Zinc	26.8			P	
	Cyanide				NR	

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts:

Comments:

5/8/93

FORM I - IN ILM02.0

000

9312968.1669

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NH5

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-16S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 78.7

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	4400			P	
7440-36-0	Antimony	3.9	~~U~~	N	P	UJ
7440-38-2	Arsenic	3.0			F	
7440-39-3	Barium	42.3	~~B~~	E	P	J
7440-41-7	Beryllium	0.09	U		P	
7440-43-9	Cadmium	0.23	U		P	
7440-70-2	Calcium	2770			P	
7440-47-3	Chromium	9.1			P	
7440-48-4	Cobalt	4.2	B		P	
7440-50-8	Copper	18.2			P	
7439-89-6	Iron	10200			P	
7439-92-1	Lead	24.1			F	
7439-95-4	Magnesium	3010			P	
7439-96-5	Manganese	206	—	N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	8.4	B		P	
7440-09-7	Potassium	560	B		P	
7782-49-2	Selenium	0.81	~~U~~	W	F	UJ
7440-22-4	Silver	0.61	~~B~~		P	U
7440-23-5	Sodium	199	B		P	
7440-28-0	Thallium	0.85	U		F	
7440-62-2	Vanadium	18.3			P	
7440-66-6	Zinc	185			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

SJ 4/6/93

017

9312988.1520

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NH6

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-17S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 78.2

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5630			P	Q
7440-36-0	Antimony	4.2	~~U~~	N	P	U
7440-38-2	Arsenic	2.8			F	
7440-39-3	Barium	53.3		E	P	J
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.25	U		P	
7440-70-2	Calcium	3460			P	
7440-47-3	Chromium	11.3			P	
7440-48-4	Cobalt	5.9	B		P	
7440-50-8	Copper	23.7			P	
7439-89-6	Iron	12500			P	
7439-92-1	Lead	24.8			F	
7439-95-4	Magnesium	3830			P	
7439-96-5	Manganese	234		N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	11.2			P	
7440-09-7	Potassium	726	B		P	
7782-49-2	Selenium	0.89	U	M	F	
7440-22-4	Silver	0.89	~~B~~		P	U
7440-23-5	Sodium	272	B		P	
7440-28-0	Thallium	0.94	U		F	
7440-62-2	Vanadium	23.6			P	
7440-66-6	Zinc	209			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES.

4/6/93

018

FORM B-19

9312968.1671

INORGANIC ANALYSIS DATA SHEET

B07NH7

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP888

Matrix (soil/water): SOIL Lab Sample ID: 921288802

Level (low/med): LOW Date Received: 12/02/92

% Solids: 78.3

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	2460.00			P	Q
7440-36-0	Antimony	14.70	U		P	
7440-38-2	Arsenic	2.20	~~B~~	N	F	BJ
7440-39-3	Barium	36.20	B		P	
7440-41-7	Beryllium	.25	U		P	
7440-43-9	Cadmium	1.72	U		P	
7440-70-2	Calcium	2740.00			P	
7440-47-3	Chromium	5.30			P	
7440-48-4	Cobalt	3.30	B		P	
7440-50-8	Copper	23.00			P	
7439-89-6	Iron	6480.00			P	J
7439-92-1	Lead	18.10			F	
7439-95-4	Magnesium	1480.00			P	
7439-96-5	Manganese	144.00			P	
7439-97-6	Mercury	.06	~~U~~		CV	UJ
7440-02-0	Nickel	7.40	B		P	
7440-09-7	Potassium	424.00	B		P	
7782-49-2	Selenium	.50	~~U~~	N	F	UJ
7440-22-4	Silver	5.30	—	N*	P	J
7440-23-5	Sodium	219.00	B		P	
7440-28-0	Thallium	.52	~~B~~		F	BJ
7440-62-2	Vanadium	6.50	B		P	
7440-66-6	Zinc	167.00			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

GJ 4/5/93

9312968.1572

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07NB7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-135 SAS No.: SDG No.: B07NB6

Matrix (soil/water): SOIL Lab Sample ID: 11255-02S

Level (low/med): LOW Date Received: 11/18/92

% Solids: 71.5

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7380			P	
7440-36-0	Antimony	4.7	~~U~~	N	P	UJ
7440-38-2	Arsenic	6.0			F	
7440-39-3	Barium	68.4			P	
7440-41-7	Beryllium	0.46	B		P	
7440-43-9	Cadmium	0.28	U		P	
7440-70-2	Calcium	4180			P	
7440-47-3	Chromium	17.7			P	
7440-48-4	Cobalt	7.6	B		P	
7440-50-8	Copper	51.4			P	
7439-89-6	Iron	16100			P	J
7439-92-1	Lead	49.7			F	
7439-95-4	Magnesium	4440			P	
7439-96-5	Manganese	165			P	
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	14.0			P	
7440-09-7	Potassium	1010	B		P	
7782-49-2	Selenium	0.75	U	S	F	
7440-22-4	Silver	0.98	~~B~~		P	U
7440-23-5	Sodium	227	B		P	
7440-28-0	Thallium	0.98	~~U~~	W	F	UJ
7440-62-2	Vanadium	33.2			P	
7440-66-6	Zinc	309			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

Cj 4/5/93

003

FORM I - IN ILM03.0

9312968.1578

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07NB8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-135SAS No.: SDG No.: B07NB6

Matrix (soil/water): SOIL Lab Sample ID: 11255-03S

Level (low/med): LOW Date Received: 11/18/92

% Solids: 74.8

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7260			P	
7440-36-0	Antimony	4.3	~~B~~	N	P	UJ
7440-38-2	Arsenic	5.4			F	
7440-39-3	Barium	56.1			P	
7440-41-7	Beryllium	0.53	B		P	
7440-43-9	Cadmium	0.24	U		P	
7440-70-2	Calcium	4100			P	
7440-47-3	Chromium	28.1			P	
7440-48-4	Cobalt	8.1	B		P	
7440-50-8	Copper	37.4			P	
7439-89-6	Iron	17400			P	~~J~~
7439-92-1	Lead	31.4			F	
7439-95-4	Magnesium	4630			P	
7439-96-5	Manganese	197			P	
7439-97-6	Mercury	0.08	B		CV	
7440-02-0	Nickel	12.8			P	
7440-09-7	Potassium	1080	B		P	
7782-49-2	Selenium	0.73	U	W	F	
7440-22-4	Silver	0.80	~~B~~		P	U
7440-23-5	Sodium	215	B		P	
7440-28-0	Thallium	0.96	~~U~~	W	F	UJ
7440-62-2	Vanadium	38.3			P	
7440-66-6	Zinc	246			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

cj 4/5/93

004

FORM I - IN ILM03.0

9312968.1574

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07NB9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-135$AS No.: SDG No.: B07NB6

Matrix (soil/water): SOIL Lab Sample ID: 11255-04S

Level (low/med): LOW Date Received: 11/18/92

% Solids: 76.4

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	8490			P	
7440-36-0	Antimony	4.0	~~U~~	N	P	UJ
7440-38-2	Arsenic	6.2			F	
7440-39-3	Barium	70.3			P	
7440-41-7	Beryllium	0.63	B		P	
7440-43-9	Cadmium	0.24	U		P	
7440-70-2	Calcium	4300			P	
7440-47-3	Chromium	45.7			P	
7440-48-4	Cobalt	8.9	B		P	
7440-50-8	Copper	42.1			P	
7439-89-6	Iron	18300			P	J
7439-92-1	Lead	44.3			F	
7439-95-4	Magnesium	5140			P	
7439-96-5	Manganese	254			P	
7439-97-6	Mercury	0.09	B		CV	
7440-02-0	Nickel	16.3			P	
7440-09-7	Potassium	1200			P	
7782-49-2	Selenium	0.84	B	W	F	
7440-22-4	Silver	0.76	~~B~~		P	U
7440-23-5	Sodium	209	B		P	
7440-28-0	Thallium	0.94	~~U~~	W	F	UJ
7440-62-2	Vanadium	39.1			P	
7440-66-6	Zinc	195			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

4/5/93

005

FORM I - IN ILM03.0

9312968.1575

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

B07NC4

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-156SAS No.: SDG No.: B07NC4

Matrix (soil/water): SOIL Lab Sample ID: 11276-01S

Level (low/med): LOW Date Received: 11/20/92

% Solids: 69.7

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	6030			P	
7440-36-0	Antimony	4.1	~~U~~	N	P	UJ
7440-38-2	Arsenic	5.7			F	
7440-39-3	Barium	56.1			P	
7440-41-7	Beryllium	0.22	B		P	
7440-43-9	Cadmium	0.41	U		P	
7440-70-2	Calcium	4850			P	
7440-47-3	Chromium	16.8			P	
7440-48-4	Cobalt	7.7	B		P	
7440-50-8	Copper	69.6	—	E	P	J
7439-89-6	Iron	19300		*	P	
7439-92-1	Lead	50.0	—	N	F	J
7439-95-4	Magnesium	3690			P	
7439-96-5	Manganese	179	—	N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	11.1			P	
7440-09-7	Potassium	887	B		P	
7782-49-2	Selenium	1.0	~~U~~	WN	F	UJ
7440-22-4	Silver	0.99	U		P	
7440-23-5	Sodium	346	B		P	
7440-28-0	Thallium	1.0	U		F	
7440-62-2	Vanadium	43.7		*	P	
7440-66-6	Zinc	315			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

CJ 4/12/93

00

9312968.1575

SAMPLE NUMBER:

B07NC5

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-156$AS No.: SDG No.: B07NC4

Matrix (soil/water): SOIL Lab Sample ID: 11276-02S

Level (low/med): LOW Date Received: 11/20/92

% Solids: 82.1

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5940			P	
7440-36-0	Antimony	3.5	~~U~~	N	P	UJ
7440-38-2	Arsenic	3.0			F	
7440-39-3	Barium	48.8			P	
7440-41-7	Beryllium	0.24	B		P	
7440-43-9	Cadmium	0.35	U		P	
7440-70-2	Calcium	1760			P	
7440-47-3	Chromium	16.1			P	
7440-48-4	Cobalt	7.2	B		P	
7440-50-8	Copper	27.2	—	E	P	J
7439-89-6	Iron	22000		*	P	
7439-92-1	Lead	3.8	—	N	F	J
7439-95-4	Magnesium	2890			P	
7439-96-5	Manganese	146	—	N	P	J
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	16.1			P	
7440-09-7	Potassium	573	B		P	
7782-49-2	Selenium	0.89	~~U~~	N	F	UJ
7440-22-4	Silver	1.5	B		P	
7440-23-5	Sodium	98.3	B		P	
7440-28-0	Thallium	0.89	U		F	
7440-62-2	Vanadium	40.3		*	P	
7440-66-6	Zinc	27.6			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

4/2/93

003

9312968.1527

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NH3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-13S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 82.6

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	6410			P	Q
7440-36-0	Antimony	4.1	~~U~~	N	P	UJ
7440-38-2	Arsenic	4.5		S	F	
7440-39-3	Barium	100		E	P	J
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.24	U		P	
7440-70-2	Calcium	5450			P	
7440-47-3	Chromium	10.1			P	
7440-48-4	Cobalt	8.0	B		P	
7440-50-8	Copper	13.4			P	
7439-89-6	Iron	12800			P	
7439-92-1	Lead	22.6		S	F	
7439-95-4	Magnesium	3940			P	
7439-96-5	Manganese	344		N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	10.4			P	
7440-09-7	Potassium	952	B		P	
7782-49-2	Selenium	0.85	~~U~~	W	F	UJ
7440-22-4	Silver	0.77	~~B~~		P	U
7440-23-5	Sodium	144	B		P	
7440-28-0	Thallium	0.89	U		F	
7440-62-2	Vanadium	25.4			P	
7440-66-6	Zinc	82.0			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

5/4/6/93

015

9312969.1578

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NH4

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-14S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 76.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	7700			P	Q
7440-36-0	Antimony	4.2	~~U~~	N	P	UJ
7440-38-2	Arsenic	3.5			F	
7440-39-3	Barium	97.1		E	P	J
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.25	U		P	
7440-70-2	Calcium	6210			P	
7440-47-3	Chromium	12.5			P	
7440-48-4	Cobalt	7.2	B		P	
7440-50-8	Copper	16.5			P	
7439-89-6	Iron	13400			P	
7439-92-1	Lead	12.1			F	
7439-95-4	Magnesium	4420			P	
7439-96-5	Manganese	286		N	P	J
7439-97-6	Mercury	0.07	U		CV	
7440-02-0	Nickel	9.9	B		P	
7440-09-7	Potassium	1210	B		P	
7782-49-2	Selenium	0.87	U	M	F	
7440-22-4	Silver	0.63	U		P	
7440-23-5	Sodium	141	B		P	
7440-28-0	Thallium	0.92	U		F	
7440-62-2	Vanadium	25.9			P	
7440-66-6	Zinc	96.0			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

5-4/6/93

016

FORM BI27- IN

TI M02 1

9312968.1579

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NG9

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-09S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 77.4

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	6700			P	Q
7440-36-0	Antimony	4.0	~~U~~	N	P	UJ
7440-38-2	Arsenic	4.9		S	F	
7440-39-3	Barium	48.7		E	P	J
7440-41-7	Beryllium	0.09	U		P	
7440-43-9	Cadmium	0.53	~~B~~		P	U
7440-70-2	Calcium	4060			P	
7440-47-3	Chromium	15.4			P	
7440-48-4	Cobalt	6.6	B		P	
7440-50-8	Copper	29.3			P	
7439-89-6	Iron	14700			P	
7439-92-1	Lead	49.7		S	F	
7439-95-4	Magnesium	4190			P	
7439-96-5	Manganese	156		N	P	J
7439-97-6	Mercury	0.07	U		CV	
7440-02-0	Nickel	11.7			P	
7440-09-7	Potassium	855	B		P	
7782-49-2	Selenium	0.88	~~U~~	W	F	UJ
7440-22-4	Silver	1.3	~~B~~		P	U
7440-23-5	Sodium	291	B		P	
7440-28-0	Thallium	0.93	U		F	
7440-62-2	Vanadium	29.8			P	
7440-66-6	Zinc	296			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

cj 4/6/93

011

9312968.1580

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NH0

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-10S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 78.8

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5040			P	
7440-36-0	Antimony	4.2	~~U~~	N	P	UJ
7440-38-2	Arsenic	4.9	—	S	F	~~J~~ J
7440-39-3	Barium	48.1	~~B~~	E	P	J
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.38	~~B~~		P	U
7440-70-2	Calcium	2300			P	
7440-47-3	Chromium	12.5			P	
7440-48-4	Cobalt	4.8	B		P	
7440-50-8	Copper	12.8			P	
7439-89-6	Iron	11700			P	
7439-92-1	Lead	11.1			F	
7439-95-4	Magnesium	3760			P	
7439-96-5	Manganese	170	—	N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	13.9			P	
7440-09-7	Potassium	570	B		P	
7782-49-2	Selenium	0.83	U		F	
7440-22-4	Silver	0.62	U		P	
7440-23-5	Sodium	147	B		P	
7440-28-0	Thallium	0.88	U		F	
7440-62-2	Vanadium	21.1			P	
7440-66-6	Zinc	97.3			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts:

Comments:

4/16/93

012

9312968.1581

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07NC0

Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-135SAS No.: SDG No.: B07NB6

Matrix (soil/water): SOIL Lab Sample ID: 11255-05S

Level (low/med): LOW Date Received: 11/19/92

% Solids: 89.5

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	9060			P	
7440-36-0	Antimony	3.6	~~U~~	N	P	UJ
7440-38-2	Arsenic	7.9			F	
7440-39-3	Barium	89.5			P	
7440-41-7	Beryllium	0.57	B		P	
7440-43-9	Cadmium	1.2	—		P	U
7440-70-2	Calcium	4530			P	
7440-47-3	Chromium	22.6			P	
7440-48-4	Cobalt	8.5	B		P	
7440-50-8	Copper	34.0			P	
7439-89-6	Iron	17300	—		P	~~J~~
7439-92-1	Lead	43.4			F	
7439-95-4	Magnesium	5320			P	
7439-96-5	Manganese	284			P	
7439-97-6	Mercury	0.06	B		CV	
7440-02-0	Nickel	16.2			P	
7440-09-7	Potassium	1550			P	
7782-49-2	Selenium	1.8	—	+	F	J
7440-22-4	Silver	1.0	~~B~~		P	U
7440-23-5	Sodium	225	B		P	
7440-28-0	Thallium	0.82	~~U~~	W	F	UJ
7440-62-2	Vanadium	35.3			P	
7440-66-6	Zinc	287			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

4/15/93

006

FORM I - IN ILM03.0

9312968.1582

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07NC1

.ab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

.ab Code: SKINER Case No.: N2-11-135$AS No.: SDG No.: B07NB6

latrix (soil/water): SOIL Lab Sample ID: 11255-06S

.evel (low/med): LOW Date Received: 11/19/92

: Solids: 95.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9690			P	Q
7440-36-0	Antimony	3.5	~~U~~	N	P	UJ
7440-38-2	Arsenic	12.6			F	
7440-39-3	Barium	82.3			P	
7440-41-7	Beryllium	0.21	B		P	
7440-43-9	Cadmium	0.20	U		P	
7440-70-2	Calcium	2790			P	
7440-47-3	Chromium	28.9			P	
7440-48-4	Cobalt	9.4	B		P	
7440-50-8	Copper	42.7			P	
7439-89-6	Iron	29700			P	J
7439-92-1	Lead	16.4		S	F	
7439-95-4	Magnesium	3610			P	
7439-96-5	Manganese	296			P	
7439-97-6	Mercury	0.06	B		CV	
7440-02-0	Nickel	22.6			P	
7440-09-7	Potassium	541	B		P	
7782-49-2	Selenium	0.60	~~U~~	+	F	UJ
7440-22-4	Silver	1.8	~~B~~		P	U
7440-23-5	Sodium	137	B		P	
7440-28-0	Thallium	0.78	~~U~~	W	F	UJ
7440-62-2	Vanadium	83.2			P	
7440-66-6	Zinc	79.4			P	
	Cyanide				NR	

olor Before: BROWN Clarity Before: Texture: FINE

olor After: BROWN Clarity After: Artifacts:

omments:

4/5/93

007

FORM I - IN ILM03.0

9312968.1683

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07NC2

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-135SAS No.: SDG No.: B07NB6

Matrix (soil/water): SOIL Lab Sample ID: 11255-07S

Level (low/med): LOW Date Received: 11/19/92

% Solids: 75.2

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5480			P	
7440-36-0	Antimony	4.4	~~U~~	N	P	UJ
7440-38-2	Arsenic	2.4	B		F	
7440-39-3	Barium	54.3			P	
7440-41-7	Beryllium	0.42	B		P	
7440-43-9	Cadmium	0.26	U		P	
7440-70-2	Calcium	3780			P	
7440-47-3	Chromium	18.8			P	
7440-48-4	Cobalt	6.2	B		P	
7440-50-8	Copper	32.6			P	
7439-89-6	Iron	13500			P	~~J~~
7439-92-1	Lead	35.7			F	
7439-95-4	Magnesium	3450			P	
7439-96-5	Manganese	206			P	
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	9.8	B		P	
7440-09-7	Potassium	687	B		P	
7782-49-2	Selenium	0.83	B		F	
7440-22-4	Silver	0.77	~~B~~		P	U
7440-23-5	Sodium	249	B		P	
7440-28-0	Thallium	0.94	~~U~~	W	F	UJ
7440-62-2	Vanadium	28.9			P	
7440-66-6	Zinc	168			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS AND STONES

by 4/15/93

008

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07NC3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-135$AS No.: SDG No.: B07NB6

Matrix (soil/water): SOIL Lab Sample ID: 11255-08S

Level (low/med): LOW Date Received: 11/19/92

% Solids: 65.7

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5790			P	Q
7440-36-0	Antimony	4.9	~~U~~	N	P	UJ
7440-38-2	Arsenic	4.5			F	
7440-39-3	Barium	44.3	B		P	
7440-41-7	Beryllium	0.50	B		P	
7440-43-9	Cadmium	0.63	~~B~~		P	U
7440-70-2	Calcium	3940			P	
7440-47-3	Chromium	28.3			P	
7440-48-4	Cobalt	5.9	B		P	
7440-50-8	Copper	26.1			P	
7439-89-6	Iron	13600			P	J
7439-92-1	Lead	28.3		S	F	
7439-95-4	Magnesium	3620			P	
7439-96-5	Manganese	117			P	
7439-97-6	Mercury	0.08	U		CV	
7440-02-0	Nickel	10.0	B		P	
7440-09-7	Potassium	706	B		P	
7782-49-2	Selenium	1.1	B		F	
7440-22-4	Silver	0.73	U		P	
7440-23-5	Sodium	267	B		P	
7440-28-0	Thallium	1.0	U		F	
7440-62-2	Vanadium	41.0			P	
7440-66-6	Zinc	141			P	
	Cyanide				NR	

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: BLACK Clarity After: Artifacts: YES

Comments:

STONES AND ROOTS

CJ 4/5/93

009

FORM I - IN ILM03.0

9312968.1505

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NC6

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-156SAS No.: SDG No.: B07NC4

Matrix (soil/water): SOIL Lab Sample ID: 11276-03S

Level (low/med): LOW Date Received: 11/20/92

% Solids: 76.9

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5930			P	
7440-36-0	Antimony	3.7	~~B~~	N	P	BJ
7440-38-2	Arsenic	2.5			F	
7440-39-3	Barium	48.8	B		P	
7440-41-7	Beryllium	0.18	B		P	
7440-43-9	Cadmium	0.37	U		P	
7440-70-2	Calcium	2960			P	
7440-47-3	Chromium	13.4			P	
7440-48-4	Cobalt	5.9	B		P	
7440-50-8	Copper	23.9	—	E	P	J
7439-89-6	Iron	12800		*	P	
7439-92-1	Lead	14.9	—	N	F	J
7439-95-4	Magnesium	3830			P	
7439-96-5	Manganese	161	—	N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	13.0			P	
7440-09-7	Potassium	697	B		P	
7782-49-2	Selenium	0.90	~~U~~	WN	F	UJ
7440-22-4	Silver	0.88	U		P	
7440-23-5	Sodium	161	B		P	
7440-28-0	Thallium	0.90	U		F	
7440-62-2	Vanadium	25.2		*	P	
7440-66-6	Zinc	123			P	
	Cyanide				NR	

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts:

Comments:

4/2/93

004

FORM I IN ILM02.1

9312968.1585

SAMPLE NUMBER:

B07NC7

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-156$AS No.: SDG No.: B07NC4

Matrix (soil/water): SOIL Lab Sample ID: 11276-04S

Level (low/med): LOW Date Received: 11/20/92

% Solids: 78.6

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	6030			P	
7440-36-0	Antimony	3.4	~~U~~	N	P	UJ
7440-38-2	Arsenic	5.6			F	
7440-39-3	Barium	48.2			P	
7440-41-7	Beryllium	0.17	B		P	
7440-43-9	Cadmium	0.99	~~B~~		P	U
7440-70-2	Calcium	3040			P	
7440-47-3	Chromium	13.2			P	
7440-48-4	Cobalt	6.4	B		P	
7440-50-8	Copper	24.5	—	E	P	J
7439-89-6	Iron	13000		*	P	
7439-92-1	Lead	39./ 44.5	—	SN	F	J
7439-95-4	Magnesium	3810			P	
7439-96-5	Manganese	146	—	N	P	J
7439-97-6	Mercury	0.68			CV	
7440-02-0	Nickel	12.4			P	
7440-09-7	Potassium	822	B		P	
7782-49-2	Selenium	0.93	~~U~~	N	F	UJ
7440-22-4	Silver	0.82	U		P	
7440-23-5	Sodium	155	B		P	
7440-28-0	Thallium	0.93	U		F	
7440-62-2	Vanadium	25.3		*	P	
7440-66-6	Zinc	219			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: BROWN Clarity After: Artifacts:

Comments:

4/12/93

005

FORM I - IN ILM02.1

9312968.1587

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07ND2

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-156SAS No.: SDG No.: B07NC4

Matrix (soil/water): SOIL Lab Sample ID: 11276-07S

Level (low/med): LOW Date Received: 11/21/92

% Solids: 73.9

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	6790			P	Q
7440-36-0	Antimony	3.8	~~U~~	N	P	UJ
7440-38-2	Arsenic	3.4			F	
7440-39-3	Barium	63.5			P	
7440-41-7	Beryllium	0.29	B		P	
7440-43-9	Cadmium	1.4	—		P	U
7440-70-2	Calcium	4060			P	
7440-47-3	Chromium	20.0			P	
7440-48-4	Cobalt	6.7	B		P	
7440-50-8	Copper	29.1	—	E	P	J
7439-89-6	Iron	13700		*	P	
7439-92-1	Lead	42.8	—	N	F	J
7439-95-4	Magnesium	3920			P	
7439-96-5	Manganese	130	—	N	P	J
7439-97-6	Mercury	0.08	B		CV	
7440-02-0	Nickel	11.8			P	
7440-09-7	Potassium	802	B		P	
7782-49-2	Selenium	0.97	~~U~~	+N	F	UJ
7440-22-4	Silver	0.92	U		P	
7440-23-5	Sodium	198	B		P	
7440-28-0	Thallium	0.97	U		F	
7440-62-2	Vanadium	33.6		*	P	
7440-66-6	Zinc	293			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

4/12/93

008

FORM B-36 IN ILM02.1

9312968.1588

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07ND3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-156 SAS No.: SDG No.: B07NC4

Matrix (soil/water): SOIL Lab Sample ID: 11276-08S

Level (low/med): LOW Date Received: 11/21/92

% Solids: 80.2

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7430			P	
7440-36-0	Antimony	3.6	~~U~~	N	P	UJ
7440-38-2	Arsenic	3.2			F	
7440-39-3	Barium	68.2			P	
7440-41-7	Beryllium	0.34	B		P	
7440-43-9	Cadmium	0.61	~~B~~		P	U
7440-70-2	Calcium	3610			P	
7440-47-3	Chromium	17.6			P	
7440-48-4	Cobalt	8.5	B		P	
7440-50-8	Copper	25.4	—	E	P	J
7439-89-6	Iron	18800		*	P	
7439-92-1	Lead	17.1	—	N	F	J
7439-95-4	Magnesium	4090			P	
7439-96-5	Manganese	155	—	N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	15.0			P	
7440-09-7	Potassium	864	B		P	
7782-49-2	Selenium	0.91	~~U~~	WN	F	UJ
7440-22-4	Silver	0.87	U		P	
7440-23-5	Sodium	179	B		P	
7440-28-0	Thallium	0.91	U		F	
7440-62-2	Vanadium	43.6		*	P	
7440-66-6	Zinc	155			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: COARSE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

4/21/93

009

FORM I - IN ILM02.1

9312968.1589

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NG3

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-04S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 68.4

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7640			P	
7440-36-0	Antimony	4.4	~~U~~	N	P	UJ
7440-38-2	Arsenic	4.5		S	F	
7440-39-3	Barium	58.4		E	P	J
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	2.0			P	
7440-70-2	Calcium	3720			P	
7440-47-3	Chromium	22.8			P	
7440-48-4	Cobalt	8.5	B		P	
7440-50-8	Copper	18.9			P	
7439-89-6	Iron	15500			P	
7439-92-1	Lead	32.7		W	F	J
7439-95-4	Magnesium	4450			P	
7439-96-5	Manganese	193		N	P	J
7439-97-6	Mercury	0.07	B		CV	
7440-02-0	Nickel	13.8			P	
7440-09-7	Potassium	1040	B		P	
7782-49-2	Selenium	1.0	U		F	
7440-22-4	Silver	0.65	U		P	
7440-23-5	Sodium	205	B		P	
7440-28-0	Thallium	1.1	~~U~~	W	F	UJ
7440-62-2	Vanadium	29.9			P	
7440-66-6	Zinc	397			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

SJ 4/6/93

006

FORM B-38 - TN

9312968.1590

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NG6

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-07S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 67.2

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7430			P	
7440-36-0	Antimony	4.6	~~U~~	N	P	UJ
7440-38-2	Arsenic	3.9		S	F	
7440-39-3	Barium	58.5		E	P	J
7440-41-7	Beryllium	0.11	U		P	
7440-43-9	Cadmium	1.7			P	
7440-70-2	Calcium	3520			P	
7440-47-3	Chromium	21.7			P	
7440-48-4	Cobalt	7.8	B		P	
7440-50-8	Copper	18.4			P	
7439-89-6	Iron	15000			P	
7439-92-1	Lead	31.3			F	
7439-95-4	Magnesium	4350			P	
7439-96-5	Manganese	193		N	P	J
7439-97-6	Mercury	0.08	B		CV	
7440-02-0	Nickel	14.5			P	
7440-09-7	Potassium	1050	B		P	
7782-49-2	Selenium	0.97	~~U~~	W	F	UJ
7440-22-4	Silver	0.68	U		P	
7440-23-5	Sodium	209	B		P	
7440-28-0	Thallium	1.0	~~U~~	W	F	UJ
7440-62-2	Vanadium	28.7			P	
7440-66-6	Zinc	369			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

4/6/93

009

9312968.1591

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

B07NG5

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-06S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 76.4

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	8620			P	
7440-36-0	Antimony	4.0	~~U~~	N	P	UJ
7440-38-2	Arsenic	4.8		S	F	
7440-39-3	Barium	88.5		E	P	J
7440-41-7	Beryllium	0.09	U		P	
7440-43-9	Cadmium	1.2			P	U
7440-70-2	Calcium	3970			P	
7440-47-3	Chromium	20.8			P	
7440-48-4	Cobalt	8.6	B		P	
7440-50-8	Copper	21.5			P	
7439-89-6	Iron	16700			P	
7439-92-1	Lead	27.8			F	
7439-95-4	Magnesium	4990			P	
7439-96-5	Manganese	182		N	P	J
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	15.1			P	
7440-09-7	Potassium	1420			P	
7782-49-2	Selenium	0.89	U	M	F	
7440-22-4	Silver	1.0	~~B~~		P	U
7440-23-5	Sodium	194	B		P	
7440-28-0	Thallium	0.94	~~U~~	W	F	UJ
7440-62-2	Vanadium	33.9			P	
7440-66-6	Zinc	253			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

5-4-6-93

008

FORM B-40

9312968.1592

INORGANIC ANALYSIS DATA SHEET

B07NG7

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP888

Matrix (soil/water): SOIL Lab Sample ID: 921288801

Level (low/med): LOW Date Received: 12/02/92

% Solids: 67.4

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4830.00	-		P	Q
7440-36-0	Antimony	17.80	U		P	
7440-38-2	Arsenic	4.30 ~~4.90~~		NS	F	J
7440-39-3	Barium	76.50			P	
7440-41-7	Beryllium	.42	B		P	
7440-43-9	Cadmium	2.08	U		P	
7440-70-2	Calcium	3280.00			P	
7440-47-3	Chromium	13.30			P	
7440-48-4	Cobalt	7.00	B		P	
7440-50-8	Copper	17.20			P	
7439-89-6	Iron	10500.00	-		P	J
7439-92-1	Lead	27.90			F	
7439-95-4	Magnesium	3040.00			P	
7439-96-5	Manganese	130.00			P	
7439-97-6	Mercury	.07	~~U~~		CV	UJ
7440-02-0	Nickel	11.80	B		P	
7440-09-7	Potassium	1080.00	B		P	
7782-49-2	Selenium	.59	~~U~~	N	F	UJ
7440-22-4	Silver	2.97	~~U~~	N*	P	UJ
7440-23-5	Sodium	131.00	B		P	
7440-28-0	Thallium	.59	~~U~~		F	UJ
7440-62-2	Vanadium	14.50	B		P	
7440-66-6	Zinc	230.00			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

4/15/93

9312968.1599

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

B07NG1

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-02S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 68.2

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	6040			P	
7440-36-0	Antimony	4.8	~~U~~	N	P	UJ
7440-38-2	Arsenic	6.0			F	
7440-39-3	Barium	58.0		E	P	J
7440-41-7	Beryllium	0.11	U		P	
7440-43-9	Cadmium	0.65	~~B~~		P	U
7440-70-2	Calcium	3580			P	
7440-47-3	Chromium	24.3			P	
7440-48-4	Cobalt	6.7	B		P	
7440-50-8	Copper	23.2			P	
7439-89-6	Iron	14900			P	
7439-92-1	Lead	30.5		W	F	
7439-95-4	Magnesium	3870			P	
7439-96-5	Manganese	231		N	P	J
7439-97-6	Mercury	0.07	U		CV	
7440-02-0	Nickel	12.3			P	
7440-09-7	Potassium	831	B		P	
7782-49-2	Selenium	1.0	~~U~~	W	F	UJ
7440-22-4	Silver	0.89	~~B~~		P	U
7440-23-5	Sodium	237	B		P	
7440-28-0	Thallium	1.1	U		F	
7440-62-2	Vanadium	31.8			P	
7440-66-6	Zinc	209			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES

5/4/6/98

004

FORM B-42 - IN

TI M02 1

9312968.1594

SAMPLE NUMBER: B07NG2

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-03S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 80.7

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7550			P	
7440-36-0	Antimony	3.7	~~U~~	N	P	UJ
7440-38-2	Arsenic	2.9			F	
7440-39-3	Barium	55.1		E	P	J
7440-41-7	Beryllium	0.09	U		P	
7440-43-9	Cadmium	0.22	U		P	
7440-70-2	Calcium	3760			P	
7440-47-3	Chromium	18.8			P	
7440-48-4	Cobalt	6.7	B		P	
7440-50-8	Copper	17.7			P	
7439-89-6	Iron	15400			P	
7439-92-1	Lead	10.6			F	
7439-95-4	Magnesium	4640			P	
7439-96-5	Manganese	222		N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	15.2			P	
7440-09-7	Potassium	877	B		P	
7782-49-2	Selenium	0.83	~~U~~	W	F	UJ
7440-22-4	Silver	0.55	U		P	
7440-23-5	Sodium	168	B		P	
7440-28-0	Thallium	0.88	U		F	
7440-62-2	Vanadium	30.5			P	
7440-66-6	Zinc	94.8			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

4/16/93

005

9312968.1595

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

B07NG0

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-01S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 65.3

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7250			P	
7440-36-0	Antimony	5.1	~~U~~	N	P	UJ
7440-38-2	Arsenic	5.1		S	F	
7440-39-3	Barium	61.3		E	P	J
7440-41-7	Beryllium	0.12	U		P	
7440-43-9	Cadmium	1.5			P	U
7440-70-2	Calcium	4070			P	
7440-47-3	Chromium	25.8			P	
7440-48-4	Cobalt	7.3	B		P	
7440-50-8	Copper	20.5			P	
7439-89-6	Iron	15300			P	
7439-92-1	Lead	40.2			F	
7439-95-4	Magnesium	4320			P	
7439-96-5	Manganese	203		N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	13.7			P	
7440-09-7	Potassium	1010	B		P	
7782-49-2	Selenium	1.1	~~U~~		F	~~UJ~~ U
7440-22-4	Silver	0.92	~~B~~		P	U
7440-23-5	Sodium	232	B		P	
7440-28-0	Thallium	1.1	U		F	
7440-62-2	Vanadium	30.8			P	
7440-66-6	Zinc	378			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

GJ 4/6/93

003

FORM ~~B~~I-44 IN ILM02.1

9312969.1596

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

B07NF9

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-15S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 63.0

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	9850			P	
7440-36-0	Antimony	4.9	~~U~~	N	P	UJ
7440-38-2	Arsenic	6.2			F	
7440-39-3	Barium	87.5		E	P	J
7440-41-7	Beryllium	0.12	U		P	
7440-43-9	Cadmium	5.6			P	
7440-70-2	Calcium	5040			P	
7440-47-3	Chromium	64.1			P	
7440-48-4	Cobalt	10.1	B		P	
7440-50-8	Copper	42.7			P	
7439-89-6	Iron	17600			P	
7439-92-1	Lead	59.3			F	
7439-95-4	Magnesium	5520			P	
7439-96-5	Manganese	173		N	P	J
7439-97-6	Mercury	0.09	B		CV	
7440-02-0	Nickel	19.1			P	
7440-09-7	Potassium	1650			P	
7782-49-2	Selenium	1.1	~~U~~	W	F	UJ
7440-22-4	Silver	1.4	~~B~~		P	U
7440-23-5	Sodium	213	B		P	
7440-28-0	Thallium	1.1	U		F	
7440-62-2	Vanadium	41.7			P	
7440-66-6	Zinc	454			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

CJ 4/6/93

002

9312969.1597

WESTINGHOUSE/HANFORD

1

SAMPLE NUMBER:

B07NG4

INORGANIC ANALYSIS DATA SHEET

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-12-009SAS No.: SDG No.: B07NF9

Matrix (soil/water): SOIL Lab Sample ID: 12032-05S

Level (low/med): LOW Date Received: 12/03/92

% Solids: 72.5

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5110			P	
7440-36-0	Antimony	4.5	~~U~~	N	P	UJ
7440-38-2	Arsenic	10.7		S	F	
7440-39-3	Barium	60.5		E	P	J
7440-41-7	Beryllium	0.11	U		P	
7440-43-9	Cadmium	0.27	U		P	
7440-70-2	Calcium	3310			P	
7440-47-3	Chromium	56.4			P	
7440-48-4	Cobalt	6.7	B		P	
7440-50-8	Copper	14.9			P	
7439-89-6	Iron	15800			P	
7439-92-1	Lead	23.9			F	
7439-95-4	Magnesium	3310			P	
7439-96-5	Manganese	305		N	P	J
7439-97-6	Mercury	0.07	U		CV	
7440-02-0	Nickel	10.9			P	
7440-09-7	Potassium	630	B		P	
7782-49-2	Selenium	0.92	~~U~~	W	F	UJ
7440-22-4	Silver	0.66	U		P	
7440-23-5	Sodium	166	B		P	
7440-28-0	Thallium	0.97	U		F	
7440-62-2	Vanadium	32.7			P	
7440-66-6	Zinc	152			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:
STONES.

9/16/93

9312968.1509

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NF5

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-191SAS No.: SDG No.: B07NC8

Matrix (soil/water): SOIL Lab Sample ID: 12020-06S

Level (low/med): LOW Date Received: 12/01/92

% Solids: 80.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	7470			P	Q
7440-36-0	Antimony	4.2	UJ	N	P	UJ
7440-38-2	Arsenic	9.4		N	F	J
7440-39-3	Barium	70.9			P	
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.30	B		P	
7440-70-2	Calcium	3480			P	
7440-47-3	Chromium	15.0			P	
7440-48-4	Cobalt	7.2	B		P	
7440-50-8	Copper	24.7			P	
7439-89-6	Iron	15400			P	
7439-92-1	Lead	57.7		S	F	J
7439-95-4	Magnesium	4540			P	
7439-96-5	Manganese	189		N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	15.6			P	
7440-09-7	Potassium	1100	B		P	
7782-49-2	Selenium	0.70	U		F	
7440-22-4	Silver	0.62	U		P	
7440-23-5	Sodium	138	B		P	
7440-28-0	Thallium	0.31	UJ	W	F	UJ
7440-62-2	Vanadium	28.9			P	
7440-66-6	Zinc	226		E	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts:

Comments:

93/3/13

007

FORM B-47

9312968.1599

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NF6

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-191SAS No.: SDG No.: B07NC8

Matrix (soil/water): SOIL Lab Sample ID: 12020-07S

Level (low/med): LOW Date Received: 12/01/92

% Solids: 77.4

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5990			P	
7440-36-0	Antimony	4.2	~~U~~	N	P	UJ
7440-38-2	Arsenic	1.9	~~B~~	N	F	BJ
7440-39-3	Barium	57.0			P	
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.25	U		P	
7440-70-2	Calcium	2760			P	
7440-47-3	Chromium	13.2			P	
7440-48-4	Cobalt	6.4	B		P	
7440-50-8	Copper	9.9			P	
7439-89-6	Iron	12600			P	
7439-92-1	Lead	5.8			F	
7439-95-4	Magnesium	4060			P	
7439-96-5	Manganese	160		N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	13.1			P	
7440-09-7	Potassium	836	B		P	
7782-49-2	Selenium	0.72	U		F	
7440-22-4	Silver	0.63	U		P	
7440-23-5	Sodium	102	B		P	
7440-28-0	Thallium	0.32	~~U~~	W	F	UJ
7440-62-2	Vanadium	23.8			P	
7440-66-6	Zinc	43.7		E	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts:

Comments:

gj 3/31/93

0008

9312968.1600

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NF7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-191SAS No.: SDG No.: B07NC8

Matrix (soil/water): SOIL Lab Sample ID: 12020-08S

Level (low/med): LOW Date Received: 12/01/92

% Solids: 77.4

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	4790			P	
7440-36-0	Antimony	4.0	~~U~~	N	P	UJ
7440-38-2	Arsenic	2.4		N	F	J
7440-39-3	Barium	33.1	B		P	
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.65	B		P	
7440-70-2	Calcium	3640			P	
7440-47-3	Chromium	14.8			P	
7440-48-4	Cobalt	6.3	B		P	
7440-50-8	Copper	20.4			P	
7439-89-6	Iron	14900			P	
7439-92-1	Lead	15.3			F	
7439-95-4	Magnesium	3440			P	
7439-96-5	Manganese	160		N	P	J
7439-97-6	Mercury	0.05	U		CV	
7440-02-0	Nickel	12.4			P	
7440-09-7	Potassium	565	B		P	
7782-49-2	Selenium	0.69	U		F	
7440-22-4	Silver	0.59	U		P	
7440-23-5	Sodium	208	B		P	
7440-28-0	Thallium	0.35	~~B~~	W	F	BJ
7440-62-2	Vanadium	40.3			P	
7440-66-6	Zinc	151		E	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts:

Comments:

cj 3/31/93

T-009

9312968.1601

WESTINGHOUSE/HANFORD
1

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NF8

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-191SAS No.: SDG No.: B07NC8

Matrix (soil/water): SOIL Lab Sample ID: 12020-09S

Level (low/med): LOW Date Received: 12/01/92

% Solids: 82.0

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5040			P	
7440-36-0	Antimony	4.0	~~UJ~~	N	P	UJ
7440-38-2	Arsenic	5.8	—	+N	F	J
7440-39-3	Barium	51.0			P	
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.62	B		P	
7440-70-2	Calcium	3300			P	
7440-47-3	Chromium	11.2			P	
7440-48-4	Cobalt	6.3	B		P	
7440-50-8	Copper	20.6			P	
7439-89-6	Iron	13200			P	
7439-92-1	Lead	27.0			F	
7439-95-4	Magnesium	3290			P	
7439-96-5	Manganese	263	—	N	P	J
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	11.0			P	
7440-09-7	Potassium	659	B		P	
7782-49-2	Selenium	0.69	~~UJ~~		F	UJ
7440-22-4	Silver	0.59	~~UJ~~		P	UJ
7440-23-5	Sodium	213	~~B~~		P	B (no qualifier) 93/31/93
7440-28-0	Thallium	0.56	~~B~~	W	F	BJ
7440-62-2	Vanadium	27.6			P	
7440-66-6	Zinc	205	—	E	P	J
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROCKS

93/31/93

r. 010

9312968.1602

SAMPLE NUMBER:

INORGANIC ANALYSIS DATA SHEET

B07NB6

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-135$AS No.: SDG No.: B07NB6

Matrix (soil/water): SOIL Lab Sample ID: 11255-01S

Level (low/med): LOW Date Received: 11/18/92

% Solids: 73.1

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	7230			P	
7440-36-0	Antimony	4.5	~~U~~	N	P	UJ
7440-38-2	Arsenic	7.4			F	
7440-39-3	Barium	73.0			P	
7440-41-7	Beryllium	0.43	B		P	
7440-43-9	Cadmium	0.41	~~B~~		P	U
7440-70-2	Calcium	3730			P	
7440-47-3	Chromium	15.2			P	
7440-48-4	Cobalt	8.0	B		P	
7440-50-8	Copper	62.9			P	
7439-89-6	Iron	15900	—		P	J
7439-92-1	Lead	55.7			F	
7439-95-4	Magnesium	4440			P	
7439-96-5	Manganese	194			P	
7439-97-6	Mercury	0.07	U		CV	
7440-02-0	Nickel	14.1			P	
7440-09-7	Potassium	955	B		P	
7782-49-2	Selenium	0.79	U	W	F	
7440-22-4	Silver	0.99	~~B~~		P	U
7440-23-5	Sodium	215	B		P	
7440-28-0	Thallium	1.0	~~U~~	W	F	UJ
7440-62-2	Vanadium	28.6			P	
7440-66-6	Zinc	335			P	
	Cyanide				NR	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

6/15/93

002

FORM I - IN ILM03.0

9312968.1603

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07ND5

Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-11-183SAS No.: SDG No.: B07ND4

Matrix (soil/water): SOIL Lab Sample ID: 11332-02S

Level (low/med): LOW Date Received: 11/25/92

% Solids: 79.7

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	5740			P	
7440-36-0	Antimony	4.0	~~U~~	N	P	UJ
7440-38-2	Arsenic	3.5			F	
7440-39-3	Barium	50.9			P	
7440-41-7	Beryllium	0.10	U		P	
7440-43-9	Cadmium	0.45	~~B~~		P	U
7440-70-2	Calcium	4020			P	
7440-47-3	Chromium	9.4			P	
7440-48-4	Cobalt	5.4	B		P	
7440-50-8	Copper	34.2			P	
7439-89-6	Iron	13100			P	
7439-92-1	Lead	21.6			F	
7439-95-4	Magnesium	3870			P	
7439-96-5	Manganese	251			P	
7439-97-6	Mercury	0.06	U		CV	
7440-02-0	Nickel	8.9	B		P	
7440-09-7	Potassium	736	B		P	
7782-49-2	Selenium	0.72	U		F	
7440-22-4	Silver	0.59	U		P	
7440-23-5	Sodium	339	B		P	
7440-28-0	Thallium	0.32	U		F	
7440-62-2	Vanadium	26.4			P	
7440-66-6	Zinc	216			P	
	Cyanide				NR	

Color Before: GREY Clarity Before: Texture: COARSE

Color After: GREY Clarity After: Artifacts:

Comments:

cj 4/8/93

FORM I - IN ILM02.0

003

APPENDIX C - VALIDATED RADIOCHEMISTRY DATA SUMMARY

9912968.1605

THIS PAGE INTENTIONALLY
LEFT BLANK

Parameter	Sampl#	B07NC8		B07NG8		B07ND1		B07ND9		B07NF3		B07NF4	
	Date	11-19-92		11-23-92		11-20-92		11-20-92		11-20-92		11-20-92	
	Site	Eq Blk		Eq Blk		SITE BC1		SITE BC1		SITE BC2		SITE BC2	
	Depth	0.00 - 0.00		0.00 - 0.00		0.00 - 6.00		0.00 - 6.00		0.00 - 6.00		12.00 - 18.00	
	Type	Eq Blk		Eq Blk		Duplicate							
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Radionuclides													
GROSS ALPHA	pCi/g	5.000	U	4.000	U	6.700	J	5.000	U	8.000	U	8.100	J
GROSS BETA	pCi/g	27.000		30.000		13.000		14.000		13.000		16.000	
URANIUM-233/234	pCi/g	0.200	U	0.220	J	0.590		0.450		0.570		0.840	
URANIUM-235	pCi/g	0.200	UR	0.200	U	0.200	UR	0.300	UR	0.200	UR	0.200	UR
URANIUM-238	pCi/g	0.200	U	0.200	J	0.440		0.260	J	0.520		1.100	
PLUTONIUM-238	pCi/g	0.040	U	0.050	U	0.060	U	0.060	U	0.040	U	0.040	U
PLUTONIUM-239	pCi/g	0.030	U	0.030	U	0.040	U	0.020	U	0.020	U	0.010	U
AMERICIUM-241	pCi/g	0.090	U	0.030	U	0.030	U	0.100	UR	0.050	U	0.050	U
STRONTIUM-90	pCi/g	0.100	U	0.900	U	0.200	U	0.200	U	0.100	U	0.800	U
POTASSIUM-40	pCi/g	22.000		23.000		12.000		12.000		15.000		15.000	
IRON-59	pCi/g	0.400	U	0.400	U	0.300	U	0.100	U	0.200	U	0.200	U
CHROMIUM-51	pCi/g	2.000	U	2.000	U	2.000	U	0.800	U	0.900	U	1.000	U
COBALT-60	pCi/g	0.050	U	0.060	U	0.050	U	0.020	U	0.040	U	0.020	U
ZINC-65	pCi/g	0.200	U	0.200	U	0.100	U	0.060	U	0.080	U	0.080	U
RUTHENIUM-106	pCi/g	0.400	U	0.400	U	0.400	U	0.200	U	0.200	U	0.200	U
CESIUM-134	pCi/g	0.050	U	0.060	U	0.050	U	0.040	U	0.030	U	0.030	U
CESIUM-137	pCi/g	0.040	UJ	0.050	U	0.050	UJ	0.031	J	0.058	J	0.020	UJ
EUROPIUM-152	pCi/g	0.090	UJ	0.070	U	0.090	UJ	0.050	UJ	0.050	UJ	0.050	UJ
EUROPIUM-154	pCi/g	0.060	UJ	0.050	U	0.060	UJ	0.030	UJ	0.030	UJ	0.040	UJ
RADIUM-226	pCi/g	0.280		0.240		0.510		0.520		0.580		0.700	
THORIUM-228	pCi/g	0.550		0.460		1.100		0.820		1.000		1.400	
THORIUM-232	pCi/g	0.510		0.340		0.750		0.790		0.950		1.100	
EUROPIUM-155	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
MANGANESE-54	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
TECHNETIUM-99	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
URANIUM-238 GAMMA SCAN	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
COBALT-58	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
CERIUM-144	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
NEPTUNIUM-237	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-231	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-234	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-228	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-223	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	

Parameter	Samp#	B07ND0		B07NC9		B07NF0		B07NF1		B07NF2		B07NH1	
	Date	11-17-92		11-17-92		11-19-92		11-19-92		11-19-92		11-23-92	
	Site	SITE D/H		SITE D/H		SITE D4		SITE D5		SITE D5		SITE DA1	
	Depth	0.00 - 6.00		12.00 - 18.00		0.00 - 6.00		0.00 - 6.00		12.00 - 18.00		0.00 - 6.00	
	Type												
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Radionuclides													
GROSS ALPHA	pCi/g	8.000	UJ	16.000	J	8.700	J	5.700	J	8.000	U	7.700	J
GROSS BETA	pCi/g	12.000		20.000		12.000		9.000	J	12.000		14.000	
URANIUM-233/234	pCi/g	0.820		0.990		0.840		0.440		0.370		0.900	
URANIUM-235	pCi/g	0.200	U	0.085	J	0.200	UR	0.300	UR	0.200	UR	0.200	U
URANIUM-238	pCi/g	0.680		0.950		0.690		0.440		0.580		0.980	
PLUTONIUM-238	pCi/g	0.090	UR	0.040	U	0.040	U	0.060	U	0.020	U	0.040	U
PLUTONIUM-239	pCi/g	0.050	UR	0.020	U	0.030	U	0.020	U	0.020	U	0.020	U
AMERICIUM-241	pCi/g	0.030	UR	0.030	UR	0.030	U	0.040	U	0.030	U	0.040	U
STRONTIUM-90	pCi/g	0.900	U	0.900	U	0.200	U	0.200	U	0.200	U	1.000	U
POTASSIUM-40	pCi/g	11.000		14.000		8.400		12.000		13.000		14.000	
IRON-59	pCi/g	0.300	U	0.300	U	0.400	U	0.300	U	0.400	U	0.600	U
CHROMIUM-51	pCi/g	2.000	U	2.000	U	3.000	U	2.000	U	3.000	U	4.000	U
COBALT-60	pCi/g	0.062		0.130		0.330		0.200		0.089		0.100	
ZINC-65	pCi/g	0.100	U	0.200	U	0.200	U	0.200	U	0.200	U	0.200	U
RUTHENIUM-106	pCi/g	0.400	U	0.400	U	0.500	U	0.500	U	0.500	U	0.700	U
CESIUM-134	pCi/g	0.060	U	0.060	U	0.070	U	0.060	U	0.060	U	0.089	
CESIUM-137	pCi/g	0.240	J	0.071	J	0.560	J	0.480	J	1.300	J	0.910	
EUROPIUM-152	pCi/g	0.110		0.370		0.410	J	0.350	J	0.900	J	0.790	
EUROPIUM-154	pCi/g	N/R		0.200	U	0.300	UJ	0.200	UJ	0.400	UJ	0.300	U
RADIUM-226	pCi/g	0.770		1.000		0.550		0.540		0.610		0.980	
THORIUM-228	pCi/g	1.200		1.700		0.840		0.910		0.950		1.500	
THORIUM-232	pCi/g	1.200		1.600		0.710		0.740		0.930		1.200	
EUROPIUM-155	pCi/g	N/R		0.180		N/R		N/R		N/R		N/R	
MANGANESE-54	pCi/g	N/R		N/R		0.057		N/R		N/R		N/R	
TECHNETIUM-99	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
URANIUM-238 GAMMA SCAN	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
COBALT-58	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
CERIUM-144	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
NEPTUNIUM-237	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-231	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-234	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-228	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-223	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	

Parameter	Sampl# / Date / Site / Depth / Type	B07NH2 11-23-92 SITE DA1 12.00 - 20.00		B07ND4 11-19-92 SITE DI1 0.00 - 6.00		B07ND7 11-19-92 SITE DI1 0.00 - 6.00 Duplicate		B07ND6 11-19-92 SITE DI2 0.00 - 6.00		B07ND8 11-19-92 SITE DI2 12.00 - 20.00		B07NH5 11-24-92 SITE DI3 0.00 - 6.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Radionuclides													
GROSS ALPHA	pCi/g	11.000		4.900	J	4.500	J	6.200	J	7.500	J	5.300	J
GROSS BETA	pCi/g	22.000		17.000		13.000		14.000		18.000		17.000	
URANIUM-233/234	pCi/g	2.600		0.580		0.440		0.290	J	0.460		0.490	
URANIUM-235	pCi/g	0.200	U	0.200	UR	0.200	UR	0.300	UR	0.200	UR	0.200	U
URANIUM-238	pCi/g	2.000		0.680		0.440		0.490		0.460		0.300	
PLUTONIUM-238	pCi/g	0.050	U	0.050	U	0.030	U	0.030	U	0.050	U	0.050	U
PLUTONIUM-239	pCi/g	0.020	U	0.030	U	0.010	U	0.020	U	0.030	U	0.020	U
AMERICIUM-241	pCi/g	0.040	U	0.060	U	0.030	U	0.030	U	0.040	U	0.030	U
STRONTIUM-90	pCi/g	1.000	U	0.200	U	0.200	U	0.200	U	0.200	U	0.700	U
POTASSIUM-40	pCi/g	15.000		14.000		13.000		15.000		17.000		15.000	
IRON-59	pCi/g	0.500	U	0.300	U	0.300	U	0.300	U	0.300	U	0.400	U
CHROMIUM-51	pCi/g	4.000	U	2.000	U	2.000	U	2.000	U	2.000	U	2.000	U
COBALT-60	pCi/g	0.060	U	0.180		0.190		0.060	U	0.050	U	0.250	
ZINC-65	pCi/g	0.200	U	0.200	U	0.200	U	0.100	U	0.200	U	0.200	U
RUTHENIUM-106	pCi/g	0.700	U	0.400	U	0.400	U	0.400	U	0.400	U	0.500	U
CESIUM-134	pCi/g	0.090	U	0.050	U	0.060	U	0.060	U	0.060	U	0.060	U
CESIUM-137	pCi/g	0.070	U	0.560	J	0.620	J	0.100	J	0.040	UJ	0.500	
EUROPIUM-152	pCi/g	0.200	U	0.220	J	0.250	J	0.100	UJ	0.090	UJ	0.320	
EUROPIUM-154	pCi/g	0.100	U	0.100	UJ	0.200	UJ	0.070	UJ	0.060	UJ	0.200	U
RADIUM-226	pCi/g	1.300		0.460		0.480		0.580		0.500		0.590	
THORIUM-228	pCi/g	2.500		0.500		0.530		0.880		0.690		0.780	
THORIUM-232	pCi/g	2.300		0.580		0.500		0.840		0.890		0.510	
EUROPIUM-155	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
MANGANESE-54	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
TECHNETIUM-99	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
URANIUM-238 GAMMA SCAN	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
COBALT-58	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
CERIUM-144	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
NEPTUNIUM-237	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-231	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-234	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-228	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-223	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	

Parameter	Samp#	B07NH6		B07NH7		B07NB7		B07NB8		B07NB9		B07NC4	
	Date	11-24-92		11-24-92		11-12-92		11-12-92		11-12-92		11-16-92	
	Site	SITE DI3		SITE DI3		SITE F2		SITE F3		SITE F3		SITE F4	
	Depth	0.00 - 6.00		0.00 - 6.00		0.00 - 6.00		0.00 - 6.00		12.00 - 24.00		0.00 - 6.00	
	Type	Duplicate		Split									
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Radionuclides													
GROSS ALPHA	pCi/g	5.000	U	N/R		5.000	UJ	9.800	J	21.000	J	33.000	J
GROSS BETA	pCi/g	16.000		15.700	J	15.000		17.000		23.000		25.000	
URANIUM-233/234	pCi/g	0.440		N/R		1.100		0.790		1.000		1.600	
URANIUM-235	pCi/g	0.200	U	0.017	J	0.200	U	0.200	U	0.100	U	0.200	U
URANIUM-238	pCi/g	0.360		0.365	UJ	0.930		0.640		1.300		2.000	
PLUTONIUM-238	pCi/g	0.070	U	N/R		0.070	UR	0.040	U	0.080	U	0.080	U
PLUTONIUM-239	pCi/g	0.030	U	0.187	UJ	0.030	UR	0.040	U	0.060	U	0.040	U
AMERICIUM-241	pCi/g	0.060	U	0.242	J	0.040	UR	0.030	UR	0.070	UR	0.030	UR
STRONTIUM-90	pCi/g	0.700	U	0.837	UJ	0.900	U	0.900	U	0.800	U	1.000	U
POTASSIUM-40	pCi/g	13.000		17.800	J	16.000		14.000		15.000		14.000	
IRON-59	pCi/g	0.400	U	0.054	UJ	0.400	U	0.300	U	0.300	U	0.400	U
CHROMIUM-51	pCi/g	3.000	U	N/R		2.000	U	2.000	U	2.000	U	3.000	U
COBALT-60	pCi/g	0.200		0.216	J	0.080	U	0.090	U	0.050	U	0.080	U
ZINC-65	pCi/g	0.200	U	N/R		0.200	U	0.200	U	0.100	U	0.200	U
RUTHENIUM-106	pCi/g	0.500	U	N/R		0.600	U	0.500	U	0.500	U	0.800	U
CESIUM-134	pCi/g	0.060	U	0.006	UJ	0.090	U	0.060	U	0.060	U	0.100	U
CESIUM-137	pCi/g	0.540		0.519	J	0.330	J	0.260		0.190	J	0.140	J
EUROPIUM-152	pCi/g	0.320		0.269	J	0.280		0.180		0.200		0.200	U
EUROPIUM-154	pCi/g	0.200	U	0.041	J	0.300	U	0.200	U	0.200	U	0.100	U
RADIUM-226	pCi/g	0.540		N/R		0.920		0.780		0.980		1.700	
THORIUM-228	pCi/g	0.590		N/R		1.700		1.100		2.000		4.400	
THORIUM-232	pCi/g	0.600		N/R		1.800		1.200		1.900		3.200	
EUROPIUM-155	pCi/g	N/R		0.043	J	N/R		N/R		N/R		N/R	
MANGANESE-54	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
TECHNETIUM-99	pCi/g	N/R		N/R		N/R		0.300	U	0.200	U	N/R	
URANIUM-238 GAMMA SCAN	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
COBALT-58	pCi/g	N/R		0.014	UJ	N/R		N/R		N/R		N/R	
CERIUM-144	pCi/g	N/R		0.049	UJ	N/R		N/R		N/R		N/R	
NEPTUNIUM-237	pCi/g	N/R		0.482	J	N/R		N/R		N/R		N/R	
THORIUM-231	pCi/g	N/R		0.294	J	N/R		N/R		N/R		N/R	
THORIUM-234	pCi/g	N/R		0.687	J	N/R		N/R		N/R		N/R	
RADIUM-228	pCi/g	N/R		0.542	J	N/R		N/R		N/R		N/R	
RADIUM-223	pCi/g	N/R		0.033	UJ	N/R		N/R		N/R		N/R	

Parameter	Sampl# / Date / Site / Depth / Type	B07NC5 11-16-92 SITE F4 12.00 - 16.00		B07NH3 11-23-92 SITE FF1 0.00 - 6.00		B07NH4 11-23-92 SITE FF1 12.00 - 20.00		B07NG9 11-23-92 SITE FI1 0.00 - 6.00		B07NH0 11-23-92 SITE FI1 12.00 - 18.00		B07NC0 11-13-92 SITE H1 0.00 - 6.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Radionuclides													
GROSS ALPHA	pCi/g	6.900	J	7.400	J	5.000	U	4.700	J	5.000	U	6.000	UJ
GROSS BETA	pCi/g	16.000		12.000		19.000		10.000		18.000		18.000	
URANIUM-233/234	pCi/g	1.400		0.510		0.800		0.770		0.880		0.790	
URANIUM-235	pCi/g	0.200	U	0.200	U	0.100	U	0.200	U	0.200	U	0.200	U
URANIUM-238	pCi/g	0.840		0.750		0.690		0.490		0.700		0.770	
PLUTONIUM-238	pCi/g	0.040	U	0.060	U	0.050	U	0.070	U	0.050	U	0.070	U
PLUTONIUM-239	pCi/g	0.020	U	0.020	U	0.020	U	0.040	U	0.020	U	0.040	U
AMERICIUM-241	pCi/g	0.010	UR	0.020	U	0.030	U	0.040	U	0.040	U	0.030	UR
STRONTIUM-90	pCi/g	1.000	U	0.900	U	0.800	U	0.800	U	1.000	U	0.800	U
POTASSIUM-40	pCi/g	15.000		15.000		17.000		15.000		15.000		14.000	
IRON-59	pCi/g	0.300	U	0.300	U	0.500	U	0.500	U	0.400	U	0.400	U
CHROMIUM-51	pCi/g	2.000	U	2.000	U	3.000	U	3.000	U	3.000	U	3.000	U
COBALT-60	pCi/g	0.060	U	0.060	U	0.060	U	0.360		0.076		0.380	
ZINC-65	pCi/g	0.100	U	0.100	U	0.200	U	0.200	U	0.200	U	0.200	U
RUTHENIUM-106	pCi/g	0.500	U	0.500	U	0.500	U	0.600	U	0.500	U	0.600	U
CESIUM-134	pCi/g	0.050	U	0.100	U	0.070	U	0.070	U	0.070	U	0.070	U
CESIUM-137	pCi/g	0.050	UJ	0.050	U	0.070	U	0.830		0.160		4.600	J
EUROPIUM-152	pCi/g	0.100	U	0.100	U	0.100	U	0.920		0.300		1.800	
EUROPIUM-154	pCi/g	0.090	U	0.070	U	0.070	U	0.160		0.200	U	0.240	
RADIUM-226	pCi/g	0.810		0.670		0.820		0.690		0.670		0.850	
THORIUM-228	pCi/g	1.600		0.940		1.100		1.100		0.990		0.900	
THORIUM-232	pCi/g	1.500		0.830		1.000		0.980		0.920		0.960	
EUROPIUM-155	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
MANGANESE-54	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
TECHNETIUM-99	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
URANIUM-238 GAMMA SCAN	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
COBALT-58	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
CERIUM-144	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
NEPTUNIUM-237	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-231	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-234	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-228	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-223	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	

Parameter	Samp# / Date / Site / Depth / Type	B07NC1 11-13-92 SITE H1 12.00 - 18.00		B07NC2 11-13-92 SITE H2 0.00 - 6.00		B07NC3 11-13-92 SITE H3 0.00 - 6.00		B07NC6 11-16-92 SITE HAN1 0.00 - 6.00		B07NC7 11-16-92 SITE HAN1 12.00 - 16.00		B07ND2 11-17-92 SITE HAN2 0.00 - 6.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Radionuclides													
GROSS ALPHA	pCi/g	26.000	J	27.000	J	13.000	J	9.000	J	6.300	J	6.000	UJ
GROSS BETA	pCi/g	23.000		20.000		21.000		19.000		21.000		16.000	
URANIUM-233/234	pCi/g	2.300		1.200		1.400		0.600		0.850		0.730	
URANIUM-235	pCi/g	0.100	U	0.200	U	0.200	U	0.200	U	0.200	U	0.110	J
URANIUM-238	pCi/g	2.300		1.200		1.200		0.480		0.870		0.750	
PLUTONIUM-238	pCi/g	0.060	U	0.100	UR	0.050	U	0.040	U	0.060	UR	0.070	U
PLUTONIUM-239	pCi/g	0.030	U	0.070	UR	0.030	U	0.020	U	0.040	UR	0.040	U
AMERICIUM-241	pCi/g	0.020	UR	0.020	UR	0.050	UR	0.020	UR	0.040	UR	0.040	UR
STRONTIUM-90	pCi/g	0.900	U	0.900	U	1.000	U	1.000	U	0.800	U	0.900	U
POTASSIUM-40	pCi/g	13.000		14.000		14.000		16.000		17.000		14.000	
IRON-59	pCi/g	0.300	U	0.400	U	0.300	U	0.300	U	0.300	U	0.300	U
CHROMIUM-51	pCi/g	2.000	U	3.000	U	2.000	U	2.000	U	2.000	U	2.000	U
COBALT-60	pCi/g	0.050	U	0.090		0.070	U	0.070	U	0.060	U	0.056	
ZINC-65	pCi/g	0.200	U	0.200	U	0.200	U	0.200	U	0.200	U	0.200	U
RUTHENIUM-106	pCi/g	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U	0.500	U
CESIUM-134	pCi/g	0.070	U	0.090	U	0.070	U	0.060	U	0.070	U	0.070	U
CESIUM-137	pCi/g	0.520	J	0.430	J	0.330	J	0.074	J	0.060	UJ	1.000	J
EUROPIUM-152	pCi/g	20.000	U	0.470		0.230		0.100	U	0.100	U	0.820	
EUROPIUM-154	pCi/g	0.100	U	0.200	U	0.200	U	0.070	U	0.080	U	0.170	
RADIUM-226	pCi/g	1.400		1.000		0.690		0.670		0.840		0.810	
THORIUM-228	pCi/g	3.000		1.900		1.300		1.100		1.800		1.400	
THORIUM-232	pCi/g	2.500		1.800		1.300		1.200		1.100		1.000	
EUROPIUM-155	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
MANGANESE-54	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
TECHNETIUM-99	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
URANIUM-238 GAMMA SCAN	pCi/g	8.800		N/R		N/R		N/R		N/R		N/R	
COBALT-58	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
CERIUM-144	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
NEPTUNIUM-237	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-231	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-234	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-228	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-223	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	

Parameter	Sampl# / Date / Site / Depth / Type	B07ND3 11-17-92 SITE HAN2 12.00 - 18.00		B07NG3 11-22-92 SITE HU1 0.00 - 6.00		B07NG6 11-22-92 SITE HU1 0.00 - 6.00 Duplicate		B07NG5 11-22-92 SITE HU1 12.00 - 18.00		B07NG7 11-22-92 SITE HU1 12.00 - 18.00 Split		B07NG1 11-21-92 SITE K2 0.00 - 3.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Radionuclides													
GROSS ALPHA	pCi/g	11.000	J	6.000	U	5.000	U	5.000	U	N/R		6.000	U
GROSS BETA	pCi/g	19.000		14.000		9.300	J	13.000		16.000	J	14.000	
URANIUM-233/234	pCi/g	1.300		0.450	R	0.850		0.490		N/R		0.450	
URANIUM-235	pCi/g	0.300	U	0.300	UR	0.200	U	0.100	U	0.022	J	0.200	UR
URANIUM-238	pCi/g	1.000		0.750	R	0.710		0.410		0.464	UJ	0.670	
PLUTONIUM-238	pCi/g	0.050	U	0.040	U	0.040	U	0.040	U	N/R		0.050	U
PLUTONIUM-239	pCi/g	0.030	U	0.020	U	0.020	U	0.020	U	0.071		0.020	U
AMERICIUM-241	pCi/g	0.070	UR	0.030	U	0.040	U	0.040	U	0.080	UJ	0.020	U
STRONTIUM-90	pCi/g	1.000	U	0.800	U	0.800	U	0.900	U	0.914	UJ	0.800	U
POTASSIUM-40	pCi/g	17.000		15.000		14.000		14.000		15.200	J	13.000	
IRON-59	pCi/g	0.300	U	0.500	U	0.500	U	0.500	U	0.054	UJ	0.300	U
CHROMIUM-51	pCi/g	2.000	U	3.000	U	4.000	U	3.000	U	N/R		2.000	U
COBALT-60	pCi/g	0.060	U	0.380		0.370		0.120		0.111	J	0.040	U
ZINC-65	pCi/g	0.200	U	0.200	U	0.200	U	0.200	U	N/R		0.100	U
RUTHENIUM-106	pCi/g	0.500	U	0.600	U	0.600	U	0.600	U	N/R		0.300	U
CESIUM-134	pCi/g	0.080	U	0.070	U	0.080	U	0.070	U	0.008	UJ	0.050	U
CESIUM-137	pCi/g	0.060	UJ	0.760		0.790		1.500		1.610	J	0.110	J
EUROPIUM-152	pCi/g	0.100	U	0.500		0.560		1.500		1.330	J	0.090	UJ
EUROPIUM-154	pCi/g	0.080	U	0.200	U	0.200	U	0.210		0.141	J	0.060	UJ
RADIUM-226	pCi/g	1.200		0.640		0.660		0.650		N/R		0.660	
THORIUM-228	pCi/g	2.100		0.850		0.900		0.880		N/R		1.100	
THORIUM-232	pCi/g	2.100		0.840		0.940		0.930		N/R		0.910	
EUROPIUM-155	pCi/g	N/R		N/R		N/R		N/R		0.035	UJ	N/R	
MANGANESE-54	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
TECHNETIUM-99	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
URANIUM-238 GAMMA SCAN	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
COBALT-58	pCi/g	N/R		N/R		N/R		N/R		0.017	UJ	N/R	
CERIUM-144	pCi/g	N/R		N/R		N/R		N/R		0.060	UJ	N/R	
NEPTUNIUM-237	pCi/g	N/R		N/R		N/R		N/R		0.606	J	N/R	
THORIUM-231	pCi/g	N/R		N/R		N/R		N/R		0.454	J	N/R	
THORIUM-234	pCi/g	N/R		N/R		N/R		N/R		0.812	J	N/R	
RADIUM-228	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-223	pCi/g	N/R		N/R		N/R		N/R		6.960	UJ	N/R	

Parameter	Sampl#	B07NG2		B07NG0		B07NF9		B07NG4		B07NF5		B07NF6	
	Date	11-21-92		11-21-92		11-22-92		11-22-92		11-20-92		11-20-92	
	Site	SITE K3		SITE KU1		SITE KU1		SITE N		SITE VBU1		SITE VBU1	
	Depth	0.00 - 6.00		0.00 - 6.00		12.00 - 18.00		0.00 - 3.00		0.00 - 6.00		12.00 - 22.00	
	Type												
	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Radionuclides													
GROSS ALPHA	pCi/g	15.000		5.200	J	5.400	J	5.000	U	8.300	J	6.100	J
GROSS BETA	pCi/g	16.000		13.000		12.000		15.000		16.000		14.000	
URANIUM-233/234	pCi/g	0.980		0.530		0.770		0.350	R	0.850		0.530	
URANIUM-235	pCi/g	0.200	UR	0.200	UR	0.200	U	0.300	UR	0.200	UR	0.100	UR
URANIUM-238	pCi/g	0.680		0.570		0.960		0.530	R	0.540		0.740	
PLUTONIUM-238	pCi/g	0.020	U	0.040	U	0.030	U	0.030	U	0.100	UR	0.100	UR
PLUTONIUM-239	pCi/g	0.010	U	0.020	U	0.020	U	0.020	U	0.040	UR	0.050	UR
AMERICIUM-241	pCi/g	0.030	U	0.030	U	0.020	U	0.040	U	0.020	U	0.080	UR
STRONTIUM-90	pCi/g	0.900	U	0.900	U	0.800	U	0.900	U	0.700	U	0.900	U
POTASSIUM-40	pCi/g	15.000		13.000		13.000		15.000		16.000		14.000	
IRON-59	pCi/g	0.200	U	0.300	U	0.500	U	0.500	U	0.300	U	0.400	U
CHROMIUM-51	pCi/g	2.000	U	2.000	U	3.000	U	3.000	U	2.000	U	2.000	U
COBALT-60	pCi/g	0.040	U	0.050	U	0.070	U	0.070	U	0.060	U	0.060	U
ZINC-65	pCi/g	0.100	U	0.100	U	0.200	U	0.200	U	0.100	U	0.200	U
RUTHENIUM-106	pCi/g	0.400	U	0.800	U	0.600	U	0.600	U	0.500	U	0.600	U
CESIUM-134	pCi/g	0.050	U	0.060	U	0.080	U	0.070	U	0.070	U	0.080	U
CESIUM-137	pCi/g	0.040	UJ	0.270	J	0.450		0.190		0.050	UJ	0.082	J
EUROPIUM-152	pCi/g	0.080	UJ	0.090	UJ	0.320		0.100	U	0.100	UJ	0.100	UJ
EUROPIUM-154	pCi/g	0.060	UJ	0.060	UJ	0.200	U	0.090	U	0.070	UJ	0.080	UJ
RADIUM-226	pCi/g	0.950		0.710		0.900		0.900		0.780		1.200	
THORIUM-228	pCi/g	1.900		0.910		1.400		1.300		1.300		2.500	
THORIUM-232	pCi/g	1.500		0.890		0.910		1.200		1.200		2.500	
EUROPIUM-155	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
MANGANESE-54	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
TECHNETIUM-99	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
URANIUM-238 GAMMA SCAN	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
COBALT-58	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
CERIUM-144	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
NEPTUNIUM-237	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-231	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
THORIUM-234	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-228	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	
RADIUM-223	pCi/g	N/R		N/R		N/R		N/R		N/R		N/R	

Parameter	Samp# / Date / Site / Depth / Type	B07NF7 11-20-92 SITE VBU2 0.00 - 6.00		B07NF8 11-20-92 SITE VBU3 0.00 - 3.00		B07NB6 11-12-92 SITE_F1 0.00 - 6.00		B07ND5 11-19-92 Unknown 0.00 - 0.00	
	Units	Result	Q	Result	Q	Result	Q	Result	Q
Radionuclides									
GROSS ALPHA	pCi/g	8.400	J	7.500	J	7.000	UJ	4.000	U
GROSS BETA	pCi/g	15.000		16.000		22.000		20.000	
URANIUM-233/234	pCi/g	1.000		1.000		0.670		0.490	
URANIUM-235	pCi/g	0.200	UR	0.100	UR	0.100	U	0.200	UR
URANIUM-238	pCi/g	0.580		0.800		0.880		0.360	
PLUTONIUM-238	pCi/g	0.050	U	0.060	U	0.070	U	0.040	U
PLUTONIUM-239	pCi/g	0.020	U	0.030	U	0.030	U	0.020	U
AMERICIUM-241	pCi/g	0.020	U	0.030	U	0.060	UR	0.040	U
STRONTIUM-90	pCi/g	0.900	U	0.800	U	0.900	U	0.200	U
POTASSIUM-40	pCi/g	15.000		12.000		16.000		15.000	
IRON-59	pCi/g	0.300	U	0.300	U	0.400	U	0.400	U
CHROMIUM-51	pCi/g	2.000	U	2.000	U	2.000	U	2.000	U
COBALT-60	pCi/g	0.050	U	0.040	U	0.060	U	0.410	
ZINC-65	pCi/g	0.100	U	0.100	U	0.200	U	0.200	U
RUTHENIUM-106	pCi/g	0.400	U	0.400	U	0.600	U	0.500	U
CESIUM-134	pCi/g	0.060	U	0.060	U	0.070	U	0.050	U
CESIUM-137	pCi/g	0.040	UJ	0.140	J	0.180	J	0.740	J
EUROPIUM-152	pCi/g	0.100	UJ	0.090	UJ	0.100		0.480	J
EUROPIUM-154	pCi/g	0.060	UJ	0.060	UJ	0.200	U	0.200	UJ
RADIUM-226	pCi/g	0.630		0.600		0.740		0.420	
THORIUM-228	pCi/g	1.300		1.100		1.200		0.460	
THORIUM-232	pCi/g	1.000		0.990		1.100		0.500	
EUROPIUM-155	pCi/g	N/R		N/R		N/R		N/R	
MANGANESE-54	pCi/g	N/R		N/R		N/R		N/R	
TECHNETIUM-99	pCi/g	N/R		N/R		N/R		N/R	
URANIUM-238 GAMMA SCAN	pCi/g	N/R		N/R		N/R		N/R	
COBALT-58	pCi/g	N/R		N/R		N/R		N/R	
CERIUM-144	pCi/g	N/R		N/R		N/R		N/R	
NEPTUNIUM-237	pCi/g	N/R		N/R		N/R		N/R	
THORIUM-231	pCi/g	N/R		N/R		N/R		N/R	
THORIUM-234	pCi/g	N/R		N/R		N/R		N/R	
RADIUM-228	pCi/g	N/R		N/R		N/R		N/R	
RADIUM-223	pCi/g	N/R		N/R		N/R		N/R	

THIS PAGE INTENTIONALLY
LEFT BLANK

APPENDIX D - VALIDATED RADIOCHEMISTRY LABORATORY REPORTS

3312968.1615

THIS PAGE INTENTIONALLY
LEFT BLANK

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

N212017-06

B07NG8

SDG	7136	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212017-06	Client sample id	B07NG8
Dept sample id	7136-006	Matrix	SOIL
Received	12/02/92	Collected	11/23/92
% moisture	0.2	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS Q	TEST
Gross Alpha	Alpha	2.1	3.0	4	10	U	80A
Gross Beta	Beta	30	4.7	5	10		80B
Uranium 233/234		0.22	0.15	0.2	0.3	J	U
Uranium 235	15117-96-1	0.030	0.060	0.2	0.3	U	U
Uranium 238	7440-61-1	0.20	0.15	0.2	0.3	J	U
Plutonium 238	13981-16-3	0.013	0.026	0.05	0.05	U	PU
Plutonium 239/240		-0.003	0.013	0.03	0.05	U	PU
Americium 241	14596-10-2	0.009	0.017	0.03	0.05	U	AM
Strontium 90	10098-97-2	-0.41	0.72	0.9	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	23	1.3				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	U		0.05	0.05	U	GAM
Europium 152	14683-23-9	U		0.07	0.1	U	GAM
Europium 154	15585-10-1	U		0.05	0.1	U	GAM
Radium 226	13982-67-7	0.24	0.079				GAM
Thorium 228	14274-82-9	0.46	0.077				GAM
Thorium 232	7440-29-1	0.34	0.20				GAM

9912968.1616

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/19/93

DATA SHEETS
Page 6
SUMMARY DATA SECTION
Page 20

N211152-10

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07ND1

SDG 7131
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211152-10
Dept sample id 7131-010
Received 11/25/92
% moisture 22.5
Client sample id B07ND1
Matrix SOIL
Collected 11/20/92
Chain of custody id 199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	6.7	4.0	4	10	J	80A
Gross Beta	Beta	13	4.3	6	10		80B
Uranium 233/234		0.59	0.22	0.1	0.3		U
Uranium 235	15117-96-1	0.061	0.082	0.2	0.3	~~U~~ UK	U
Uranium 238	7440-61-1	0.44	0.18	0.1	0.3		U
Plutonium 238	13981-16-3	0.003	0.032	0.06	0.05	U	PU
Plutonium 239/240		0.013	0.019	0.04	0.05	U	PU
Americium 241	14596-10-2	0.013	0.022	0.03	0.05	U	AM
Strontium 90	10098-97-2	-0.66	1.2	0.2		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	12	0.85				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.05	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.05		U	GAM
Cesium 137	10045-97-3	U		0.05	0.05	~~U~~ UJ	GAM
Europium 152	14683-23-9	U		0.09	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.06	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.51	0.099				GAM
Thorium 228	14274-82-9	1.1	0.087				GAM
Thorium 232	7440-29-1	0.75	0.19				GAM

9312968.1912

9/5/1993

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/11/93

DATA SHEETS
Page 2
SUMMARY DATA SECTION
Page 19

N211152-11

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07ND9

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-11	Client sample id	B07ND9
Dept sample id	7131-011	Matrix	SOIL
Received	11/25/92	Collected	11/20/92
% moisture	21.7	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	4.7	4.0	5	10	U	80A
Gross Beta	Beta	14	3.9	5	10		80B
Uranium 233/234		0.45	0.27	0.4	0.3		U
Uranium 235	15117-96-1	0.039	0.079	0.3	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.26	0.20	0.2	0.3	J	U
Plutonium 238	13981-16-3	-0.023	0.020	0.06	0.05	U	PU
Plutonium 239/240		0	0.007	0.02	0.05	U	PU
Americium 241	14596-10-2	-0.027	0.043	0.1	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	-0.011	0.42	0.2		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	12	0.48				GAM
Iron 59		U		0.1	0.05	U	GAM
Chromium 51	14392-02-0	U		0.8		U	GAM
Cobalt 60	10198-40-0	U		0.02	0.05	U	GAM
Zinc 65	17982-39-3	U		0.06		U	GAM
Ruthenium 106	13967-48-1	U		0.2		U	GAM
Cesium 134	17967-70-9	U		0.04		U	GAM
Cesium 137	10045-97-3	0.031	0.017		0.05	~~J~~ J	GAM
Europium 152	14683-23-9	U		0.05	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.03	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.52	0.045				GAM
Thorium 228	14274-82-9	0.82	0.030				GAM
Thorium 232	7440-29-1	0.79	0.077				GAM

9312968.1618

DJ 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

N211152-12

B07NF3

SDG 7131
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211152-12
Dept sample id 7131-012
Received 11/25/92
% moisture 26.0

Client sample id B07NF3
Matrix SOIL
Collected 11/20/92
Chain of custody id 199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	2.2	5.3	8	10	U	80A
Gross Beta	Beta	13	4.2	6	10		80B
Uranium 233/234		0.57	0.21	0.1	0.3		U
Uranium 235	15117-96-1	0.061	0.082	0.2	0.3	~~U~~ UL	U
Uranium 238	7440-61-1	0.52	0.21	0.1	0.3		U
Plutonium 238	13981-16-3	0.009	0.025	0.04	0.05	U	PU
Plutonium 239/240		0	0.006	0.02	0.05	U	PU
Americium 241	14596-10-2	-0.003	0.021	0.05	0.05	U	AM
Strontium 90	10098-97-2	0	0.96	0.1		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	0.55				GAM
Iron 59		U		0.2	0.05	U	GAM
Chromium 51	14392-02-0	U		0.9		U	GAM
Cobalt 60	10198-40-0	U		0.04	0.05	U	GAM
Zinc 65	17982-39-3	U		0.08		U	GAM
Ruthenium 106	13967-48-1	U		0.2		U	GAM
Cesium 134	17967-70-9	U		0.03		U	GAM
Cesium 137	10045-97-3	0.058	0.022		0.05	~~U~~ J	GAM
Europium 152	14683-23-9	U		0.05	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.03	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.58	0.051				GAM
Thorium 228	14274-82-9	1.0	0.036				GAM
Thorium 232	7440-29-1	0.95	0.11				GAM

9/5/1993

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/11/93

DATA SHEETS
Page 12
SUMMARY DATA SECTION
Page 29

N211152-13

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07NF4

SDG 7131
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211152-13
Dept sample id 7131-013
Received 11/25/92
% moisture 21.1
Client sample id B07NF4
Matrix SOIL
Collected 11/20/92
Chain of custody id 199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS Q	TEST
Gross Alpha	Alpha	8.1	5.2	6	10	J	80A
Gross Beta	Beta	16	4.0	5	10		80B
Uranium 233/234		0.84	0.27	0.1	0.3		U
Uranium 235	15117-96-1	0.085	0.086	0.2	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	1.1	0.31	0.1	0.3		U
Plutonium 238	13981-16-3	-0.013	0.019	0.04	0.05	U	PU
Plutonium 239/240		0	0.004	0.01	0.05	U	PU
Americium 241	14596-10-2	-0.006	0.022	0.05	0.05	U	AM
Strontium 90	10098-97-2	0.041	0.22	0.8		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	0.51				GAM
Iron 59		U		0.2	0.05	U	GAM
Chromium 51	14392-02-0	U		1		U	GAM
Cobalt 60	10198-40-0	U		0.02	0.05	U	GAM
Zinc 65	17982-39-3	U		0.08		U	GAM
Ruthenium 106	13967-48-1	U		0.2		U	GAM
Cesium 134	17967-70-9	U		0.03		U	GAM
Cesium 137	10045-97-3	U		0.02	0.05	~~U~~ UJ	GAM
Europium 152	14683-23-9	U		0.05	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.04	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.70	0.049				GAM
Thorium 228	14274-82-9	1.4	0.046				GAM
Thorium 232	7440-29-1	1.1	0.12				GAM

DATA SHEETS
Page 13
SUMMARY DATA SECTION
Page 30

gs 1/8/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/11/93

9312968.1520

TMA NORCAL
REPORTING GROUP 7128

N211148-14	DATA SHEET	B07ND0

SDG	7128	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211148-14	Client sample id	B07ND0
Dept sample id	7128-014	Matrix	SOIL
Received	11/20/92	Collected	11/17/92
% moisture	31.6	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	6.1	6.5	8	10	~~U~~ UJ	BOA
Gross Beta	Beta	12	4.5	6	10		BOB
Uranium 233/234		0.82	0.29	0.2	0.3		U
Uranium 235	15117-96-1	0.027	0.053	0.2	0.3	U	U
Uranium 238	7440-61-1	0.68	0.28	0.2	0.3		U
Plutonium 238	13981-16-3	-0.014	0.029	0.09	0.05	~~U~~ UR	PU
Plutonium 239/240		0.007	0.029	0.05	0.05	~~U~~ UR	PU
Americium 241	14596-10-2	0	0.017	0.03	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	0.17	0.28	0.9	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	11	0.92				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	0.062	0.051		0.05		GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.24	0.053		0.05	— J	GAM
Europium 152	14683-23-9	0.11	0.038		0.1		GAM
Radium 226	13982-67-7	0.77	0.095				GAM
Thorium 228	14274-82-9	1.2	0.069				GAM
Thorium 232	7440-29-1	1.2	0.22				GAM

9312968.1521

DATA SHEETS
Page 14
SUMMARY DATA SECTION
Page 29

GJ 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/04/93

N211148-13

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

B07NC9

SDG	7128	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211148-13	Client sample id	B07NC9
Dept sample id	7128-013	Matrix	SOIL
Received	11/20/92	Collected	11/17/92
% moisture	20.1	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	16	6.8	6	10	— J	80A
Gross Beta	Beta	20	4.7	6	10		80B
Uranium 233/234		0.99	0.19	0.07	0.3		U
Uranium 235	15117-96-1	0.085	0.057	0.07	0.3	J	U
Uranium 238	7440-61-1	0.95	0.19	0.06	0.3		U
Plutonium 238	13981-16-3	0	0.018	0.04	0.05	U	PU
Plutonium 239/240		0.003	0.012	0.02	0.05	U	PU
Americium 241	14596-10-2	-0.006	0.016	0.03	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	-0.31	0.27	0.9	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	0.98				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	0.13	0.063		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.071	0.053		0.05	— J	GAM
Europium 152	14683-23-9	0.37	0.092		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	1.0	0.11				GAM
Thorium 228	14274-82-9	1.7	0.076				GAM
Thorium 232	7440-29-1	1.6	0.24				GAM
Europium 155	14391-16-3	0.18	0.12				GAM

9312969.1622

5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/04/93

DATA SHEETS
Page 13
SUMMARY DATA SECTION
Page 28

N211152-01

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07NF0

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-01	Client sample id	B07NF0
Dept sample id	7131-001	Matrix	SOIL
Received	11/24/92	Collected	11/19/92
% moisture	55.4	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	8.7	5.5	6	10	J	80A
Gross Beta	Beta	12	3.9	5	10		80B
Uranium 233/234		0.84	0.32	0.2	0.3		U
Uranium 235	15117-96-1	0.030	0.060	0.2	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.69	0.27	0.2	0.3		U
Plutonium 238	13981-16-3	0.005	0.021	0.04	0.05	U	PU
Plutonium 239/240		0.003	0.016	0.03	0.05	U	PU
Americium 241	14596-10-2	0.012	0.018	0.03	0.05	U	AM
Strontium 90	10098-97-2	-0.10	0.52	0.2		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	8.4	1.0				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	0.33	0.098		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	0.56	0.067		0.05	— J	GAM
Europium 152	14683-23-9	0.41	0.11		0.1	— J	GAM
Europium 154	15585-10-1	U		0.3	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.55	0.12				GAM
Thorium 228	14274-82-9	0.84	0.12				GAM
Thorium 232	7440-29-1	0.71	0.26				GAM
Manganese 54		0.057	0.034				GAM

9312968.1623

DJ 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

DATA SHEETS
Page 9
SUMMARY DATA SECTION
Page 26

N211152-02

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07NF1

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-02	Client sample id	B07NF1
Dept sample id	7131-002	Matrix	SOIL
Received	11/24/92	Collected	11/19/92
% moisture	23.3	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Gross Alpha	Alpha	5.7	4.0	5	10	J	80A
Gross Beta	Beta	9.0	4.2	6	10	J	80B
Uranium 233/234		0.44	0.23	0.2	0.3		U
Uranium 235	15117-96-1	0.066	0.067	0.3	0.3	~~U~~ UL	U
Uranium 238	7440-61-1	0.44	0.23	0.2	0.3		U
Plutonium 238	13981-16-3	-0.010	0.026	0.06	0.05	U	PU
Plutonium 239/240		0.013	0.013	0.02	0.05	U	PU
Americium 241	14596-10-2	-0.007	0.021	0.04	0.05	U	AM
Strontium 90	10098-97-2	0.11	0.094	0.2		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	12	0.96				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	0.20	0.058		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.48	0.066		0.05	J	GAM
Europium 152	14683-23-9	0.35	0.087		0.1	J	GAM
Europium 154	15585-10-1	U		0.2	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.54	0.097				GAM
Thorium 228	14274-82-9	0.91	0.10				GAM
Thorium 232	7440-29-1	0.74	0.18				GAM

9312968.1624

gj 3/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

DATA SHEETS
Page 10
SUMMARY DATA SECTION
Page 27

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

N211152-03

B07NF2

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-03	Client sample id	B07NF2
Dept sample id	7131-003	Matrix	SOIL
Received	11/24/92	Collected	11/19/92
% moisture	31.3	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	1.7	5.1	8	10	U	80A
Gross Beta	Beta	12	4.0	5	10		80B
Uranium 233/234		0.37	0.18	0.1	0.3		U
Uranium 235	15117-96-1	0.021	0.043	0.2	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.58	0.22	0.1	0.3		U
Plutonium 238	13981-16-3	0.018	0.018	0.02	0.05	U	PU
Plutonium 239/240		0.018	0.018	0.02	0.05	U	PU
Americium 241	14596-10-2	0.004	0.016	0.03	0.05	U	AM
Strontium 90	10098-97-2	-0.005	0.42	0.2		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	13	0.95				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	0.089	0.061		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	1.3	0.094		0.05	J	GAM
Europium 152	14683-23-9	0.90	0.14		0.1	J	GAM
Europium 154	15585-10-1	U		0.4	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.61	0.091				GAM
Thorium 228	14274-82-9	0.95	0.086				GAM
Thorium 232	7440-29-1	0.93	0.23				GAM

9312969.1625

cj 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

DATA SHEETS
Page 11
SUMMARY DATA SECTION
Page 28

N212017-09

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

B07NH1

SDG	7136	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212017-09	Client sample id	B07NH1
Dept sample id	7136-009	Matrix	SOIL
Received	12/02/92	Collected	11/23/92
% moisture	16.7	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	7.7	4.5	4	10	J	80A
Gross Beta	Beta	14	4.2	6	10		80B
Uranium 233/234		0.90	0.31	0.2	0.3		U
Uranium 235	15117-96-1	0.15	0.10	0.2	0.3	U	U
Uranium 238	7440-61-1	0.98	0.32	0.2	0.3		U
Plutonium 238	13981-16-3	-0.006	0.017	0.04	0.05	U	PU
Plutonium 239/240		0.014	0.011	0.02	0.05	U	PU
Americium 241	14596-10-2	0.013	0.022	0.04	0.05	U	AM
Strontium 90	10098-97-2	-0.001	2.3	1	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	1.3				GAM
Iron 59		U		0.6	0.05	U	GAM
Chromium 51	14392-02-0	U		4		U	GAM
Cobalt 60	10198-40-0	0.10	0.072		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.7		U	GAM
Cesium 134	17967-70-9	0.089	0.078				GAM
Cesium 137	10045-97-3	0.91	0.098		0.05		GAM
Europium 152	14683-23-9	0.79	0.14		0.1		GAM
Europium 154	15585-10-1	U		0.3	0.1	U	GAM
Radium 226	13982-67-7	0.98	0.17				GAM
Thorium 228	14274-82-9	1.5	0.10				GAM
Thorium 232	7440-29-1	1.2	0.36				GAM

9312968.1626

gj 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/19/93

DATA SHEETS
Page 9
SUMMARY DATA SECTION
Page 23

N212017-10

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

B07NH2

SDG 7136
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212017-10
Dept sample id 7136-010
Received 12/02/92
% moisture 4.2

Client sample id B07NH2
Matrix SOIL
Collected 11/23/92
Chain of custody id 199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	11	5.5	6	10		80A
Gross Beta	Beta	22	4.4	5	10		80B
Uranium 233/234		2.6	0.50	0.1	0.3		U
Uranium 235	15117-96-1	0.080	0.081	0.2	0.3	U	U
Uranium 238	7440-61-1	2.0	0.43	0.1	0.3		U
Plutonium 238	13981-16-3	0.009	0.031	0.05	0.05	U	PU
Plutonium 239/240		0.012	0.012	0.02	0.05	U	PU
Americium 241	14596-10-2	0.002	0.023	0.04	0.05	U	AM
Strontium 90	10098-97-2	0.17	0.32	1	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	1.2				GAM
Iron 59		U		0.5	0.05	U	GAM
Chromium 51	14392-02-0	U		4		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.7		U	GAM
Cesium 134	17967-70-9	U		0.09		U	GAM
Cesium 137	10045-97-3	U		0.07	0.05	U	GAM
Europium 152	14683-23-9	U		0.2	0.1	U	GAM
Europium 154	15585-10-1	U		0.1	0.1	U	GAM
Radium 226	13982-67-7	1.3	0.14				GAM
Thorium 228	14274-82-9	2.5	0.12				GAM
Thorium 232	7440-29-1	2.3	0.35				GAM

9312968.1627

5/18/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/19/93

DATA SHEETS
Page 10
SUMMARY DATA SECTION
Page 24

N211152-04

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07ND4

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-04	Client sample id	B07ND4
Dept sample id	7131-004	Matrix	SOIL
Received	11/24/92	Collected	11/19/92
% moisture	20.2	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	4.9	3.7	4	10	J	80A
Gross Beta	Beta	17	4.1	5	10		80B
Uranium 233/234		0.58	0.22	0.2	0.3		U
Uranium 235	15117-96-1	-0.021	0.042	0.2	0.3	UK	U
Uranium 238	7440-61-1	0.68	0.23	0.1	0.3		U
Plutonium 238	13981-16-3	-0.011	0.015	0.05	0.05	U	PU
Plutonium 239/240		0	0.007	0.03	0.05	U	PU
Americium 241	14596-10-2	0	0.027	0.06	0.05	U	AM
Strontium 90	10098-97-2	-0.47	1.4	0.2		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	1.0				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	0.18	0.052		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.05		U	GAM
Cesium 137	10045-97-3	0.56	0.065		0.05	J	GAM
Europium 152	14683-23-9	0.22	0.073		0.1	J	GAM
Europium 154	15585-10-1	U		0.1	0.1	UJ	GAM
Radium 226	13982-67-7	0.46	0.066				GAM
Thorium 228	14274-82-9	0.50	0.076				GAM
Thorium 232	7440-29-1	0.58	0.19				GAM

93128968.1520

cj 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

N211152-07

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07ND7

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-07	Client sample id	B07ND7
Dept sample id	7131-007	Matrix	SOIL
Received	11/24/92	Collected	11/19/92
% moisture	19.8	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	4.5	3.5	4	10	J	80A
Gross Beta	Beta	13	3.9	5	10		80B
Uranium 233/234		0.44	0.20	0.1	0.3		U
Uranium 235	15117-96-1	0.023	0.092	0.2	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.44	0.20	0.1	0.3		U
Plutonium 238	13981-16-3	-0.007	0.011	0.03	0.05	U	PU
Plutonium 239/240		0.005	0.007	0.01	0.05	U	PU
Americium 241	14596-10-2	0.007	0.019	0.03	0.05	U	AM
Strontium 90	10098-97-2	-0.076	0.46	0.2		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	13	1.1				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	0.19	0.065		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.62	0.069		0.05	— J	GAM
Europium 152	14683-23-9	0.25	0.077		0.1	— J	GAM
Europium 154	15585-10-1	U		0.2	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.48	0.087				GAM
Thorium 228	14274-82-9	0.53	0.055				GAM
Thorium 232	7440-29-1	0.50	0.16				GAM

9312968.1629

DATA SHEETS
Page 6
SUMMARY DATA SECTION
Page 23

5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

N211152-06

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07ND6

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-06	Client sample id	B07ND6
Dept sample id	7131-006	Matrix	SOIL
Received	11/24/92	Collected	11/19/92
% moisture	4.4	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	6.2	3.8	4	10	J	80A
Gross Beta	Beta	14	4.4	6	10		80B
Uranium 233/234		0.29	0.18	0.2	0.3	J	U
Uranium 235	15117-96-1	0.035	0.070	0.3	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.49	0.24	0.2	0.3		U
Plutonium 238	13981-16-3	0.002	0.014	0.03	0.05	U	PU
Plutonium 239/240		0.002	0.010	0.02	0.05	U	PU
Americium 241	14596-10-2	-0.009	0.009	0.03	0.05	U	AM
Strontium 90	10098-97-2	0	0.98	0.2		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	1.0				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.10	0.046		0.05	— J	GAM
Europium 152	14683-23-9	U		0.1	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.07	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.58	0.10				GAM
Thorium 228	14274-82-9	0.88	0.076				GAM
Thorium 232	7440-29-1	0.84	0.18				GAM

9312968.1630

DATA SHEETS
Page 5
SUMMARY DATA SECTION
Page 22

5/15/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

N211152-08

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07ND8

SDG 7131
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211152-08
Dept sample id 7131-008
Received 11/24/92
% moisture 1.1

Client sample id B07ND8
Matrix SOIL
Collected 11/19/92
Chain of custody id 199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	7.5	4.8	5	10	J	80A
Gross Beta	Beta	18	4.2	5	10		80B
Uranium 233/234		0.46	0.21	0.2	0.3		U
Uranium 235	15117-96-1	0.024	0.048	0.2	0.3	~~U~~ UL	U
Uranium 238	7440-61-1	0.46	0.21	0.2	0.3		U
Plutonium 238	13981-16-3	0.005	0.026	0.05	0.05	U	PU
Plutonium 239/240		0	0.011	0.03	0.05	U	PU
Americium 241	14596-10-2	0.014	0.023	0.04	0.05	U	AM
Strontium 90	10098-97-2	0	1.0	0.2		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	17	1.2				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.05	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	U		0.04	0.05	~~U~~ UJ	GAM
Europium 152	14683-23-9	U		0.09	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.06	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.50	0.095				GAM
Thorium 228	14274-82-9	0.69	0.058				GAM
Thorium 232	7440-29-1	0.89	0.23				GAM

93129B.691

CJ 5/18/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/11/93

DATA SHEETS
Page 7
SUMMARY DATA SECTION
Page 24

N212017-13

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

B07NH5

SDG	7136	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212017-13	Client sample id	B07NH5
Dept sample id	7136-013	Matrix	SOIL
Received	12/02/92	Collected	11/24/92
% moisture	25.4	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	5.3	4.4	5	10	J	80A
Gross Beta	Beta	17	4.6	6	10		80B
Uranium 233/234		0.49	0.21	0.1	0.3		U
Uranium 235	15117-96-1	0.020	0.041	0.2	0.3	U	U
Uranium 238	7440-61-1	0.30	0.14	0.1	0.3		U
Plutonium 238	13981-16-3	-0.012	0.023	0.05	0.05	U	PU
Plutonium 239/240		0	0.006	0.02	0.05	U	PU
Americium 241	14596-10-2	0.011	0.018	0.03	0.05	U	AM
Strontium 90	10098-97-2	-0.087	0.60	0.7	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	0.96				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	0.25	0.057		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.50	0.068		0.05		GAM
Europium 152	14683-23-9	0.32	0.099		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	0.59	0.10				GAM
Thorium 228	14274-82-9	0.78	0.11				GAM
Thorium 232	7440-29-1	0.51	0.22				GAM

9312968.1632

SJ 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/19/93

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

N212017-14

B07NH6

SDG	7136	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212017-14	Client sample id	B07NH6
Dept sample id	7136-014	Matrix	SOIL
Received	12/02/92	Collected	11/24/92
% moisture	23.6	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	1.6	3.4	5	10	U	80A
Gross Beta	Beta	16	4.0	5	10		80B
Uranium 233/234		0.44	0.22	0.2	0.3		U
Uranium 235	15117-96-1	0	0.063	0.2	0.3	U	U
Uranium 238	7440-61-1	0.36	0.21	0.2	0.3		U
Plutonium 238	13981-16-3	-0.011	0.029	0.07	0.05	~~U~~ ~~UR~~ U	PU
Plutonium 239/240		0	0.007	0.03	0.05	~~U~~ ~~UR~~ U	PU
Americium 241	14596-10-2	0.010	0.030	0.06	0.05	~~U~~ ~~UR~~ U	AM
Strontium 90	10098-97-2	0.069	0.19	0.7	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	13	1.1				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	0.20	0.062		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.54	0.071		0.05		GAM
Europium 152	14683-23-9	0.32	0.086		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	0.54	0.10				GAM
Thorium 228	14274-82-9	0.59	0.061				GAM
Thorium 232	7440-29-1	0.60	0.21				GAM

9312968.1693

DATA SHEETS
Page 14
SUMMARY DATA SECTION
Page 28

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/19/93

N211148-02

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

B07NB7

SDG	7128	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211148-02	Client sample id	B07NB7
Dept sample id	7128-002	Matrix	SOIL
Received	11/17/92	Collected	11/12/92
% moisture	22.5	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	4.3	3.9	5	10	~~U~~ UJ	BOA
Gross Beta	Beta	15	4.3	6	10		BOB
Uranium 233/234		1.1	0.36	0.2	0.3		U
Uranium 235	15117-96-1	0	0.056	0.2	0.3	U	U
Uranium 238	7440-61-1	0.93	0.31	0.2	0.3		U
Plutonium 238	13981-16-3	0.022	0.043	0.07	0.05	~~U~~ UR	PU
Plutonium 239/240		0	0.009	0.03	0.05	~~U~~ UR	PU
Americium 241	14596-10-2	-0.007	0.018	0.04	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	0.045	0.23	0.9	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	16	1.2				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.08	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.6		U	GAM
Cesium 134	17967-70-9	U		0.09		U	GAM
Cesium 137	10045-97-3	0.33	0.067		0.05	— J	GAM
Europium 152	14683-23-9	0.28	0.12		0.1		GAM
Europium 154	15585-10-1	U		0.3	0.1	U	GAM
Radium 226	13982-67-7	0.92	0.13				GAM
Thorium 228	14274-82-9	1.7	0.091				GAM
Thorium 232	7440-29-1	1.8	0.36				GAM

9312968.1634

DATA SHEETS
Page 2
SUMMARY DATA SECTION
Page 17

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/04/93

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

N211148-03

B07NB8

SDG 7128
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-03
Dept sample id 7128-003
Received 11/17/92
% moisture 28.5

Client sample id B07NB8
Matrix SOIL
Collected 11/12/92
Chain of custody id 199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	9.8	5.0	5	10	J	80A
Gross Beta	Beta	17	3.9	5	10		80B
Uranium 233/234		0.79	0.26	0.1	0.3		U
Uranium 235	15117-96-1	0.12	0.085	0.2	0.3	U	U
Uranium 238	7440-61-1	0.64	0.22	0.2	0.3		U
Plutonium 238	13981-16-3	0.012	0.024	0.04	0.05	U	PU
Plutonium 239/240		0.004	0.016	0.04	0.05	U	PU
Americium 241	14596-10-2	0.002	0.018	0.03	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	0.067	0.25	0.9	1	U	Y
Technetium 99	14133-76-7	-0.078	0.11	0.3	0.5	U	TC
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	1.2				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.09	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.26	0.067		0.05	— J	GAM
Europium 152	14683-23-9	0.18	0.098		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	0.78	0.12				GAM
Thorium 228	14274-82-9	1.1	0.075				GAM
Thorium 232	7440-29-1	1.2	0.26				GAM

9312968.1595

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

DATA SHEETS
Page 3
SUMMARY DATA SECTION
Page 18

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

N211148-04

B07NB9

SDG 7128
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-04
Dept sample id 7128-004
Received 11/17/92
% moisture 24.6
Client sample id B07NB9
Matrix SOIL
Collected 11/12/92
Chain of custody id 199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	21	7.9	7	10	— J	80A
Gross Beta	Beta	23	4.2	5	10		80B
Uranium 233/234		1.0	0.27	0.1	0.3		U
Uranium 235	15117-96-1	0.036	0.037	0.1	0.3	U	U
Uranium 238	7440-61-1	1.3	0.31	0.1	0.3		U
Plutonium 238	13981-16-3	-0.006	0.037	0.08	0.05	U	PU
Plutonium 239/240		-0.006	0.025	0.06	0.05	U	PU
Americium 241	14596-10-2	0	0.039	0.07	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	-0.23	1.1	0.8	1	U	Y
Technetium 99	14133-76-7	0.015	0.075	0.2	0.5	U	TC
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	0.97				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.05	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.19	0.047		0.05	— J	GAM
Europium 152	14683-23-9	0.20	0.081		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	0.98	0.10				GAM
Thorium 228	14274-82-9	2.0	0.10				GAM
Thorium 232	7440-29-1	1.9	0.19				GAM

9312968.1636

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

DATA SHEETS
Page 4
SUMMARY DATA SECTION
Page 19

N211148-09

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

B07NC4

SDG 7128
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-09
Dept sample id 7128-009
Received 11/19/92
% moisture 27.3
Client sample id B07NC4
Matrix SOIL
Collected 11/16/92
Chain of custody id 199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	33	9.1	7	10	— ~~RJ~~	80A
Gross Beta	Beta	25	4.4	5	10		80B
Uranium 233/234		1.6	0.38	0.2	0.3		U
Uranium 235	15117-96-1	0.16	0.12	0.2	0.3	U	U
Uranium 238	7440-61-1	2.0	0.43	0.1	0.3		U
Plutonium 238	13981-16-3	0.028	0.046	0.08	0.05	U	PU
Plutonium 239/240		0.014	0.018	0.04	0.05	U	PU
Americium 241	14596-10-2	-0.002	0.013	0.03	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	0.26	0.31	1	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	1.3				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	U		0.08	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.8		U	GAM
Cesium 134	17967-70-9	U		0.1		U	GAM
Cesium 137	10045-97-3	0.14	0.064		0.05	— J	GAM
Europium 152	14683-23-9	U		0.2	0.1	U	GAM
Europium 154	15585-10-1	U		0.1	0.1	U	GAM
Radium 226	13982-67-7	1.7	0.18				GAM
Thorium 228	14274-82-9	4.4	0.21				GAM
Thorium 232	7440-29-1	3.2	0.40				GAM

9312968.1637

GJ 5/18/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

DATA SHEETS
Page 9
SUMMARY DATA SECTION
Page 24

TMA NORCAL
REPORTING GROUP 7128

N211148-10

DATA SHEET

B07NC5

SDG	7128	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211148-10	Client sample id	B07NC5
Dept sample id	7128-010	Matrix	SOIL
Received	11/19/92	Collected	11/16/92
% moisture	23.0	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	6.9	4.4	5	10	J	80A
Gross Beta	Beta	16	3.8	5	10		80B
Uranium 233/234		1.4	0.36	0.1	0.3		U
Uranium 235	15117-96-1	0.047	0.047	0.2	0.3	U	U
Uranium 238	7440-61-1	0.84	0.29	0.1	0.3		U
Plutonium 238	13981-16-3	-0.003	0.021	0.04	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Americium 241	14596-10-2	0.009	0.012	0.01	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	-0.012	1.3	1	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	1.2				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.05		U	GAM
Cesium 137	10045-97-3	U		0.05	0.05	~~U~~ UJ	GAM
Europium 152	14683-23-9	U		0.1	0.1	U	GAM
Europium 154	15585-10-1	U		0.09	0.1	U	GAM
Radium 226	13982-67-7	0.81	0.13				GAM
Thorium 228	14274-82-9	1.6	0.087				GAM
Thorium 232	7440-29-1	1.5	0.29				GAM

9312968.1638

DATA SHEETS
Page 10
SUMMARY DATA SECTION
Page 25

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/04/93

N212017-11

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

B07NH3

SDG 7136
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212017-11
Dept sample id 7136-011
Received 12/02/92
% moisture 20.7

Client sample id B07NH3
Matrix SOIL
Collected 11/24/92
Chain of custody id 199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Gross Alpha	Alpha	7.4	4.2	4	10	J	80A
Gross Beta	Beta	12	3.8	5	10		80B
Uranium 233/234		0.51	0.22	0.2	0.3		U
Uranium 235	15117-96-1	0.15	0.13	0.2	0.3	U	U
Uranium 238	7440-61-1	0.75	0.26	0.2	0.3		U
Plutonium 238	13981-16-3	-0.018	0.025	0.06	0.05	U	PU
Plutonium 239/240		0	0.006	0.02	0.05	U	PU
Americium 241	14596-10-2	0	0.009	0.02	0.05	U	AM
Strontium 90	10098-97-2	-0.23	0.24	0.9	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	1.1				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.1		U	GAM
Cesium 137	10045-97-3	U		0.05	0.05	U	GAM
Europium 152	14683-23-9	U		0.1	0.1	U	GAM
Europium 154	15585-10-1	U		0.07	0.1	U	GAM
Radium 226	13982-67-7	0.67	0.10				GAM
Thorium 228	14274-82-9	0.94	0.064				GAM
Thorium 232	7440-29-1	0.83	0.17				GAM

5/18/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/19/93

DATA SHEETS
Page 11
SUMMARY DATA SECTION
Page 25

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

N212017-12

B07NH4

SDG	7136	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212017-12	Client sample id	B07NH4
Dept sample id	7136-012	Matrix	SOIL
Received	12/02/92	Collected	11/24/92
% moisture	31.9	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	3.3	4.0	5	10	U	80A
Gross Beta	Beta	19	4.2	5	10		80B
Uranium 233/234		0.80	0.24	0.1	0.3		U
Uranium 235	15117-96-1	0.019	0.038	0.1	0.3	U	U
Uranium 238	7440-61-1	0.69	0.23	0.1	0.3		U
Plutonium 238	13981-16-3	0	0.023	0.05	0.05	U	PU
Plutonium 239/240		0.009	0.012	0.02	0.05	U	PU
Americium 241	14596-10-2	0	0.015	0.03	0.05	U	AM
Strontium 90	10098-97-2	0	1.5	0.8	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	17	1.3				GAM
Iron 59		U		0.5	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	U		0.07	0.05	U	GAM
Europium 152	14683-23-9	U		0.1	0.1	U	GAM
Europium 154	15585-10-1	U		0.07	0.1	U	GAM
Radium 226	13982-67-7	0.82	0.12				GAM
Thorium 228	14274-82-9	1.1	0.076				GAM
Thorium 232	7440-29-1	1.0	0.24				GAM

9312968.1640

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/19/93

DATA SHEETS
Page 12
SUMMARY DATA SECTION
Page 26

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

N212017-07

B07NG9

SDG	7136	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212017-07	Client sample id	B07NG9
Dept sample id	7136-007	Matrix	SOIL
Received	12/02/92	Collected	11/23/92
% moisture	21.7	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	4.7	3.5	4	10	J	BOA
Gross Beta	Beta	10	4.2	6	10		BOB
Uranium 233/234		0.77	0.24	0.1	0.3		U
Uranium 235	15117-96-1	0.045	0.046	0.2	0.3	U	U
Uranium 238	7440-61-1	0.49	0.20	0.1	0.3		U
Plutonium 238	13981-16-3	-0.012	0.031	0.07	0.05	U	PU
Plutonium 239/240		0.019	0.023	0.04	0.05	U	PU
Americium 241	14596-10-2	0.009	0.023	0.04	0.05	U	AM
Strontium 90	10098-97-2	-0.094	1.9	0.8	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	1.1				GAM
Iron 59		U		0.5	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	0.36	0.078		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.6		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	0.83	0.095		0.05		GAM
Europium 152	14683-23-9	0.92	0.17		0.1		GAM
Europium 154	15585-10-1	0.16	0.16		0.1		GAM
Radium 226	13982-67-7	0.69	0.12				GAM
Thorium 228	14274-82-9	1.1	0.097				GAM
Thorium 232	7440-29-1	0.98	0.27				GAM

9312968.1611

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/19/93

DATA SHEETS
Page 7
SUMMARY DATA SECTION
Page 21

N212017-08

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

B07NH0

SDG	7136	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212017-08	Client sample id	B07NH0
Dept sample id	7136-008	Matrix	SOIL
Received	12/02/92	Collected	11/23/92
% moisture	29.0	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	2.9	4.0	5	10	U	80A
Gross Beta	Beta	18	4.2	5	10		80B
Uranium 233/234		0.88	0.27	0.1	0.3		U
Uranium 235	15117-96-1	0.065	0.087	0.2	0.3	U	U
Uranium 238	7440-61-1	0.70	0.23	0.1	0.3		U
Plutonium 238	13981-16-3	0.006	0.023	0.05	0.05	U	PU
Plutonium 239/240		0.011	0.011	0.02	0.05	U	PU
Americium 241	14596-10-2	0.016	0.026	0.04	0.05	U	AM
Strontium 90	10098-97-2	-0.035	0.28	1	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	1.2				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	0.076	0.058		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	0.16	0.058		0.05		GAM
Europium 152	14683-23-9	0.30	0.096		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	0.67	0.11				GAM
Thorium 228	14274-82-9	0.99	0.074				GAM
Thorium 232	7440-29-1	0.92	0.22				GAM

9 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/19/93

DATA SHEETS
Page 8
SUMMARY DATA SECTION
Page 22

9312968.1642

N211148-05

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

B07NC0

SDG 7128
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-05
Dept sample id 7128-005
Received 11/18/92
% moisture 9.8

Client sample id B07NC0
Matrix SOIL
Collected 11/13/92
Chain of custody id 199806_226_02

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	4.5	5.2	6	10	~~U~~ UJ	80A
Gross Beta	Beta	18	4.0	5	10		80B
Uranium 233/234		0.79	0.29	0.2	0.3		U
Uranium 235	15117-96-1	0.082	0.11	0.2	0.3	U	U
Uranium 238	7440-61-1	0.77	0.29	0.2	0.3		U
Plutonium 238	13981-16-3	0.030	0.037	0.07	0.05	U	PU
Plutonium 239/240		0.030	0.022	0.04	0.05	U	PU
Americium 241	14596-10-2	0.002	0.014	0.03	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	0.26	0.59	0.8	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	1.0				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	0.38	0.071		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.6		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	4.6	0.13		0.05	— J	GAM
Europium 152	14683-23-9	1.8	0.15		0.1		GAM
Europium 154	15585-10-1	0.24	0.16		0.1		GAM
Radium 226	13982-67-7	0.85	0.13				GAM
Thorium 228	14274-82-9	0.90	0.073				GAM
Thorium 232	7440-29-1	0.96	0.22				GAM

9312968.1643

DJ 5/18/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

DATA SHEETS
Page 5
SUMMARY DATA SECTION
Page 20

N211148-06

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

B07NC1

SDG	7128	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211148-06	Client sample id	B07NC1
Dept sample id	7128-006	Matrix	SOIL
Received	11/18/92	Collected	11/13/92
% moisture	4.0	Chain of custody id	199806_226_02

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	26	8.8	7	10	— RJ	80A
Gross Beta	Beta	23	4.6	6	10		80B
Uranium 233/234		2.3	0.43	0.1	0.3		U
Uranium 235	15117-96-1	0.096	0.065	0.1	0.3	U	U
Uranium 238	7440-61-1	2.3	0.42	0.1	0.3		U
Plutonium 238	13981-16-3	-0.017	0.027	0.06	0.05	U	PU
Plutonium 239/240		0	0.007	0.03	0.05	U	PU
Americium 241	14596-10-2	0.002	0.011	0.02	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	0.14	0.25	0.9	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	13	0.83				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.05	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	0.52	0.064		0.05	— J	GAM
Europium 152	14683-23-9	U		20	0.1	U	GAM
Europium 154	15585-10-1	U		0.1	0.1	U	GAM
Radium 226	13982-67-7	1.4	0.12				GAM
Thorium 228	14274-82-9	3.0	0.099				GAM
Thorium 232	7440-29-1	2.5	0.24				GAM
URANIUM 238		8.8	6.8				GAM

9312968.1644

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/04/93

N211148-07

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

B07NC2

SDG 7128
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-07
Dept sample id 7128-007
Received 11/18/92
% moisture 28.5

Client sample id B07NC2
Matrix SOIL
Collected 11/13/92
Chain of custody id 199806_226_02

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	27	9.2	9	10	— J	80A
Gross Beta	Beta	20	4.1	5	10		80B
Uranium 233/234		1.2	0.34	0.2	0.3		U
Uranium 235	15117-96-1	0.084	0.084	0.2	0.3	U	U
Uranium 238	7440-61-1	1.2	0.31	0.1	0.3		U
Plutonium 238	13981-16-3	-0.019	0.051	0.1	0.05	~~U~~ UR	PU
Plutonium 239/240		-0.019	0.026	0.07	0.05	~~U~~ UR	PU
Americium 241	14596-10-2	0.009	0.013	0.02	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	0.050	1.4	0.9	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	1.2				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	0.090	0.071		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.09		U	GAM
Cesium 137	10045-97-3	0.43	0.077		0.05	— J	GAM
Europium 152	14683-23-9	0.47	0.13		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	1.0	0.13				GAM
Thorium 228	14274-82-9	1.9	0.11				GAM
Thorium 232	7440-29-1	1.8	0.35				GAM

9312968.1645

DATA SHEETS
Page 7
SUMMARY DATA SECTION
Page 22

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

N211148-08

B07NC3

SDG 7128
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-08
Dept sample id 7128-008
Received 11/18/92
% moisture 27.6

Client sample id B07NC3
Matrix SOIL
Collected 11/13/92
Chain of custody id 199806 226 02

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	13	6.3	6	10	— J	80A
Gross Beta	Beta	21	4.4	5	10		80B
Uranium 233/234		1.4	0.35	0.2	0.3		U
Uranium 235	15117-96-1	0.083	0.083	0.2	0.3	U	U
Uranium 238	7440-61-1	1.2	0.31	0.1	0.3		U
Plutonium 238	13981-16-3	0.003	0.023	0.05	0.05	U	PU
Plutonium 239/240		0.006	0.012	0.03	0.05	U	PU
Americium 241	14596-10-2	-0.014	0.021	0.05	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	0.13	0.25	1	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	1.1				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.07	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	0.33	0.058		0.05	— J	GAM
Europium 152	14683-23-9	0.23	0.10		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	0.69	0.11				GAM
Thorium 228	14274-82-9	1.3	0.073				GAM
Thorium 232	7440-29-1	1.3	0.26				GAM

9312968.1646

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

DATA SHEETS
Page 8
SUMMARY DATA SECTION
Page 23

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

N211148-11

B07NC6

SDG 7128
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-11
Dept sample id 7128-011
Received 11/19/92
% moisture 27.0
Client sample id B07NC6
Matrix SOIL
Collected 11/16/92
Chain of custody id 199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	9.0	5.3	6	10	J	80A
Gross Beta	Beta	19	3.9	5	10		80B
Uranium 233/234		0.60	0.23	0.2	0.3		U
Uranium 235	15117-96-1	0.027	0.053	0.2	0.3	U	U
Uranium 238	7440-61-1	0.48	0.23	0.2	0.3		U
Plutonium 238	13981-16-3	0.010	0.019	0.04	0.05	U	PU
Plutonium 239/240		-0.003	0.006	0.02	0.05	U	PU
Americium 241	14596-10-2	0.008	0.015	0.02	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	0	1.3	1	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	16	1.1				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.07	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.074	0.048		0.05	J	GAM
Europium 152	14683-23-9	U		0.1	0.1	U	GAM
Europium 154	15585-10-1	U		0.07	0.1	U	GAM
Radium 226	13982-67-7	0.67	0.11				GAM
Thorium 228	14274-82-9	1.1	0.067				GAM
Thorium 232	7440-29-1	1.2	0.22				GAM

93129B.1647

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

N211148-12

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

B07NC7

SDG 7128
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-12
Dept sample id 7128-012
Received 11/19/92
% moisture 24.1

Client sample id B07NC7
Matrix SOIL
Collected 11/16/92
Chain of custody id 199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	6.3	5.0	6	10	J	80A
Gross Beta	Beta	21	4.1	5	10		80B
Uranium 233/234		0.85	0.28	0.2	0.3		U
Uranium 235	15117-96-1	0.077	0.10	0.2	0.3	U	U
Uranium 238	7440-61-1	0.87	0.28	0.2	0.3		U
Plutonium 238	13981-16-3	-0.006	0.022	0.06	0.05	~~U~~ UR	PU
Plutonium 239/240		0	0.011	0.04	0.05	~~U~~ UR	PU
Americium 241	14596-10-2	-0.006	0.018	0.04	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	0.22	0.26	0.8	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	17	1.1				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	U		0.06	0.05	~~U~~ UJ	GAM
Europium 152	14683-23-9	U		0.1	0.1	U	GAM
Europium 154	15585-10-1	U		0.08	0.1	U	GAM
Radium 226	13982-67-7	0.84	0.11				GAM
Thorium 228	14274-82-9	1.8	0.14				GAM
Thorium 232	7440-29-1	1.1	0.24				GAM

9312968.1648

DATA SHEETS
Page 12
SUMMARY DATA SECTION
Page 27

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

N211148-15

B07ND2

SDG 7128
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-15
Dept sample id 7128-015
Received 11/20/92
% moisture 27.1

Client sample id B07ND2
Matrix SOIL
Collected 11/17/92
Chain of custody id 199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS		TEST
Gross Alpha	Alpha	3.5	4.3	6	10	~~U~~	UJ	80A
Gross Beta	Beta	16	4.1	5	10			80B
Uranium 233/234		0.73	0.19	0.07	0.3			U
Uranium 235	15117-96-1	0.11	0.071	0.09	0.3	J		U
Uranium 238	7440-61-1	0.75	0.19	0.07	0.3			U
Plutonium 238	13981-16-3	-0.010	0.031	0.07	0.05	U		PU
Plutonium 239/240		0.005	0.020	0.04	0.05	U		PU
Americium 241	14596-10-2	0.005	0.019	0.04	0.05	~~U~~	UR	AM
Strontium 90	10098-97-2	0.11	0.26	0.9	1	U		Y
GAMMA SCAN ANALYTES								
Potassium 40	13966-00-2	14	0.96					GAM
Iron 59		U		0.3	0.05	U		GAM
Chromium 51	14392-02-0	U		2		U		GAM
Cobalt 60	10198-40-0	0.056	0.049		0.05			GAM
Zinc 65	17982-39-3	U		0.2		U		GAM
Ruthenium 106	13967-48-1	U		0.5		U		GAM
Cesium 134	17967-70-9	U		0.07		U		GAM
Cesium 137	10045-97-3	1.0	0.080		0.05	~	J	GAM
Europium 152	14683-23-9	0.82	0.14		0.1			GAM
Europium 154	15585-10-1	0.17	0.13		0.1			GAM
Radium 226	13982-67-7	0.81	0.12					GAM
Thorium 228	14274-82-9	1.4	0.13					GAM
Thorium 232	7440-29-1	1.0	0.20					GAM

9312968.1619

CJ 5/10/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

DATA SHEETS
Page 15
SUMMARY DATA SECTION
Page 30

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

N211148-16

B07ND3

SDG 7128
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-16
Dept sample id 7128-016
Received 11/20/92
% moisture 16.1
Client sample id B07ND3
Matrix SOIL
Collected 11/17/92
Chain of custody id 199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	11	6.2	6	10	— J	80A
Gross Beta	Beta	19	4.3	5	10		80B
Uranium 233/234		1.3	0.47	0.2	0.3		U
Uranium 235	15117-96-1	0.072	0.073	0.3	0.3	U	U
Uranium 238	7440-61-1	1.0	0.40	0.2	0.3		U
Plutonium 238	13981-16-3	0	0.024	0.05	0.05	U	PU
Plutonium 239/240		-0.004	0.008	0.03	0.05	U	PU
Americium 241	14596-10-2	-0.008	0.033	0.07	0.05	~~U~~ UA	AM
Strontium 90	10098-97-2	0.24	0.31	1	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	17	1.2				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.08		U	GAM
Cesium 137	10045-97-3	U		0.06	0.05	~~U~~ UJ	GAM
Europium 152	14683-23-9	U		0.1	0.1	U	GAM
Europium 154	15585-10-1	U		0.08	0.1	U	GAM
Radium 226	13982-67-7	1.2	0.12				GAM
Thorium 228	14274-82-9	2.1	0.090				GAM
Thorium 232	7440-29-1	2.1	0.28				GAM

9312968.1650

05/18/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

DATA SHEETS
Page 16
SUMMARY DATA SECTION
Page 31

N212017-02

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

B07NG3

SDG 7136
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212017-02
Dept sample id 7136-002
Received 12/02/92
% moisture 34.2
Client sample id B07NG3
Matrix SOIL
Collected 11/22/92
Chain of custody id 199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	3.5	4.4	6	10	U	80A
Gross Beta	Beta	14	4.5	6	10		80B
Uranium 233/234		0.45	0.23	0.2	0.3	— R	U
Uranium 235	15117-96-1	0.14	0.14	0.3	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.75	0.30	0.2	0.3	— R	U
Plutonium 238	13981-16-3	-0.016	0.013	0.04	0.05	U	PU
Plutonium 239/240		0.013	0.013	0.02	0.05	U	PU
Americium 241	14596-10-2	0.006	0.017	0.03	0.05	U	AM
Strontium 90	10098-97-2	-0.009	1.7	0.8	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	1.3				GAM
Iron 59		U		0.5	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	0.38	0.083		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.6		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	0.76	0.093		0.05		GAM
Europium 152	14683-23-9	0.50	0.12		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	0.64	0.14				GAM
Thorium 228	14274-82-9	0.85	0.079				GAM
Thorium 232	7440-29-1	0.84	0.29				GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/19/93

DATA SHEETS
Page 2
SUMMARY DATA SECTION
Page 16

9312969.1551

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

N212017-05

B07NG6

SDG	7136	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212017-05	Client sample id	B07NG6
Dept sample id	7136-005	Matrix	SOIL
Received	12/02/92	Collected	11/22/92
% moisture	34.1	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	2.6	3.8	5	10	U	80A
Gross Beta	Beta	9.3	3.7	5	10	J	80B
Uranium 233/234		0.85	0.30	0.2	0.3		U
Uranium 235	15117-96-1	0.024	0.048	0.2	0.3	U	U
Uranium 238	7440-61-1	0.71	0.26	0.2	0.3		U
Plutonium 238	13981-16-3	0.002	0.021	0.04	0.05	U	PU
Plutonium 239/240		0.002	0.009	0.02	0.05	U	PU
Americium 241	14596-10-2	-0.002	0.019	0.04	0.05	U	AM
Strontium 90	10098-97-2	0.009	0.17	0.8	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	1.3				GAM
Iron 59		U		0.5	0.05	U	GAM
Chromium 51	14392-02-0	U		4		U	GAM
Cobalt 60	10198-40-0	0.37	0.084		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.6		U	GAM
Cesium 134	17967-70-9	U		0.08		U	GAM
Cesium 137	10045-97-3	0.79	0.097		0.05		GAM
Europium 152	14683-23-9	0.56	0.13		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	0.66	0.14				GAM
Thorium 228	14274-82-9	0.90	0.082				GAM
Thorium 232	7440-29-1	0.94	0.30				GAM

9312968.1652

GS 10/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/19/93

DATA SHEETS
Page 5
SUMMARY DATA SECTION
Page 19

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

N212017-04

B07NG5

SDG 7136
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212017-04
Dept sample id 7136-004
Received 12/02/92
% moisture 31.3

Client sample id B07NG5
Matrix SOIL
Collected 11/22/92
Chain of custody id 199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	2.6	3.5	5	10	U	80A
Gross Beta	Beta	13	3.9	5	10		80B
Uranium 233/234		0.49	0.20	0.2	0.3		U
Uranium 235	15117-96-1	0.019	0.039	0.1	0.3	U	U
Uranium 238	7440-61-1	0.41	0.17	0.1	0.3		U
Plutonium 238	13981-16-3	-0.009	0.019	0.04	0.05	U	PU
Plutonium 239/240		0.016	0.014	0.02	0.05	U	PU
Americium 241	14596-10-2	0.016	0.023	0.04	0.05	U	AM
Strontium 90	10098-97-2	-0.13	0.25	0.9	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	1.1				GAM
Iron 59		U		0.5	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	0.12	0.064		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.6		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	1.5	0.11		0.05		GAM
Europium 152	14683-23-9	1.5	0.17		0.1		GAM
Europium 154	15585-10-1	0.21	0.17		0.1		GAM
Radium 226	13982-67-7	0.65	0.11				GAM
Thorium 228	14274-82-9	0.88	0.094				GAM
Thorium 232	7440-29-1	0.93	0.22				GAM

9312968.1658

5/18/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/19/93

DATA SHEETS
Page 4
SUMMARY DATA SECTION
Page 18

EcoTek LSI
EcoTek Laboratory Services Incorporated

ISOTOPIC PLUTONIUM

Client: Weston — *Client Reference No.: 92121888*
LSDG: 30015 — *Date Received: 1/5/93*

Lab Sample ID	Hanford Sample ID	Weston Sample ID	Date Sampled	Date Analyzed	Analyte	Matrix	Result pCi/g	2 Sigma Error pCi/g	Detection Limit pCi/g
3001501	B07NG7	9212L888-001	11/22/92	3/9/93	Pu-239/240	Sediment	7.07E-02	5.50E-02	3.03E-02
3001502	B07NH7	9212L888-002	11/24/92	3/9/93	Pu-239/240	Sediment	ND	NA	1.87E-01

ND = Not Detected
NA = Not Applicable

5/21/93

9312968.1651

EcoTek LSI
EcoTek Laboratory Services Incorporated

ISOTOPIC URANIUM

Client: Weston — *Client Reference No.: 9212L888*
LSDG: 30015 — *Date Received: 1/5/93*

Lab Sample ID	Hanford Sample ID	Weston Sample ID	Date Sampled	Date Analyzed	Analyte	Matrix	Result pCi/g	2 Sigma Error pCi/g	Detection Limit pCi/g	Qualifier
3001501	B07NG7	9212L888-001	11/22/92	3/11/93	U-235	Sediment	2.17E-02	1.67E-02	9.30E-03	
3001501	B07NG7	9212L888-001	11/22/92	3/11/93	U-238	Sediment	4.64E-01	9.83E-02	9.27E-03	~~R~~
3001502	B07NH7	9212L888-002	11/24/92	3/11/93	U-235	Sediment	1.66E-02	1.50E-02	9.98E-03	
3001502	B07NH7	9212L888-002	11/24/92	3/11/93	U-238	Sediment	3.65E-01	8.62E-02	2.54E-02	~~R~~

Q
J
J

ND = Not Detected Above MDA
NA = Not Applicable

5/21/93

9312968.1655

EcoTek LSI
EcoTek Laboratory Services Incorporated

ISOTOPIC AMERICIUM

Client: Weston
LSDG: 30015

Client Reference No.: 92121888
Date Received: 1/5/93

Lab Sample ID	Hanford Sample ID	Weston Sample ID	Date Sampled	Date Analyzed	Analyte	Matrix	Result pCi/g	2 Sigma Error pCi/g	Detection Limit pCi/g	
3001501	92121888-001	B07NG7	11/22/92	4/2/93	Am-241	Sediment	ND	NA	8.00E-02	U
3001502	92121888-002	B07NH7	11/22/92	4/2/93	Am-241	Sediment	2.42E-01	7.03E-02	2.94E-02	J

ND = Not Detected Above MDA
NA = Not Applicable

5/21/93

9312968.1655

EcoTek LSI
EcoTek Laboratory Services Incorporated

STRONTIUM

Client: Weston
LSDG: 30015

Client Reference No.: 92121888
Date Received: 1/5/93

Lab Sample ID	Hanford Sample ID	Weston Sample ID	Date Sampled	Date Analyzed	Analyte	Matrix	Result pCi/g	2 Sigma Error pCi/g	Detection Limit pCi/g	Q
3001501	92121888-001	B07NG7	11/22/92	3/24/93	Sr-90	Sediment	ND	NA	9.14E-01	UJ
3001502	92121888-002	B07NH7	11/22/92	3/24/93	Sr-90	Sediment	ND	NA	8.37E-01	UJ

ND = Not Detected Above MDA
NA = Not Applicable

5/21/93

9312968.1557

0245

EcoTek LSI
EcoTek Laboratory Services Incorporated

GROSS BETA

Client: Weston
LSDG: 30015

Client Reference No.: 9212L888
Date Received: 1/5/93

Lab Sample ID	Hanford Sample ID	Weston Sample ID	Date Sampled	Date Analyzed	Analyte	Matrix	Result pCi/g	2 Sigma Error pCi/g	Detection Limit pCi/g	
3001501	9212L888-001	B07NG7	11/22/92	4/11/93	Gross Beta	Sediment	1.60E+01	4.93E+00	3.05E+00	J
3001502	9212L888-002	B07NH7	11/24/92	4/11/93	Gross Beta	Sediment	1.57E+01	4.38E+00	2.27E+00	J

ND = Not Detected
NA = Not Applicable

5/21/93

EcoTek LSI
EcoTek Laboratory Services Incorporated

GAMMA SPECIFIC

Client: Weston
LSDG: 30015

Client Reference No.: 92121888
Date Received: 1/5/93

Lab Sample ID	Hanford Sample ID	Weston Sample ID	Date Sampled	Date Analyzed	Analyte	Matrix	Result pCi/g	2 Sigma Error pCi/g	Detection Limit pCi/g	Q
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Cobalt - 58	Sediment	ND	NA	1.74E-02	UJ
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Iron - 59	Sediment	ND	NA	5.44E-02	UJ
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Cobalt - 60	Sediment	1.11E-01	1.01E-02	2.60E-03	J
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Cesium - 134	Sediment	ND	NA	7.76E-03	UJ
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Cesium - 137	Sediment	1.61E+00	2.30E-01	1.07E-02	J
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Cerium - 144	Sediment	ND	NA	6.01E-02	UJ
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Europium - 152	Sediment	1.33E+00	6.20E-02	8.72E-02	J
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Europium - 154	Sediment	1.41E-01	1.81E-02	9.20E-03	J
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Europium - 155	Sediment	ND	NA	3.47E-02	UJ
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Radium - 223	Sediment	ND	NA	6.96E+00	UJ
~~3001501~~	~~9212L888-001~~	~~B07NG7~~	~~11/22/92~~	~~2/12/93~~	~~Radium - 224~~	~~Sediment~~	~~Half - Life too Short~~			
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Potassium-40	Sediment	1.52E+01	1.60E+00	7.72E-02	J
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Thorium-231	Sediment	4.54E-01	1.28E-01	1.43E-01	J
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Thorium-234	Sediment	8.12E-01	1.79E-01	3.43E-01	J
3001501	9212L888-001	B07NG7	11/22/92	2/12/93	Neptunium-237	Sediment	6.06E-01	8.90E-02	6.22E-02	J
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Cobalt - 58	Sediment	ND	NA	1.40E-02	UJ
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Iron - 59	Sediment	ND	NA	5.42E-02	UJ
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Cobalt - 60	Sediment	2.16E-01	1.89E-02	7.50E-03	J
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Cesium - 134	Sediment	ND	NA	5.97E-03	UJ
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Cesium - 137	Sediment	5.19E-01	6.61E-02	6.40E-03	J
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Cerium - 144	Sediment	ND	NA	4.95E-02	UJ
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Europium - 152	Sediment	2.69E-01	2.54E-02	7.63E-02	J
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Europium - 154	Sediment	4.11E-02	7.49E-03	8.10E-03	J
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Europium - 155	Sediment	4.35E-02	1.94E-02	2.28E-02	J
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Radium - 223	Sediment	ND	NA	3.26E-02	UJ
~~3001502~~	~~9212L888-001~~	~~B07NH7~~	~~11/22/92~~	~~2/12/93~~	~~Radium - 224~~	~~Sediment~~	~~Half - Life too short~~			
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Potassium-40	Sediment	1.78E+01	2.17E+00	5.90E-02	J
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Radium-228	Sediment	5.42E-01	3.62E-02	3.04E-02	J
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Thorium-231	Sediment	2.94E-01	9.82E-02	4.45E-02	J
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Thorium-234	Sediment	6.87E-01	1.65E-01	2.44E-01	J
3001502	9212L888-001	B07NH7	11/22/92	2/12/93	Neptunium-237	Sediment	4.82E-01	1.06E-01	4.93E-02	J

ND = Not DetectedAbove MDA
NA = Not Applicable

5/21/93

CRB 4/13/93

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

N211152-19

B07NG1

SDG 7131
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211152-19
Dept sample id 7131-019
Received 12/02/92
% moisture 28.6

Client sample id B07NG1
Matrix SOIL
Collected 11/22/92
Chain of custody id 199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	2.7	4.4	5	10	U	80A
Gross Beta	Beta	14	3.9	5	10		80B
Uranium 233/234		0.45	0.23	0.2	0.3		U
Uranium 235	15117-96-1	0.081	0.11	0.2	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.67	0.24	0.2	0.3		U
Plutonium 238	13981-16-3	0.006	0.024	0.05	0.05	U	PU
Plutonium 239/240		-0.003	0.006	0.02	0.05	U	PU
Americium 241	14596-10-2	0.007	0.014	0.02	0.05	U	AM
Strontium 90	10098-97-2	0	0.45	0.8		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	13	0.82				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.04	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.3		U	GAM
Cesium 134	17967-70-9	U		0.05		U	GAM
Cesium 137	10045-97-3	0.11	0.035		0.05	— J	GAM
Europium 152	14683-23-9	U		0.09	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.06	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.66	0.080				GAM
Thorium 228	14274-82-9	1.1	0.072				GAM
Thorium 232	7440-29-1	0.91	0.16				GAM

9312968.1661

DATA SHEETS
Page 19
SUMMARY DATA SECTION
Page 36

gj 3/18/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/11/93

N211152-20

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07NG2

SDG 7131
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211152-20
Dept sample id 7131-020
Received 12/02/92
% moisture 20.5

Client sample id B07NG2
Matrix SOIL
Collected 11/22/92
Chain of custody id 199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS Q	TEST
Gross Alpha	Alpha	15	4.8	3	10		80A
Gross Beta	Beta	16	4.3	5	10		80B
Uranium 233/234		0.98	0.30	0.1	0.3		U
Uranium 235	15117-96-1	0.13	0.086	0.2	0.3	~~U~~ UL	U
Uranium 238	7440-61-1	0.68	0.23	0.1	0.3		U
Plutonium 238	13981-16-3	0.003	0.007	0.02	0.05	U	PU
Plutonium 239/240		0.002	0.007	0.01	0.05	U	PU
Americium 241	14596-10-2	-0.004	0.012	0.03	0.05	U	AM
Strontium 90	10098-97-2	0.40	0.26	0.9		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	0.75				GAM
Iron 59		U		0.2	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.04	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.05		U	GAM
Cesium 137	10045-97-3	U		0.04	0.05	~~U~~ UJ	GAM
Europium 152	14683-23-9	U		0.08	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.06	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.95	0.090				GAM
Thorium 228	14274-82-9	1.9	0.085				GAM
Thorium 232	7440-29-1	1.5	0.18				GAM

9312968.1661

DJ 5/18/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/11/93

DATA SHEETS
Page 20
SUMMARY DATA SECTION
Page 37

N211152-18

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07NG0

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-18	Client sample id	B07NG0
Dept sample id	7131-018	Matrix	SOIL
Received	12/02/92	Collected	11/22/92
% moisture	32.0	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	5.2	4.4	5	10	J	80A
Gross Beta	Beta	13	4.3	6	10		80B
Uranium 233/234		0.53	0.21	0.2	0.3		U
Uranium 235	15117-96-1	0	0.049	0.2	0.3	~~U~~ UL	U
Uranium 238	7440-61-1	0.57	0.21	0.2	0.3		U
Plutonium 238	13981-16-3	0.005	0.024	0.04	0.05	U	PU
Plutonium 239/240		0.005	0.009	0.02	0.05	U	PU
Americium 241	14596-10-2	0.004	0.016	0.03	0.05	U	AM
Strontium 90	10098-97-2	0.25	1.2	0.9		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	13	1.0				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.05	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.8		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.27	0.056		0.05	— J	GAM
Europium 152	14683-23-9	U		0.09	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.06	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.71	0.073				GAM
Thorium 228	14274-82-9	0.91	0.062				GAM
Thorium 232	7440-29-1	0.89	0.20				GAM

9312968.1662

gj 5/14/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

DATA SHEETS
Page 18
SUMMARY DATA SECTION
Page 35

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

N212017-01

B07NF9

SDG	7136	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212017-01	Client sample id	B07NF9
Dept sample id	7136-001	Matrix	SOIL
Received	12/02/92	Collected	11/22/92
% moisture	37.8	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	5.4	3.9	4	10	J	80A
Gross Beta	Beta	12	4.1	6	10		80B
Uranium 233/234		0.77	0.26	0.1	0.3		U
Uranium 235	15117-96-1	0.042	0.042	0.2	0.3	U	U
Uranium 238	7440-61-1	0.96	0.27	0.1	0.3		U
Plutonium 238	13981-16-3	0.004	0.013	0.03	0.05	U	PU
Plutonium 239/240		0.004	0.008	0.02	0.05	U	PU
Americium 241	14596-10-2	-0.004	0.012	0.02	0.05	U	AM
Strontium 90	10098-97-2	-0.15	0.23	0.8	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	13	1.1				GAM
Iron 59		U		0.5	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	U		0.07	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.6		U	GAM
Cesium 134	17967-70-9	U		0.08		U	GAM
Cesium 137	10045-97-3	0.45	0.073		0.05		GAM
Europium 152	14683-23-9	0.32	0.17		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	0.90	0.15				GAM
Thorium 228	14274-82-9	1.4	0.11				GAM
Thorium 232	7440-29-1	0.91	0.26				GAM

9312968.1663

DATA SHEETS
Page 1
SUMMARY DATA SECTION
Page 15

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/19/93

TMA NORCAL
REPORTING GROUP 7136

DATA SHEET

N212017-03

B07NG4

SDG	7136	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N212017-03	Client sample id	B07NG4
Dept sample id	7136-003	Matrix	SOIL
Received	12/02/92	Collected	11/22/92
% moisture	25.5	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	4.3	4.2	5	10	U	80A
Gross Beta	Beta	15	4.0	5	10		80B
Uranium 233/234		0.35	0.22	0.3	0.3	— R	U
Uranium 235	15117-96-1	0.17	0.17	0.3	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.53	0.30	0.3	0.3	— R	U
Plutonium 238	13981-16-3	-0.008	0.011	0.03	0.05	U	PU
Plutonium 239/240		0.005	0.011	0.02	0.05	U	PU
Americium 241	14596-10-2	0.002	0.022	0.04	0.05	U	AM
Strontium 90	10098-97-2	-0.091	2.1	0.9	2	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	1.2				GAM
Iron 59		U		0.5	0.05	U	GAM
Chromium 51	14392-02-0	U		3		U	GAM
Cobalt 60	10198-40-0	U		0.07	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.6		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	0.19	0.076		0.05		GAM
Europium 152	14683-23-9	U		0.1	0.1	U	GAM
Europium 154	15585-10-1	U		0.09	0.1	U	GAM
Radium 226	13982-67-7	0.90	0.12				GAM
Thorium 228	14274-82-9	1.3	0.087				GAM
Thorium 232	7440-29-1	1.2	0.24				GAM

9312988.1669

5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/19/93

DATA SHEETS
Page 3
SUMMARY DATA SECTION
Page 17

N211152-14

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07NF5

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-14	Client sample id	B07NF5
Dept sample id	7131-014	Matrix	SOIL
Received	11/25/92	Collected	11/20/92
% moisture	20.3	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	8.3	3.9	4	10	J	80A
Gross Beta	Beta	16	4.0	5	10		80B
Uranium 233/234		0.85	0.29	0.2	0.3		U
Uranium 235	15117-96-1	0.054	0.055	0.2	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.54	0.24	0.2	0.3		U
Plutonium 238	13981-16-3	0.011	0.057	0.1	0.05	~~U~~ UR	PU
Plutonium 239/240		0.011	0.011	0.04	0.05	~~U~~ UR	PU
Americium 241	14596-10-2	-0.002	0.010	0.02	0.05	U	AM
Strontium 90	10098-97-2	0	0.86	0.7		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	16	1.1				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	U		0.05	0.05	~~U~~ UJ	GAM
Europium 152	14683-23-9	U		0.1	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.07	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.78	0.11				GAM
Thorium 228	14274-82-9	1.3	0.076				GAM
Thorium 232	7440-29-1	1.2	0.22				GAM

9312968.1665

CJ 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVP-DS
Version	2.23
Report date	03/11/93

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

N211152-15

B07NF6

SDG 7131
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211152-15
Dept sample id 7131-015
Received 11/25/92
% moisture 23.6

Client sample id B07NF6
Matrix SOIL
Collected 11/20/92
Chain of custody id 199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	6.1	4.1	5	10	J	80A
Gross Beta	Beta	14	3.9	5	10		80B
Uranium 233/234		0.53	0.19	0.1	0.3		U
Uranium 235	15117-96-1	0.018	0.036	0.1	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.74	0.22	0.1	0.3		U
Plutonium 238	13981-16-3	-0.079	0.054	0.1	0.05	~~U~~ UR	PU
Plutonium 239/240		0.007	0.026	0.05	0.05	~~U~~ UR	PU
Americium 241	14596-10-2	0.028	0.042	0.08	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	-0.017	0.51	0.9		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	1.1				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.6		U	GAM
Cesium 134	17967-70-9	U		0.08		U	GAM
Cesium 137	10045-97-3	0.082	0.060		0.05	~~-~~ J	GAM
Europium 152	14683-23-9	U		0.1	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.08	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	1.2	0.14				GAM
Thorium 228	14274-82-9	2.5	0.091				GAM
Thorium 232	7440-29-1	2.5	0.24				GAM

9312968.1666

gj 5/14/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/11/93

DATA SHEETS
Page 15
SUMMARY DATA SECTION
Page 32

N211152-16

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07NF7

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-16	Client sample id	B07NF7
Dept sample id	7131-016	Matrix	SOIL
Received	11/25/92	Collected	11/20/92
% moisture	23.5	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	8.4	4.2	4	10	J	80A
Gross Beta	Beta	15	4.0	5	10		80B
Uranium 233/234		1.0	0.31	0.2	0.3		U
Uranium 235	15117-96-1	0.024	0.049	0.2	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.58	0.21	0.2	0.3		U
Plutonium 238	13981-16-3	0.011	0.023	0.05	0.05	U	PU
Plutonium 239/240		0.014	0.011	0.02	0.05	U	PU
Americium 241	14596-10-2	-0.005	0.011	0.02	0.05	U	AM
Strontium 90	10098-97-2	-0.27	0.32	0.9		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	0.92				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.05	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	U		0.04	0.05	~~U~~ UJ	GAM
Europium 152	14683-23-9	U		0.1	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.06	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.63	0.091				GAM
Thorium 228	14274-82-9	1.3	0.077				GAM
Thorium 232	7440-29-1	1.0	0.19				GAM

9312963.1667

DJ 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

DATA SHEETS
Page 16
SUMMARY DATA SECTION
Page 33

TMA NORCAL
REPORTING GROUP 7131

N211152-17

DATA SHEET

B07NF8

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-17	Client sample id	B07NF8
Dept sample id	7131-017	Matrix	SOIL
Received	11/25/92	Collected	11/20/92
% moisture	21.4	Chain of custody id	199806_226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	7.5	4.0	3	10	J	80A
Gross Beta	Beta	16	4.0	5	10		80B
Uranium 233/234		1.0	0.24	0.09	0.3		U
Uranium 235	15117-96-1	0.072	0.058	0.1	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.80	0.21	0.09	0.3		U
Plutonium 238	13981-16-3	-0.028	0.022	0.06	0.05	U	PU
Plutonium 239/240		0.003	0.017	0.03	0.05	U	PU
Americium 241	14596-10-2	0.006	0.016	0.03	0.05	U	AM
Strontium 90	10098-97-2	-0.39	0.92	0.8		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	12	0.86				GAM
Iron 59		U		0.3	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.04	0.05	U	GAM
Zinc 65	17982-39-3	U		0.1		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.06		U	GAM
Cesium 137	10045-97-3	0.14	0.051		0.05	~~—~~ J	GAM
Europium 152	14683-23-9	U		0.09	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.06	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.60	0.088				GAM
Thorium 228	14274-82-9	1.1	0.063				GAM
Thorium 232	7440-29-1	0.99	0.20				GAM

9312968.1669

gj 5/18/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

N211152-09

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07NC8

SDG	7131	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N211152-09	Client sample id	B07NC8
Dept sample id	7131-009	Matrix	SOIL
Received	11/25/92	Collected	11/20/92
% moisture	0.1	Chain of custody id	199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	0.58	3.6	5	10	U	80A
Gross Beta	Beta	27	4.7	5	10		80B
Uranium 233/234		0.16	0.14	0.2	0.3	U	U
Uranium 235	15117-96-1	0	0.054	0.2	0.3	~~U~~ UR	U
Uranium 238	7440-61-1	0.18	0.14	0.2	0.3	U	U
Plutonium 238	13981-16-3	0.005	0.022	0.04	0.05	U	PU
Plutonium 239/240		0.027	0.022	0.03	0.05	U	PU
Americium 241	14596-10-2	-0.014	0.045	0.09	0.05	U	AM
Strontium 90	10098-97-2	0.014	0.086	0.1		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	22	1.1				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.05	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.4		U	GAM
Cesium 134	17967-70-9	U		0.05		U	GAM
Cesium 137	10045-97-3	U		0.04	0.05	~~U~~ UJ	GAM
Europium 152	14683-23-9	U		0.09	0.1	~~U~~ UJ	GAM
Europium 154	15585-10-1	U		0.06	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.28	0.070				GAM
Thorium 228	14274-82-9	0.55	0.084				GAM
Thorium 232	7440-29-1	0.51	0.22				GAM

9312968.1669

DATA SHEETS
Page 1
SUMMARY DATA SECTION
Page 18

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.23
Report date	03/11/93

N211152-05

TMA NORCAL
REPORTING GROUP 7131

DATA SHEET

B07ND5

SDG 7131 — Client Westinghouse Hanford
Contact Dinkar Kharkar — Contract MBH-SVV-069262

Lab sample id N211152-05 — Client sample id B07ND5
Dept sample id 7131-005 — Matrix SOIL
Received 11/24/92 — Collected 11/19/92
% moisture 23.5 — Chain of custody id 199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	2.9	3.2	4	10	U	80A
Gross Beta	Beta	20	4.4	6	10		80B
Uranium 233/234		0.49	0.22	0.2	0.3		U
Uranium 235	15117-96-1	0.051	0.052	0.2	0.3	~~U~~ UL	U
Uranium 238	7440-61-1	0.36	0.18	0.2	0.3		U
Plutonium 238	13981-16-3	-0.008	0.017	0.04	0.05	U	PU
Plutonium 239/240		0.006	0.011	0.02	0.05	U	PU
Americium 241	14596-10-2	0	0.016	0.04	0.05	U	AM
Strontium 90	10098-97-2	0.068	0.091	0.2		U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	15	1.1				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	0.41	0.073		0.05		GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.5		U	GAM
Cesium 134	17967-70-9	U		0.05		U	GAM
Cesium 137	10045-97-3	0.74	0.075		0.05	— J	GAM
Europium 152	14683-23-9	0.48	0.089		0.1	— J	GAM
Europium 154	15585-10-1	U		0.2	0.1	~~U~~ UJ	GAM
Radium 226	13982-67-7	0.42	0.11				GAM
Thorium 228	14274-82-9	0.46	0.048				GAM
Thorium 232	7440-29-1	0.50	0.21				GAM

93129B.670

CJ 5/18/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/11/93

DATA SHEETS
Page 4
SUMMARY DATA SECTION
Page 21

N211148-01

TMA NORCAL
REPORTING GROUP 7128

DATA SHEET

B07NB6

SDG 7128
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N211148-01
Dept sample id 7128-001
Received 11/17/92
% moisture 27.8
Client sample id B07NB6
Matrix SOIL
Collected 11/12/92
Chain of custody id 199806 226

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALIFIERS	TEST
Gross Alpha	Alpha	4.5	5.7	7	10	~~U~~ UJ	BOA
Gross Beta	Beta	22	4.5	6	10		BOB
Uranium 233/234		0.67	0.22	0.1	0.3		U
Uranium 235	15117-96-1	0.090	0.073	0.1	0.3	U	U
Uranium 238	7440-61-1	0.88	0.26	0.1	0.3		U
Plutonium 238	13981-16-3	0.004	0.034	0.07	0.05	U	PU
Plutonium 239/240		0	0.008	0.03	0.05	U	PU
Americium 241	14596-10-2	-0.003	0.027	0.06	0.05	~~U~~ UR	AM
Strontium 90	10098-97-2	-0.004	1.4	0.9	1	U	Y
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	16	1.2				GAM
Iron 59		U		0.4	0.05	U	GAM
Chromium 51	14392-02-0	U		2		U	GAM
Cobalt 60	10198-40-0	U		0.06	0.05	U	GAM
Zinc 65	17982-39-3	U		0.2		U	GAM
Ruthenium 106	13967-48-1	U		0.6		U	GAM
Cesium 134	17967-70-9	U		0.07		U	GAM
Cesium 137	10045-97-3	0.18	0.065		0.05	— J	GAM
Europium 152	14683-23-9	0.10	0.080		0.1		GAM
Europium 154	15585-10-1	U		0.2	0.1	U	GAM
Radium 226	13982-67-7	0.74	0.13				GAM
Thorium 228	14274-82-9	1.2	0.095				GAM
Thorium 232	7440-29-1	1.1	0.24				GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/04/93

DATA SHEETS
Page 1
SUMMARY DATA SECTION
Page 16