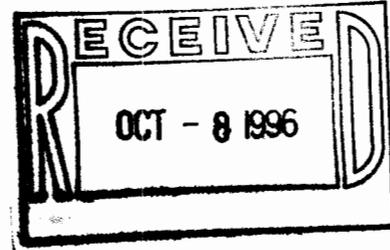




**Department of Energy**  
 Carlsbad Area Office  
 P. O. Box 3090  
 Carlsbad, New Mexico 88221

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*Glue 2*  
 ENTER

October 7, 1996



Mr. Benito J. Garcia, Chief  
 Hazardous and Radioactive Materials Bureau  
 New Mexico Environment Department  
 2044 Galisteo  
 Santa Fe, New Mexico 87502

Dear Mr. Garcia:

**Subject: Submittal of (8) SWMU data packages; Recommendation for No-Further Action**

This letter provides validated analytical results for eight Solid Waste Management Units (SWMUs) at the Waste Isolation Pilot Plant (WIPP). Results are specifically provided for soil samples collected from the following eight SWMUs during the WIPP Voluntary Release Assessment (VRA) program:

- |                    |                      |
|--------------------|----------------------|
| SWMU 001n, P-15    | SWMU 001x, WIPP-13   |
| SWMU 001t, IMC 374 | SWMU 001j, P-3       |
| SWMU 001g, P-1     | SWMU 001m, P-6       |
| SWMU 0011, P-5     | SWMU004a, Porta Camp |

A separate attachment is included with this letter for each of these SWMUs. In each attachment the following information is included:

- A table comparing total metals concentrations measured in SWMU soil samples to background concentrations measured near the SWMU and to action levels proposed in 40 CFR 264.521 (Subpart S).
- A complete table of validated analytical data, presenting both total and toxicity characteristic leaching procedure (TCLP) results for samples collected at the SWMU during the VRA program.
- A data review form which presents a summary of data quality for the total analyses results and the findings of an independent data validation.

The data presented in the attached tables demonstrates that total metals concentrations measured in the eight SWMUs are equivalent to measured soil background concentrations and are well below applicable Subpart S action levels. In addition, no volatile organic compounds (VOCs) were detected in any of the eight SWMUs, and VOC laboratory method



Mr. Benito J. Garcia

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October 7, 1996

reporting limits are also below applicable Subpart S action levels. Although some metals results were qualified as estimated during data validation, no results were rejected, and data quality is sufficient to demonstrate that concentrations of total metals within the SWMUs are well below the Subpart S action levels.

Analytical results for samples collected at these SWMUs during the VRA program will be included in the final VRA report. However, based on the attached validated data, the WIPP is recommending no further action (NFA) for the eight SWMUs listed above. For your convenience, we have also provided this material to Mr. Rafael Casanova of EPA's Region VI office.

Please contact Craig Snider at (505)234-7452 regarding this request at your earliest convenience.

Sincerely,



Michael H. McFadden  
Assistant Manager  
Office of Regulatory Compliance

Enclosure

Mr. Benito J. Garcia

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October 7, 1996

bcc w/o enclosure:

M. McFadden, CAO

K. Hunter, CAO

J. Mewhinney, CAO

C. Wayman, CAO

K. Donovan, WID

**Final Validated Analytical Results**

**SWMU #001n, P-15**

**Comparison of Total Metals Results to Action Levels  
SWMU # 001n, Mudpit P-15**

<b>Metal Analyte</b>	<b>Background Concentration (mg/kg) <sup>(1)(2)(7)</sup></b>	<b>Maximum SWMU Concentration (mg/kg) <sup>(1)(3)(7)</sup></b>	<b>Subpart S Level (mg/kg) <sup>(4)</sup></b>
<b>12-24 inches bgs</b>			
Total Arsenic (As)	0.6	0.8	80
Total Barium (Ba)	13	110	4000
Total Cadmium (Cd)	0.5 U	0.5 U	40
Total Chromium (Cr)	4	7	400
Total Lead (Pb)	1.2	2	400 <sup>(5)</sup>
Total Mercury (Hg)	0.02 UJ	0.02 UJ	20
Total Thallium (Tl)	20 UJ	20 UJ	--- <sup>(6)</sup>
<b>60-72 inches bgs</b>			
Total Arsenic (As)	0.8	1	80
Total Barium (Ba)	16	42	4000
Total Cadmium (Cd)	1.8	0.5 U	40
Total Chromium (Cr)	5	6	400
Total Lead (Pb)	1.4	2.6	400 <sup>(5)</sup>
Total Mercury (Hg)	0.02 UJ	0.02 UJ	20
Total Thallium (Tl)	20 UJ	20 UJ	--- <sup>(6)</sup>

mg/kg Milligrams per kilogram  
bgs Below ground surface

- 1) Results are presented in mg/kg, wet weight.
- 2) Background upgradient soil concentrations as measured in Hole #1.
- 3) Maximum concentration measured in soil samples collected from within Mudpit P-15 (Holes #3 and #4).
- 4) Action levels taken from Appendix D of proposed 40CFR 264.521(d), FR Vol.55, No. 145, VI(D), p. 30870.
- 5) No action levels are included in Subpart S for lead. The action level of 400 mg/kg included in the table is the residential soil cleanup level recommended by the EPA Office of Solid Waste.
- 6) No action levels are included in Subpart S for thallium.
- 7) The following data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994):

J Result should be considered an estimated value  
 U Analyte was not detected; value is the method reporting limit  
 UJ Analyte was not detected; however the reporting limit presented should be considered an estimated value

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001n, Mudpit P-15**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #3	HOLE #3
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	12-24 (DUP)	60-72	60-72 (DUP)
<b>TCLP Sample Date:</b>	8/4/95	8/4/95	8/4/95	8/4/95	8/4/95	8/4/95	8/4/95	8/4/95
<b>TCLP Sample Numbers:</b>	RA-95-084	RA-95-086	RA-95-088	RA-95-090	RA-95-093	RA-95-094	RA-95-099	RA-95-100
<b>Total Sample Date:</b>	7/1/96	7/1/96	7/1/96	7/1/96	7/1/96		7/1/96	
<b>Total Sample Numbers:</b>	RA-96-021	RA-96-022	RA-96-023	RA-96-024	RA-96-026	NA	RA-96-028	NA

**Analytes**

**Metals**

TCLP Arsenic (As)	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
<b>Total Arsenic (As)</b>	<b>0.6</b>	<b>0.8</b>	<b>0.6</b>	<b>0.8</b>	<b>0.8</b>	NA	<b>0.8</b>	NA
TCLP Barium (Ba)	0.51 B	0.35 UB	0.42 B	0.54 B	0.51 B	0.45 B	0.3 UB	0.32 UB
<b>Total Barium (Ba)</b>	<b>13</b>	<b>16</b>	<b>12</b>	<b>19</b>	<b>110</b>	NA	<b>42</b>	NA
TCLP Cadmium (Cd)	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Cadmium (Cd)</b>	<b>0.5 U</b>	<b>1.8</b>	<b>0.5 U</b>	<b>0.5 U</b>	<b>0.5 U</b>	NA	<b>0.5 U</b>	NA
TCLP Chromium (Cr)	0.2 U	0.2 U	0.2 U	0.2 U				
<b>Total Chromium (Cr)</b>	<b>4</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>7</b>	NA	<b>5</b>	NA
TCLP Lead (Pb)	0.5 U	0.5 U	0.5 U	0.5 U				
<b>Total Lead (Pb)</b>	<b>1.2</b>	<b>1.4</b>	<b>1.3</b>	<b>1.6</b>	<b>2</b>	NA	<b>1.8</b>	NA
TCLP Mercury (Hg)	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ				
<b>Total Mercury (Hg)</b>	<b>0.02 UJ</b>	NA	<b>0.02 UJ</b>	NA				
TCLP Thallium (Tl)	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
<b>Total Thallium (Tl)</b>	<b>20 UJ</b>	NA	<b>20 UJ</b>	NA				

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001n, Mudpit P-15 (cont.)**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #3	HOLE #3
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	12-24 (DUP)	60-72	60-72 (DUP)
<b>TCLP Sample Date:</b>	8/4/95	8/4/95	8/4/95	8/4/95	8/4/95	8/4/95	8/4/95	8/4/95
<b>TCLP Sample Numbers:</b>	RA-95-083	RA-95-085	RA-95-087	RA-95-089	RA-95-091	RA-95-092	RA-95-097	RA-95-098
<b>Total Sample Date:</b>					7/1/96		7/1/96	
<b>Total Sample Numbers:</b>	NA	NA	NA	NA	RA-96-025	NA	RA-96-027	NA

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total 1,1,1-Trichloroethane</b>	NA	NA	NA	NA	0.005 U	NA	0.005 U	NA
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total 1,2-Dichloroethane</b>	NA	NA	NA	NA	0.005 U	NA	0.005 U	NA
TCLP Benzene	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Benzene</b>	NA	NA	NA	NA	0.005 U	NA	0.005 U	NA
TCLP Chloroform	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Chloroform</b>	NA	NA	NA	NA	0.005 U	NA	0.005 U	NA
TCLP Ethyl benzene	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Ethyl benzene</b>	NA	NA	NA	NA	0.005 U	NA	0.005 U	NA
TCLP Toluene	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Toluene</b>	NA	NA	NA	NA	0.005 U	NA	0.005 U	NA
TCLP Vinyl chloride	0.1 U	0.1 U	0.1 U	0.1 U				
<b>Total Vinyl chloride</b>	NA	NA	NA	NA	0.01 U	NA	0.01 U	NA
TCLP Xylenes, total	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Xylenes, total</b>	NA	NA	NA	NA	0.005 U	NA	0.005 U	NA

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001n, Mudpit P-15 (cont.)**

<b>HOLE Number:</b>	<b>HOLE #4</b>	<b>HOLE #4</b>	<b>EQ BLANK</b>	<b>FD BLANK</b>
<b>Depth (inches):</b>	12-24	60-72		
<b>TCLP Sample Date:</b>	8/4/95	8/4/95	8/4/95	8/4/95
<b>TCLP Sample Numbers:</b>	RA-95-102	RA-95-106	RA-95-096	RA-95-104
<b>Total Sample Date:</b>	7/1/96	7/1/96	7/1/96	7/1/96
<b>Total Sample Numbers:</b>	RA-96-030	RA-96-032	RA-96-033	RA-96-034

**Analytes**

**Metals**

TCLP Arsenic (As)	1 U	1 U	1 U	1 U
<b>Total Arsenic (As)</b>	<b>0.6</b>	<b>1</b>	<b>0.003 U</b>	<b>0.003 U</b>
TCLP Barium (Ba)	0.34 UB	0.43 B	0.08 UB	0.05 U
<b>Total Barium (Ba)</b>	<b>27</b>	<b>27</b>	<b>0.042</b>	<b>0.042</b>
TCLP Cadmium (Cd)	0.05 U	0.1 U	0.05 U	0.05 U
<b>Total Cadmium (Cd)</b>	<b>0.5 U</b>	<b>0.5 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Chromium (Cr)	0.2 U	0.2 U	0.2 U	0.2 U
<b>Total Chromium (Cr)</b>	<b>5</b>	<b>6</b>	<b>0.02 U</b>	<b>0.02 U</b>
TCLP Lead (Pb)	0.5 U	0.5 U	0.5 U	0.5 U
<b>Total Lead (Pb)</b>	<b>1.9</b>	<b>2.6</b>	<b>0.002 U</b>	<b>0.002 U</b>
TCLP Mercury (Hg)	0.0002 U	0.0002 U	0.0002 UJ	0.0002 U
<b>Total Mercury (Hg)</b>	<b>0.02 UJ</b>	<b>0.02 UJ</b>	<b>0.0001 UJ</b>	<b>0.0001 UJ</b>
TCLP Thallium (Tl)	2 U	2 U	2 U	2 U
<b>Total Thallium (Tl)</b>	<b>20 UJ</b>	<b>20 UJ</b>	<b>0.2 U</b>	<b>0.2 U</b>

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001n, Mudpit P-15 (cont.)**

<b>HOLE Number:</b>	HOLE #4	HOLE #4	EQ BLANK	FD BLANK
<b>Depth (inches):</b>	12-24	60-72		
<b>TCLP Sample Date:</b>	8/4/95	8/4/95	8/4/95	8/4/95
<b>TCLP Sample Numbers:</b>	RA-95-101	RA-95-105	RA-95-095	RA-95-103
<b>Total Sample Date:</b>	7/1/96	7/1/96		
<b>Total Sample Numbers:</b>	RA-96-029	RA-96-031	NA	NA

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total 1,1,1-Trichloroethane</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total 1,2-Dichloroethane</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Benzene	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Benzene</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Chloroform	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Chloroform</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Ethyl benzene	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Ethyl benzene</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Toluene	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Toluene</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Vinyl chloride	0.1 U	0.1 U	0.1 U	0.1 U
<b>Total Vinyl chloride</b>	<b>0.01 U</b>	<b>0.01 U</b>	NA	NA
TCLP Xylenes, total	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Xylenes, total</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

WIPP Soil Samples  
Data Review Form

**Statement of Purpose:**

To review laboratory data packages for soil samples collected at SWMUs, evaluate data package completeness, and compare analytical quality control data to program objectives.

**Section 1: Data Package Identification**

P.O. Number: 500101	No. Of Samples In Package: 14
Sample Collection Date: 7/1/96	Sample Receipt Date: 7/2/96
Sample Report Date: 7/31/96	Analytical Parameters: Total Metals, Volatiles
Sample Numbers in Data Package: RA-96-021, RA-96-022, RA-96-023, RA-96-024, RA-96-025, RA-96-026, RA-96-027, RA-96-028, RA-96-029, RA-96-030, RA-96-031, RA-96-032, RA-96-033, RA-96-034	
Data Reviewer: Kevin E. Garrett	Date of Review: 9/25/96

Symbols used in the sections below are defined as follows:

<u>X</u>	Included: no problem	<u>R</u>	Resubmission
<u>*</u>	Included: problems noted	<u>NR</u>	Not Required
<u>O</u>	Not Included		

**Section 2. Data Summary**

Data for the above listed samples are:

<u>      </u>	Acceptable for use
<u>  X  </u>	Acceptable for use with qualifications noted
<u>      </u>	Preliminary - pending action or verification
<u>      </u>	Unacceptable for use
<u>      </u>	To be reviewed by senior chemist

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

### Section 3. Data Package Completeness Review

<u>X</u>	Chain of Custody/Request for Analysis
<u>X</u>	Laboratory Analysis Report
<u>X</u>	Holding Times
<u>X</u>	Method Reporting Limits
<u>X</u>	Dilution Factor
<u>X</u>	Quality Control Report

### Section 4. QC Review (from Laboratory Quality Control Report)

#### Volatiles

<u>X</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>X</u>	Surrogate Standard Recovery
<u>NR</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>X</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

#### Semivolatiles

<u>NR</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>NR</u>	Surrogate Standard Recovery
<u>NR</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>NR</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

#### Metals

<u>X</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>* (1)</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>* (2)</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

### Section 5. Calibration Data

#### Volatiles

<u>X</u>	GC/MS Analysis Log
<u>X</u>	GC/MS Initial Calibration Data
<u>* (3)</u>	GC/MS Continuing Calibration Data

## Section 5. Calibration Data (continued)

### Semivolatiles

<u>NR</u>	GC/MS Analysis Log
<u>NR</u>	GC/MS Initial Calibration Data
<u>NR</u>	GC/MS Continuing Calibration Data

### Metals

<u>X</u>	ICP Analysis Log
<u>X</u>	GFAA Analysis Log
<u>X</u>	CVAA Analysis Log
<u>X</u>	ICP Initial Calibration Data
<u>O (4)</u>	ICP Continuing Calibration Data
<u>X</u>	GFAA Initial Calibration Data
<u>O (4)</u>	GFAA Continuing Calibration Data
<u>X</u>	CVAA Initial Calibration Data
<u>O (4)</u>	CVAA Continuing Calibration Data

## Section 6. Comments

1) Matrix spike (MS) and matrix spike duplicate (MSD) recoveries slightly outside of the laboratory QC limits were observed on an isolated basis for arsenic. However, these recoveries were within EPA functional guideline criteria for MS/MSD recoveries (75-125 percent); therefore, no data qualifiers were added. A MS recovery for mercury (54.0 percent) was below the lower laboratory QC limits (64 percent) and the 75 percent lower EPA functional guideline QC limit. Therefore, the mercury results in the associated investigative samples (RA-96-033, RA-96-034) were qualified as estimated (J). The laboratory indicated on the matrix spike summary report that thallium was not spiked in the matrix spike sample analyzed. No explanation was provided on why thallium was not spiked. Therefore, the thallium results in the associated investigative samples (RA-96-021, RA-96-022, RA-96-023, RA-96-024, RA-96-026, RA-96-028, RA-96-030, RA-96-032) were qualified as estimated (J).

2) The laboratory control sample (LCS) percent recovery for mercury (74.7 percent) was below the 80.7 percent lower laboratory QC limit and the 80 percent lower EPA functional guideline QC limit. Therefore, the mercury results in the associated investigative samples (RA-96-021, RA-96-022, RA-96-023, RA-96-024, RA-96-026, RA-96-028, RA-96-030, RA-96-032) were qualified as estimated (J).

3) The data package did not include a summary of the continuing calibration percent differences. No qualifications have been made due to the missing continuing calibration data because the samples were included in an analytical run for which the initial calibration data were provided in the data package.

4) The initial calibration verification (ICV) and continuing calibration verification (CCV) percent recovery results for the metals analyses were incomplete. However, no problems were found with the partial ICV and CCV information that was provided. Therefore, no qualifications have been made due to the missing ICV and CCV results at this time.

Signatures below constitute validation of this record.

Validator: Kevin E. Garrett Kevin E. Garrett 9/25/96  
Printed Name Signature Date

QA/QC Reviewer: Mark R. Coleman Mark R. Coleman 9/26/96  
Printed Name Signature Date



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.:  
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-021  
NUS SAMPLE NO: P0349350  
P.O. NO.: 500101

DATE SAMPLED: 01-JUL-96  
DATE RECEIVED: 02-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNIT
2	ABAS	Barium, Total (Ba)	1	13	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	4	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	I620S	Percent Solids at 103C	1	96.9	%
11	AASSA	Arsenic, Total (As)	1	0.6	mg/kg
12	APBS	Lead, Total (Pb)	1	1.2	mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By *Kevin W. Ward*

Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
 Section A Page 2

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-022  
 NUS SAMPLE NO: P0349351  
 P.O. NO.: 500101

 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	16	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	1.8	mg/kg
4	ACRS	Chromium, Total (Cr)	1	5	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	1620S	Percent Solids at 103C	1	97.8	%
11	AASSA	Arsenic, Total (As)	1	0.8	mg/kg
12	APBS	Lead, Total (Pb)	1	1.4	mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *Joanne Simanic*

 Date 9/25/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.:  
Section A Page 3

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-023  
NUS SAMPLE NO: P0349352  
P.O. NO.: 500101

DATE SAMPLED: 01-JUL-96  
DATE RECEIVED: 02-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	12	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	4	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	1620S	Percent Solids at 103C	1	96.2	%
11	AASSA	Arsenic, Total (As)	1	0.6	mg/kg
12	APBS	Lead, Total (Pb)	1	1.3	mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By Joanne Simanic

Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
 Section A Page 4

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
  
 SAMPLE ID: RA-96-024  
 NUS SAMPLE NO: P0349353  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

<u>LN</u>	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	19	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	4	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg
10	I620S	Percent Solids at 103C	1	97.6	%
11	AASSA	Arsenic, Total (As)	1	0.8	mg/kg
12	APBS	Lead, Total (Pb)	1	1.6	mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *Kim G. Smith*

 Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
 Section A Page 6

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
           CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
  
 SAMPLE ID: RA-96-026  
 NUS SAMPLE NO: P0349355  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

<u>LN</u>	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	110	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	7	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	I620S	Percent Solids at 103C	1	94.1	%
11	AASSA	Arsenic, Total (As)	1	0.8	mg/kg
12	APBS	Lead, Total (Pb)	1	2.0	mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *[Signature]*

 Date 9/25/96



LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

SAMPLE ID: RA-96-025  
NUS SAMPLE NO: P0349354  
P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

DATE SAMPLED: 01-JUL-96  
DATE RECEIVED: 02-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylene (total)	1	< .005	mg/kg
10	1620S	Percent Solids at 103C	1	94.0	%

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By

Date

*[Signature]*  
7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
 Section A Page 7

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
  
 SAMPLE ID: RA-96-027  
 NUS SAMPLE NO: P0349356  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylene (total)	1	< .005	mg/kg
10	I620S	Percent Solids at 103C	1	97.4	%

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Joanne Simanic

 Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
 Section A Page 8

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
  
 SAMPLE ID: RA-96-028  
 NUS SAMPLE NO: P0349357  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727  
  
 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	42	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	5	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	I620S	Percent Solids at 103C	1	97.2	%
11	AASSA	Arsenic, Total (As)	1	0.8	mg/kg
12	APBS	Lead, Total (Pb)	1	1.8	mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *Ann G. Smith*  
 Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
 Section A Page 10

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-030  
 NUS SAMPLE NO: P0349359  
 P.O. NO.: 500101

 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

<u>LN</u>	<u>TEST CODE</u>	<u>DETERMINATION</u>	<u>DILN</u>	<u>RESULT</u>	<u>UNITS</u>
2	ABAS	Barium, Total (Ba)	1	27	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	5	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	1620S	Percent Solids at 103C	1	97.4	%
11	AASSA	Arsenic, Total (As)	1	0.6	mg/kg
12	APBS	Lead, Total (Pb)	1	1.9	mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *[Signature]*

 Date 9/5/96



LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER  
  
SAMPLE ID: RA-96-029  
NUS SAMPLE NO: P0349358  
P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727  
  
DATE SAMPLED: 01-JUL-96  
DATE RECEIVED: 02-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylenes (total)	1	< .005	mg/kg
10	1620S	Percent Solids at 103C	1	97.6	%

COMMENTS:  
Results are reported on a wet weight basis.

**VALIDATED**  
Reviewed By [Signature]  
Date 7/31/96



NUS LABORATORY  
 5350 Campbells Run Road  
 Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

Report No.:  
 Section A Page 11

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
 SAMPLE ID: RA-96-031  
 NUS SAMPLE NO: P0349360  
 P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylene (total)	1	< .005	mg/kg
10	I620S	Percent Solids at 103C	1	96.3	%

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By *[Signature]*

Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
 Section A Page 12

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
           CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
  
 SAMPLE ID: RA-96-032  
 NUS SAMPLE NO: P0349361  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727  
  
 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	27	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	6	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	I620S	Percent Solids at 103C	1	96.1	%
11	AASSA	Arsenic, Total (As)	1	1.0	mg/kg
12	APBS	Lead, Total (Pb)	2	2.6	mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *[Signature]*

 Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
 Section A Page 13

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
  
 SAMPLE ID: RA-96-033  
 NUS SAMPLE NO: P0349362  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727  
  
 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003	mg/L
2	ABAW	Barium, Total (Ba)	1	0.042	mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005	mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02	mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002	mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2	mg/L
15	AHGW	Mercury, Total (Hg)	1	< 0.0001	mg/L J

## COMMENTS:

 15 This sample was analyzed as a matrix spike. Recovery of the spike was outside established acceptance limits indicating the presence of a possible matrix interference.  
 Poor and erratic spike recovery is probably the result of matrix interference.

**VALIDATED**

 Reviewed By *[Signature]*

 Date 7/31/96



# Halliburton NUS CORPORATION

NUS LABORATORY  
5350 Campbells Run Road  
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.:  
Section A Page 14

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-034  
NUS SAMPLE NO: P0349363  
P.O. NO.: 500101

DATE SAMPLED: 01-JUL-96  
DATE RECEIVED: 02-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003	mg/L
2	ABAW	Barium, Total (Ba)	1	0.042	mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005	mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02	mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002	mg/L
6	AHGW	Mercury, Total (Hg)	1	< 0.0001	mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2	mg/L

COMMENTS:

**VALIDATED**  
Reviewed By [Signature]  
Date 7/25/96

**Final Validated Analytical Results**

**SWMU #001t, IMC-374**

**Comparison of Total Metals Results to Action Levels  
SWMU # 001t, Mudpit IMC 374**

<b>Metal Analyte</b>	<b>Background Concentration (mg/kg) <sup>(1)(2)(7)</sup></b>	<b>Maximum SWMU Concentration (mg/kg) <sup>(1)(3)(7)</sup></b>	<b>Subpart S Level (mg/kg) <sup>(4)</sup></b>
<b>12-24 inches bgs</b>			
Total Arsenic (As)	0.5	0.7	80
Total Barium (Ba)	10	16	4000
Total Cadmium (Cd)	0.5 U	0.5 U	40
Total Chromium (Cr)	4	4	400
Total Lead (Pb)	1.5	1.6	400 <sup>(5)</sup>
Total Mercury (Hg)	0.02 UJ	0.02 UJ	20
Total Thallium (Tl)	20 UJ	20 UJ	--- <sup>(6)</sup>
<b>60-72 inches bgs</b>			
Total Arsenic (As)	0.6	0.8	80
Total Barium (Ba)	15	16	4000
Total Cadmium (Cd)	0.5 U	0.5 U	40
Total Chromium (Cr)	5	5	400
Total Lead (Pb)	1.6	1.7	400 <sup>(5)</sup>
Total Mercury (Hg)	0.02 UJ	0.02 UJ	20
Total Thallium (Tl)	20 UJ	20 UJ	--- <sup>(6)</sup>

mg/kg Milligrams per kilogram  
bgs Below ground surface

- 1) Results are presented in mg/kg, wet weight.
- 2) Background upgradient soil concentrations as measured in Hole #1.
- 3) Maximum concentration measured in soil samples collected from within Mudpit IMC 374 (Holes #2 and #3).
- 4) Action levels taken from Appendix D of proposed 40CFR 264.521(d), FR Vol.55, No. 145, VI(D), p. 30870.
- 5) No action levels are included in Subpart S for lead. The action level of 400 mg/kg included in the table is the residential soil cleanup level recommended by the EPA Office of Solid Waste.
- 6) No action levels are included in Subpart S for thallium.
- 7) The following data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994):

- J Result should be considered an estimated value
- U Analyte was not detected; value is the method reporting limit
- UJ Analyte was not detected; however the reporting limit presented should be considered an estimated value

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001t, Mudpit IMC 374**

	HOLE #1	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>Depth (inches):</b>	12-24	12-24 (DUP)	60-72	12-24	60-72	12-24	60-72	12-24	60-72
<b>TCLP Sample Date:</b>	7/31/95	7/31/95	7/31/95	7/31/95	7/31/95	7/31/95	7/31/95	8/2/95	8/2/95
<b>TCLP Sample Numbers:</b>	RA-95-037	RA-95-038	RA-95-042	RA-95-044	RA-95-046	RA-95-048	RA-95-050	RA-95-058	RA-95-060
<b>Total Sample Date:</b>	7/1/96		7/1/96	7/1/96	7/1/96	7/1/96	7/1/96	7/1/96	7/1/96
<b>Total Sample Numbers:</b>	RA-96-035	NA	RA-96-036	RA-96-037	RA-96-038	RA-96-040	RA-96-042	RA-96-044	RA-96-046

**Analytes**

**Metals**

TCLP Arsenic (As)	0.1 U	1 U	1 U	0.2 UB	1 U	0.1 U	0.2 UB	1 U	1 U
<b>Total Arsenic (As)</b>	<b>0.5</b>	<b>NA</b>	<b>0.6</b>	<b>0.7</b>	<b>0.8</b>	<b>0.4</b>	<b>0.7</b>	<b>0.6</b>	<b>0.8</b>
TCLP Barium (Ba)	0.48 UB	0.66 UB	0.6 UB	0.68 UB	0.45 UB	0.83 B	0.48 UB	0.3 UB	0.36 UB
<b>Total Barium (Ba)</b>	<b>10</b>	<b>NA</b>	<b>15</b>	<b>16</b>	<b>14</b>	<b>12</b>	<b>16</b>	<b>9.3</b>	<b>20</b>
TCLP Cadmium (Cd)	0.05 U	0.05 U	0.06	0.05 U	0.05 U	0.05	0.05 U	0.05 U	0.07
<b>Total Cadmium (Cd)</b>	<b>0.5 U</b>	<b>NA</b>	<b>0.5 U</b>						
TCLP Chromium (Cr)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
<b>Total Chromium (Cr)</b>	<b>4</b>	<b>NA</b>	<b>5</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>2 U</b>
TCLP Lead (Pb)	0.5 U	0.05 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
<b>Total Lead (Pb)</b>	<b>1.5</b>	<b>NA</b>	<b>1.6</b>	<b>1.6</b>	<b>1.7</b>	<b>1.1</b>	<b>1.5</b>	<b>1.2</b>	<b>1.4 J</b>
TCLP Mercury (Hg)	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ
<b>Total Mercury (Hg)</b>	<b>0.02 UJ</b>	<b>NA</b>	<b>0.02 UJ</b>						
TCLP Thallium (Tl)	0.2 U	2 U	2 U	0.2 U	2 U	0.2 U	0.2 U	2 U	2 U
<b>Total Thallium (Tl)</b>	<b>20 UJ</b>	<b>NA</b>	<b>20 UJ</b>						

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

**Notes:**

- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
- 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
- 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001t, Mudpit IMC 374 (cont.)**

HOLE Number:	HOLE #1	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
Depth (inches):	12-24	12-24 (DUP)	60-72	12-24	60-72	12-24	60-72	12-24	60-72
TCLP Sample Date:	7/31/95	7/31/95	7/31/95	7/31/95	7/31/95	7/31/95	7/31/95	8/2/95	8/2/95
TCLP Sample Numbers:	RA-95-035	RA-95-036	RA-95-041	RA-95-043	RA-95-045	RA-95-047	RA-95-049	RA-95-057	RA-95-059
Total Sample Date:						7/1/96	7/1/96	7/1/96	7/1/96
Total Sample Numbers:	NA	NA	NA	NA	NA	RA-96-039	RA-96-041	RA-96-043	RA-96-045

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	0.05 U	0.05 U					
<b>Total 1,1,1-Trichloroethane</b>	NA	NA	NA	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	0.05 U	0.05 U					
<b>Total 1,2-Dichloroethane</b>	NA	NA	NA	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Benzene	0.05 U	0.05 U	0.05 U	0.05 U					
<b>Total Benzene</b>	NA	NA	NA	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Chloroform	0.05 U	0.05 U	0.05 U	0.05 U					
<b>Total Chloroform</b>	NA	NA	NA	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Ethyl benzene	0.05 U	0.05 U	0.05 U	0.05 U					
<b>Total Ethyl benzene</b>	NA	NA	NA	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Toluene	0.05 U	0.05 U	0.05 U	0.05 U					
<b>Total Toluene</b>	NA	NA	NA	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Vinyl chloride	0.1 U	0.1 U	0.1 U	0.1 U					
<b>Total Vinyl chloride</b>	NA	NA	NA	NA	NA	<b>0.01 U</b>	<b>0.01 U</b>	<b>0.01 U</b>	<b>0.01 U</b>
TCLP Xylenes, total	0.05 U	0.05 U	0.05 U	0.05 U					
<b>Total Xylenes, total</b>	NA	NA	NA	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

**Notes:**

- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
- 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
- 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001t, Mudpit IMC 374 (cont.)**

<b>HOLE Number:</b>	<b>HOLE #5</b>	<b>HOLE #5</b>	<b>HOLE #5</b>	<b>EQ BLANK</b>	<b>FD BLANK</b>
<b>Depth (inches):</b>	12-24	12-24 (DUP)	60-72		
<b>TCLP Sample Date:</b>	8/2/95	8/2/95	8/2/95	7/31/95	
<b>TCLP Sample Numbers:</b>	RA-95-053	RA-95-054	RA-95-056	RA-95-040	NA
<b>Total Sample Date:</b>				7/1/96	7/1/96
<b>Total Sample Numbers:</b>	NA	NA	NA	RA-96-047	RA-96-048

**Analytes**

**Metals**

TCLP Arsenic (As)	1 U	1 U	0.1 UB	1 U	NA
<b>Total Arsenic (As)</b>	NA	NA	NA	<b>0.003 U</b>	<b>0.003 U</b>
TCLP Barium (Ba)	0.25 UB	0.3 UB	0.27 UB	0.17 UB	NA
<b>Total Barium (Ba)</b>	NA	NA	NA	<b>0.038</b>	<b>0.038</b>
TCLP Cadmium (Cd)	0.06	0.05 U	0.05 U	0.05 U	NA
<b>Total Cadmium (Cd)</b>	NA	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Chromium (Cr)	0.2 U	0.2 U	0.20 U	0.2 U	NA
<b>Total Chromium (Cr)</b>	NA	NA	NA	<b>0.02 U</b>	<b>0.02 U</b>
TCLP Lead (Pb)	0.5 U	0.5 U	0.5 U	0.05 U	NA
<b>Total Lead (Pb)</b>	NA	NA	NA	<b>0.002 U</b>	<b>0.002 U</b>
TCLP Mercury (Hg)	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 U	NA
<b>Total Mercury (Hg)</b>	NA	NA	NA	<b>0.0001 UJ</b>	<b>0.0001 UJ</b>
TCLP Thallium (Tl)	2 U	2 U	0.2 U	2 U	NA
<b>Total Thallium (Tl)</b>	NA	NA	NA	<b>0.2 U</b>	<b>0.2 U</b>

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001t, Mudpit IMC 374 (cont.)**

<b>HOLE Number:</b>	HOLE #5	HOLE #5	HOLE #5	EQ BLANK
<b>Depth (inches):</b>	12-24	12-24 (DUP)	60-72	
<b>TCLP Sample Date:</b>	8/2/95	8/2/95	8/2/95	7/31/95
<b>TCLP Sample Numbers:</b>	RA-95-051	RA-95-052	RA-95-055	RA-95-039
<b>Total Sample Date:</b>				
<b>Total Sample Numbers:</b>	NA	NA	NA	NA

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total 1,1,1-Trichloroethane</b>	NA	NA	NA	NA
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total 1,2-Dichloroethane</b>	NA	NA	NA	NA
TCLP Benzene	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Benzene</b>	NA	NA	NA	NA
TCLP Chloroform	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Chloroform</b>	NA	NA	NA	NA
TCLP Ethyl benzene	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Ethyl benzene</b>	NA	NA	NA	NA
TCLP Toluene	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Toluene</b>	NA	NA	NA	NA
TCLP Vinyl chloride	0.1 U	0.1 U	0.1 U	0.1 U
<b>Total Vinyl chloride</b>	NA	NA	NA	NA
TCLP Xylenes, total	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Xylenes, total</b>	NA	NA	NA	NA

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

WIPP Soil Samples  
Data Review Form

**Statement of Purpose:**

To review laboratory data packages for soil samples collected at SWMUs, evaluate data package completeness, and compare analytical quality control data to program objectives.

**Section 1: Data Package Identification**

P.O. Number: 500101	No. Of Samples In Package: 14
Sample Collection Date: 7/1/96	Sample Receipt Date: 7/2/96
Sample Report Date: 7/31/96	Analytical Parameters: Total Metals, Volatiles
Sample Numbers in Data Package: RA-96-035, RA-96-036, RA-96-037, RA-96-038, RA-96-039, RA-96-040, RA-96-041, RA-96-042, RA-96-043, RA-96-044, RA-96-045, RA-96-046, RA-96-047, RA-96-048	
Data Reviewer: Kevin E. Garrett	Date of Review: 9/25/96

Symbols used in the sections below are defined as follows:

<u>X</u>	Included: no problem	<u>R</u>	Resubmission
<u>*</u>	Included: problems noted	<u>NR</u>	Not Required
<u>O</u>	Not Included		

**Section 2. Data Summary**

Data for the above listed samples are:

       Acceptable for use  
  X   Acceptable for use with qualifications noted  
       Preliminary - pending action or verification  
       Unacceptable for use  
       To be reviewed by senior chemist

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

### Section 3. Data Package Completeness Review

X Chain of Custody/Request for Analysis  
X Laboratory Analysis Report  
X Holding Times  
X Method Reporting Limits  
X Dilution Factor  
X Quality Control Report

### Section 4. QC Review (from Laboratory Quality Control Report)

#### Volatiles

X Method Blank  
NR Leachate Blank  
X Surrogate Standard Recovery  
NR Matrix Spike/Matrix Spike Duplicate Samples  
X Laboratory Control Sample  
NR Duplicate Sample

#### Semivolatiles

NR Method Blank  
NR Leachate Blank  
NR Surrogate Standard Recovery  
NR Matrix Spike/Matrix Spike Duplicate Samples  
NR Laboratory Control Sample  
NR Duplicate Sample

#### Metals

X Method Blank  
NR Leachate Blank  
\* (1) Matrix Spike/Matrix Spike Duplicate Samples  
\* (2) Laboratory Control Sample  
NR Duplicate Sample

### Section 5. Calibration Data

#### Volatiles

X GC/MS Analysis Log  
X GC/MS Initial Calibration Data  
\* (3) GC/MS Continuing Calibration Data

## Section 5. Calibration Data (continued)

### Semivolatiles

<u>NR</u>	GC/MS Analysis Log
<u>NR</u>	GC/MS Initial Calibration Data
<u>NR</u>	GC/MS Continuing Calibration Data

### Metals

<u>X</u>	ICP Analysis Log
<u>X</u>	GFAA Analysis Log
<u>X</u>	CVAA Analysis Log
<u>X</u>	ICP Initial Calibration Data
<u>O (4)</u>	ICP Continuing Calibration Data
<u>X</u>	GFAA Initial Calibration Data
<u>O (4)</u>	GFAA Continuing Calibration Data
<u>X</u>	CVAA Initial Calibration Data
<u>O (4)</u>	CVAA Continuing Calibration Data

## Section 6. Comments

1) Matrix spike (MS) and matrix spike duplicate (MSD) recoveries slightly outside of the laboratory QC limits were observed on an isolated basis for arsenic and barium. However, these recoveries were within EPA functional guideline criteria for MS recoveries (75-125 percent); therefore, no data qualifiers were added. A MS recovery for mercury (54.0 percent) was below the lower laboratory QC limits (64 percent) and the 75 percent lower EPA functional guideline QC limit. Therefore, the mercury results in the associated investigative samples (RA-96-047, RA-96-048) were qualified as estimated (J). One MS and MSD recovery for lead (202.5 percent and 152.5 percent, respectively) exceeded the upper laboratory QC limits (108 percent) and the 125 percent upper QC limit specified in the EPA functional guidelines. Therefore, the positive detection for lead in the associated investigative sample (RA-96-046) was qualified as estimated (J). The laboratory indicated on the matrix spike summary report that thallium was not spiked in the matrix spike sample analyzed. No explanation on why thallium was not spiked was provided. Therefore, the thallium results in the associated investigative samples (RA-96-035, RA-96-036, RA-96-037, RA-96-038, RA-96-040, RA-96-042, RA-96-044) were qualified as estimated (J).

2) The laboratory control sample (LCS) percent recovery for mercury (74.7 percent) was below the 80.7 percent lower laboratory QC limit and the 80 percent lower EPA functional guideline QC limit. Therefore, the mercury results in the associated investigative samples (RA-96-035, RA-96-036, RA-96-037, RA-96-038, RA-96-040, RA-96-042, RA-96-044, RA-96-046) were qualified as estimated (J).  
*RA-96-046 -msc, 9/26/96*

3) The data package did not include a summary of the continuing calibration percent differences. No qualifications have been made due to the missing continuing calibration data because the samples were included in an analytical run for which the initial calibration data were provided in the data package.

4) The initial calibration verification (ICV) and continuing calibration verification (CCV) percent recovery results for the metals analyses were incomplete. However, no problems were found with the partial ICV and CCV information that was provided. Therefore, no qualifications have been made due to the missing ICV and CCV results at this time.

Signatures below constitute validation of this record.

Validator:

Kevin E. Garrett  
Printed Name

Signature

Date



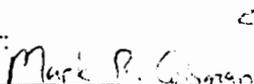
9/25/96

QA/QC Reviewer:

Printed Name

Signature

Date



9/26/96



NUS LABORATORY  
 5350 Campbells Run Road  
 Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

Report No.:  
 Section A Page 15

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP	NUS CLIENT NO: 1783 0003
ADDRESS: P.O. BOX 2078	WORK ORDER NO: 55830
CARLSBAD, NM 88221-2078	VENDOR NO: 01830727
ATTENTION: MS. PATTY LOUGHMILLER	
SAMPLE ID: RA-96-035	DATE SAMPLED: 01-JUL-96
NUS SAMPLE NO: P0349364	DATE RECEIVED: 02-JUL-96
P.O. NO.: 500101	APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	10	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	4	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	1620S	Percent Solids at 103C	1	98.1	%
11	AASSA	Arsenic, Total (As)	1	0.5	mg/kg
12	APBS	Lead, Total (Pb)	1	1.5	mg/kg

COMMENTS:  
 Results are reported on a wet weight basis.

**VALIDATED**  
 Reviewed By [Signature]  
 Date 9/35/96



NUS LABORATORY  
 5350 Campbells Run Road  
 Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

Report No.:  
 Section A Page 16

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
 SAMPLE ID: RA-96-036  
 NUS SAMPLE NO: P0349365  
 P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727  
 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

<u>LN</u>	<u>TEST CODE</u>	<u>DETERMINATION</u>	<u>DILN</u>	<u>RESULT</u>	<u>UNITS</u>
2	ABAS	Barium, Total (Ba)	1	15	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	5	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	1620S	Percent Solids at 103C	1	97.2	%
11	AASSA	Arsenic, Total (As)	1	0.6	mg/kg
12	APBS	Lead, Total (Pb)	1	1.6	mg/kg

COMMENTS:  
 Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By *Ken W. [Signature]*  
 Date 9/25/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.:  
Section A Page 17

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP	NUS CLIENT NO: 1783 0003
ADDRESS: P.O. BOX 2078	WORK ORDER NO: 55830
CARLSBAD, NM 88221-2078	VENDOR NO: 01830727
ATTENTION: MS. PATTY LOUGHMILLER	
SAMPLE ID: RA-96-037	DATE SAMPLED: 01-JUL-96
NUS SAMPLE NO: P0349366	DATE RECEIVED: 02-JUL-96
P.O. NO.: 500101	APPROVED BY: Simanic, Joanne

<u>LN</u>	<u>TEST CODE</u>	<u>DETERMINATION</u>	<u>DILN</u>	<u>RESULT</u>	<u>UNITS</u>
2	ABAS	Barium, Total (Ba)	1	16	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	4	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	I620S	Percent Solids at 103C	1	97.0	%
11	AASSA	Arsenic, Total (As)	1	0.7	mg/kg
12	APBS	Lead, Total (Pb)	1	1.6	mg/kg

COMMENTS:  
Results are reported on a wet weight basis.

**VALIDATED**  
Reviewed By [Signature]  
Date 9/25/96



# Halliburton NUS CORPORATION

NUS LABORATORY  
5350 Campbells Run Road  
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.:  
Section A Page 18

## LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER  
  
SAMPLE ID: RA-96-038  
NUS SAMPLE NO: P0349367  
P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727  
  
DATE SAMPLED: 01-JUL-96  
DATE RECEIVED: 02-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	14	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	5	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	I620S	Percent Solids at 103C	1	91.7	%
11	AASSA	Arsenic, Total (As)	1	0.8	mg/kg
12	APBS	Lead, Total (Pb)	1	1.7	mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By [Signature]  
Date 7/25/96





NUS LABORATORY  
 5350 Campbells Run Road  
 Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

Report No.:  
 Section A Page 20

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

SAMPLE ID: RA-96-040  
 NUS SAMPLE NO: P0349369  
 P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	12	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	3	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	I620S	Percent Solids at 103C	1	97.3	%
11	AASSA	Arsenic, Total (As)	1	0.4	mg/kg
12	APBS	Lead, Total (Pb)	1	1.1	mg/kg

COMMENTS:  
 Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By *Kevin W. ...*  
 Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-041  
 NUS SAMPLE NO: P0349370  
 P.O. NO.: 500101

 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylene (total)	1	< .005	mg/kg
10	I620S	Percent Solids at 103C	1	97.5	%

## COMMENTS:

Results are reported on a wet weight basis .

**VALIDATED**

 Reviewed By *[Signature]*  
 Date 9/25/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.:  
Section A Page 22

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER  
  
SAMPLE ID: RA-96-042  
NUS SAMPLE NO: P0349371  
P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727  
  
DATE SAMPLED: 01-JUL-96  
DATE RECEIVED: 02-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	16	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	4	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	I620S	Percent Solids at 103C	1	97.5	%
11	AASSA	Arsenic, Total (As)	1	0.7	mg/kg
12	APBS	Lead, Total (Pb)	1	1.5	mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By

Date

*[Signature]*  
\_\_\_\_\_  
7/25/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.:  
Section A Page 23

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-043  
NUS SAMPLE NO: P0349372  
P.O. NO.: 500101

DATE SAMPLED: 01-JUL-96  
DATE RECEIVED: 02-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylene (total)	1	< .005	mg/kg
10	I620S	Percent Solids at 103C	1	96.9	%

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By Chris Warrick

Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
  
 SAMPLE ID: RA-96-044  
 NUS SAMPLE NO: P0349373  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727  
  
 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	9.3	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	3	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	I620S	Percent Solids at 103C	1	97.2	%
11	AASSA	Arsenic, Total (As)	1	0.6	mg/kg
12	APBS	Lead, Total (Pb)	1	1.2	mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *Pen Glavin*

 Date *7/25/96*

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-045  
 NUS SAMPLE NO: P0349374  
 P.O. NO.: 500101

 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

<u>LN</u>	<u>TEST CODE</u>	<u>DETERMINATION</u>	<u>DILN</u>	<u>RESULT</u>	<u>UNITS</u>
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylene (total)	1	< .005	mg/kg
10	I620S	Percent Solids at 103C	1	98.5	%

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Joanne Simanic

 Date 9/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.:  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-046  
 NUS SAMPLE NO: P0349375  
 P.O. NO.: 500101

 DATE SAMPLED: 01-JUL-96  
 DATE RECEIVED: 02-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	20	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg
4	ACRS	Chromium, Total (Cr)	1	< 2	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg J
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg J
10	I620S	Percent Solids at 103C	1	97.5	%
11	AASSA	Arsenic, Total (As)	1	0.8	mg/kg
12	APBS	Lead, Total (Pb)	1	1.4	mg/kg J

*REC'D  
7/25/96*

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *[Signature]*  
 Date 7/25/96

TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.:  
Section A Page 27

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-047  
NUS SAMPLE NO: P0349376  
P.O. NO.: 500101

DATE SAMPLED: 01-JUL-96  
DATE RECEIVED: 02-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003	mg/L
2	ABAW	Barium, Total (Ba)	1	0.038	mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005	mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02	mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002	mg/L
6	AHGW	Mercury, Total (Hg)	1	< 0.0001	mg/L J
7	ATLW	Thallium, Total (Tl)	1	< 0.2	mg/L

COMMENTS:

**VALIDATED**

Reviewed By [Signature]

Date 7/25/96



# Halliburton NUS CORPORATION

NUS LABORATORY  
5350 Campbells Run Road  
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.:  
Section A Page 28

## LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER  
  
SAMPLE ID: RA-96-048  
NUS SAMPLE NO: P0349377  
P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727  
  
DATE SAMPLED: 01-JUL-96  
DATE RECEIVED: 02-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003	mg/L
2	ABAW	Barium, Total (Ba)	1	0.038	mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005	mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02	mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002	mg/L
6	AHWG	Mercury, Total (Hg)	1	< 0.0001	mg/L J
7	ATLW	Thallium, Total (Tl)	1	< 0.2	mg/L

COMMENTS:

**VALIDATED**

Reviewed By *Ben Simanic*  
Date *7/25/96*

**Final Validated Analytical Results**

**SWMU #001g, P-1**

**Comparison of Total Metals Results to Action Levels  
SWMU # 001g, Mudpit P-1**

<b>Metal Analyte</b>	<b>Background Concentration (mg/kg) <sup>(1)(2)(7)</sup></b>	<b>Maximum SWMU Concentration (mg/kg) <sup>(1)(3)(7)</sup></b>	<b>Subpart S Level (mg/kg) <sup>(4)</sup></b>
<b>12-24 inches bgs</b>			
Total Arsenic (As)	1 J	0.9 J	80
Total Barium (Ba)	35	17	4000
Total Cadmium (Cd)	0.5 UJ	0.5 UJ	40
Total Chromium (Cr)	5	4	400
Total Lead (Pb)	2.1 J	3.2 J	400 <sup>(5)</sup>
Total Mercury (Hg)	0.02 U	0.02 U	20
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>
<b>60-72 inches bgs</b>			
Total Arsenic (As)	1.8 J	1.5 J	80
Total Barium (Ba)	52	71	4000
Total Cadmium (Cd)	0.5 UJ	0.5 UJ	40
Total Chromium (Cr)	2	4	400
Total Lead (Pb)	3.8 J	2.4 J	400 <sup>(5)</sup>
Total Mercury (Hg)	0.04	0.02 U	20
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>

mg/kg Milligrams per kilogram  
bgs Below ground surface

- 1) Results are presented in mg/kg, wet weight.
- 2) Background upgradient soil concentrations as measured in Hole #1.
- 3) Maximum concentration measured in soil samples collected from within Mudpit P-1 (Hole #3).
- 4) Action levels taken from Appendix D of proposed 40CFR 264.521(d), FR Vol.55, No. 145, VI(D), p. 30870.
- 5) No action levels are included in Subpart S for lead. The action level of 400 mg/kg included in the table is the residential soil cleanup level recommended by the EPA Office of Solid Waste.
- 6) No action levels are included in Subpart S for thallium.
- 7) The following data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994):

J Result should be considered an estimated value  
 U Analyte was not detected; value is the method reporting limit  
 UJ Analyte was not detected; however the reporting limit presented should be considered an estimated value

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001g, Mudpit P-1**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	60-72
<b>TCLP Sample Date:</b>	10/4/95	10/4/95	10/4/95	10/4/95	10/4/95	10/4/95
<b>TCLP Sample Numbers:</b>	RA-95-145	RA-95-146	RA-95-147	RA-95-148	RA-95-150	RA-95-152
<b>Total Sample Date:</b>	7/2/96	7/2/96	7/2/96	7/2/96	7/2/96	7/2/96
<b>Total Sample Numbers:</b>	RA-96-061	RA-96-062	RA-96-064	RA-96-066	RA-96-068	RA-96-070

**Analytes**

**Metals**

TCLP Arsenic (As)	0.2 UB	0.2 UB	0.2 UB	0.1 UB	0.2 UB	0.1 U
<b>Total Arsenic (As)</b>	<b>1 J</b>	<b>1.8 J</b>	<b>1.2 J</b>	<b>1.3 J</b>	<b>0.9 J</b>	<b>1.5 J</b>
TCLP Barium (Ba)	0.49	0.46	0.29	0.33	0.68	0.69
<b>Total Barium (Ba)</b>	<b>35</b>	<b>52</b>	<b>39</b>	<b>34</b>	<b>17</b>	<b>71</b>
TCLP Cadmium (Cd)	0.005 U	0.006				
<b>Total Cadmium (Cd)</b>	<b>0.5 UJ</b>					
TCLP Chromium (Cr)	0.02 U					
<b>Total Chromium (Cr)</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>7</b>	<b>4</b>	<b>4</b>
TCLP Lead (Pb)	0.05 U					
<b>Total Lead (Pb)</b>	<b>2.1 J</b>	<b>3.8 J</b>	<b>1.8 J</b>	<b>5.4 J</b>	<b>3.2 J</b>	<b>2.4 J</b>
TCLP Mercury (Hg)	0.0001 U	0.0001 U	0.0002 U	0.0002 U	0.0002 U	0.0004
<b>Total Mercury (Hg)</b>	<b>0.02 U</b>	<b>0.04</b>	<b>0.02 U</b>	<b>0.02 U</b>	<b>0.02 U</b>	<b>0.02 U</b>
TCLP Thallium (Tl)	0.2 U					
<b>Total Thallium (Tl)</b>	<b>20 U</b>					

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001g, Mudpit P-1 (cont.)**

<b>HOLE Number:</b>	<b>HOLE #1</b>	<b>HOLE #1</b>	<b>HOLE #2</b>	<b>HOLE #2</b>	<b>HOLE #3</b>	<b>HOLE #3</b>
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	60-72
<b>TCLP Sample Date:</b>	10/4/95	10/4/95	10/4/95	10/4/95	10/4/95	10/4/95
<b>TCLP Sample Numbers:</b>	NA	NA	NA	NA	RA-95-149	RA-95-151
<b>Total Sample Date:</b>			7/2/96	7/2/96	7/2/96	7/2/96
<b>Total Sample Numbers:</b>	NA	NA	RA-96-063	RA-96-065	RA-96-067	RA-96-069

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	NA	NA	NA	NA	0.05 U	0.05 U
<b>Total 1,1,1-Trichloroethane</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP 1,2-Dichloroethane	NA	NA	NA	NA	0.05 U	0.05 U
<b>Total 1,2-Dichloroethane</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Benzene	NA	NA	NA	NA	0.05 U	0.05 U
<b>Total Benzene</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Chloroform	NA	NA	NA	NA	0.05 U	0.05 U
<b>Total Chloroform</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Ethyl benzene	NA	NA	NA	NA	0.05 U	0.05 U
<b>Total Ethyl benzene</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Toluene	NA	NA	NA	NA	0.05 U	0.05 U
<b>Total Toluene</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Vinyl chloride	NA	NA	NA	NA	0.1 U	0.1 U
<b>Total Vinyl chloride</b>	NA	NA	<b>0.01 U</b>	<b>0.01 U</b>	<b>0.01 U</b>	<b>0.01 U</b>
TCLP Xylenes, total	NA	NA	NA	NA	0.05 U	0.05 U
<b>Total Xylenes, total</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001g, Mudpit P-1 (cont.)**

<b>HOLE Number:</b>	<b>HOLE #4</b>	<b>HOLE #4</b>	<b>EQ BLANK</b>	<b>FD BLANK</b>
<b>Depth (inches):</b>	12-24	60-72		
<b>TCLP Sample Date:</b>	10/4/95	10/5/95		10/4/95
<b>TCLP Sample Numbers:</b>	RA-95-154	RA-95-158	NA	RA-95-156
<b>Total Sample Date:</b>	7/2/96	7/2/96	7/2/96	7/2/96
<b>Total Sample Numbers:</b>	NA	NA	RA-96-071	RA-96-072

**Analytes**

---

**Metals**

TCLP Arsenic (As)	0.2 UB	0.2 UB	NA	0.1 U
<b>Total Arsenic (As)</b>	NA	NA	<b>0.003 U</b>	<b>0.003 U</b>
TCLP Barium (Ba)	0.75	0.89	NA	0.037
<b>Total Barium (Ba)</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Cadmium (Cd)	0.005 U	0.005 U	NA	0.005 U
<b>Total Cadmium (Cd)</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Chromium (Cr)	0.02 U	0.02 U	NA	0.02 U
<b>Total Chromium (Cr)</b>	NA	NA	<b>0.02 U</b>	<b>0.02 U</b>
TCLP Lead (Pb)	0.05 U	0.05 U	NA	0.05 U
<b>Total Lead (Pb)</b>	NA	NA	<b>0.002 U</b>	<b>0.002 U</b>
TCLP Mercury (Hg)	0.0002 U	0.0002 U	NA	0.0002 U
<b>Total Mercury (Hg)</b>	NA	NA	<b>0.0001 U</b>	<b>0.0001 U</b>
TCLP Thallium (Tl)	0.2 U	0.2 U	NA	0.2 U
<b>Total Thallium (Tl)</b>	NA	NA	<b>0.2 U</b>	<b>0.2 U</b>

---

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank  
 J Result should be considered an estimated value  
 NA Not analyzed  
 R Result has been rejected and is considered unusable  
 U Analyte was not detected; value is the method reporting limit  
 UB Detected in the blank and qualified as not detected

EQ BLANK Equipment Rinse Blank  
 FD BLANK Field Blank  
 DUP Field duplicate sample

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001g, Mudpit P-1 (cont.)**

<b>HOLE Number:</b>	HOLE #4	HOLE #4	EQ BLANK	FD BLANK
<b>Depth (inches):</b>	12-24	60-72		
<b>TCLP Sample Date:</b>	10/4/95	10/5/95		10/4/95
<b>TCLP Sample Numbers:</b>	RA-95-153	RA-95-157	NA	RA-95-155
<b>Total Sample Date:</b>				
<b>Total Sample Numbers:</b>	NA	NA	NA	NA

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	NA	0.05 U
<b>Total 1,1,1-Trichloroethane</b>	NA	NA	NA	NA
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	NA	0.05 U
<b>Total 1,2-Dichloroethane</b>	NA	NA	NA	NA
TCLP Benzene	0.05 U	0.05 U	NA	0.05 U
<b>Total Benzene</b>	NA	NA	NA	NA
TCLP Chloroform	0.05 U	0.05 U	NA	0.05 U
<b>Total Chloroform</b>	NA	NA	NA	NA
TCLP Ethyl benzene	0.05 U	0.05 U	NA	0.05 U
<b>Total Ethyl benzene</b>	NA	NA	NA	NA
TCLP Toluene	0.05 U	0.05 U	NA	0.05 U
<b>Total Toluene</b>	NA	NA	NA	NA
TCLP Vinyl chloride	0.1 U	0.1 U	NA	0.1 U
<b>Total Vinyl chloride</b>	NA	NA	NA	NA
TCLP Xylenes, total	0.05 U	0.05 U	NA	0.05 U
<b>Total Xylenes, total</b>	NA	NA	NA	NA

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

WIPP Soil Samples  
Data Review Form

**Statement of Purpose:**

To review laboratory data packages for soil samples collected at SWMUs, evaluate data package completeness, and compare analytical quality control data to program objectives.

**Section 1: Data Package Identification**

P.O. Number: 500101	No. Of Samples In Package: 12
Sample Collection Date: 7/2/96	Sample Receipt Date: 7/3/96
Sample Report Date: 7/29/96	Analytical Parameters: Total Metals, Volatiles
Sample Numbers in Data Package: RA-96-061, RA-96-062, RA-96-063, RA-96-064, RA-96-065, RA-96-066, RA-96-067, RA-96-068, RA-96-069, RA-96-070, RA-96-071, RA-96-072	
Data Reviewer: Kevin E. Garrett	Date of Review: 9/26/96

Symbols used in the sections below are defined as follows:

<u>X</u>	Included: no problem	<u>R</u>	Resubmission
<u>*</u>	Included: problems noted	<u>NR</u>	Not Required
<u>O</u>	Not Included		

**Section 2. Data Summary**

Data for the above listed samples are:

<u>      </u>	Acceptable for use
<u>  X  </u>	Acceptable for use with qualifications noted
<u>      </u>	Preliminary - pending action or verification
<u>      </u>	Unacceptable for use
<u>      </u>	To be reviewed by senior chemist

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

### Section 3. Data Package Completeness Review

X Chain of Custody/Request for Analysis  
X Laboratory Analysis Report  
X Holding Times  
X Method Reporting Limits  
X Dilution Factor  
X Quality Control Report

### Section 4. QC Review (from Laboratory Quality Control Report)

#### Volatiles

X Method Blank  
NR Leachate Blank  
X Surrogate Standard Recovery  
X Matrix Spike/Matrix Spike Duplicate Samples  
X Laboratory Control Sample  
NR Duplicate Sample

#### Semivolatiles

NR Method Blank  
NR Leachate Blank  
NR Surrogate Standard Recovery  
NR Matrix Spike/Matrix Spike Duplicate Samples  
NR Laboratory Control Sample  
NR Duplicate Sample

#### Metals

X Method Blank  
NR Leachate Blank  
\* (1) Matrix Spike/Matrix Spike Duplicate Samples  
X Laboratory Control Sample  
NR Duplicate Sample

### Section 5. Calibration Data

#### Volatiles

X GC/MS Analysis Log  
X GC/MS Initial Calibration Data  
X GC/MS Continuing Calibration Data

**Section 5. Calibration Data (continued)**

**Semivolatiles**

NR GC/MS Analysis Log  
NR GC/MS Initial Calibration Data  
NR GC/MS Continuing Calibration Data

**Metals**

X ICP Analysis Log  
X GFAA Analysis Log  
X CVAA Analysis Log  
X ICP Initial Calibration Data  
O (2) ICP Continuing Calibration Data  
X GFAA Initial Calibration Data  
O (2) GFAA Continuing Calibration Data  
X CVAA Initial Calibration Data  
O (2) CVAA Continuing Calibration Data

**Section 6. Comments**

1) The matrix spike (MS) recoveries (69.0 percent, and 77.3 percent) and matrix spike duplicate (MSD) recoveries (75.3 percent, and 77.3 percent) for arsenic were below the 80.4 percent lower laboratory QC limit. One of these recoveries was also below the lower QC limit of 75 percent specified by the EPA functional guidelines. Therefore, the arsenic results in the associated investigative samples (RA-96-061, RA-96-062, RA-96-064, RA-96-066, RA-96-068, RA-96-070) were qualified as estimated (J). MSD recoveries for cadmium (68.0 and 70 percent) were below the 70.2 percent lower laboratory QC limit and the EPA functional guideline lower QC limit (75 percent). Therefore, the cadmium results in the associated investigative samples (RA-96-061, RA-96-062, RA-96-064, RA-96-066, RA-96-068, RA-96-070) were qualified as estimated (J). The MS recovery for lead (154 percent) exceeded the 108 percent laboratory upper QC limit as well as the upper QC limit of 125 percent established by the EPA functional guidelines. Therefore, the detections for lead in the associated investigative samples (RA-96-061, RA-96-062, RA-96-064, RA-96-066, RA-96-068, RA-96-070) were qualified as estimated (J). The RPDs for cadmium (23.4 percent) and lead (21.5 percent) also exceeded the 20 percent upper QC limit. No additional qualification added based on high RPDs.

*W.S. M.R., 9/26/96*

*M.R., 9/26/96*  
2) The initial calibration verification (ICV) and continuing calibration verification (CCV) percent recovery results for the metals analyses were incomplete. However, no problems were found with the partial ICV and CCV information that was provided. Therefore, no qualifications have been made due to the missing ICV and CCV results at this time.

Signatures below constitute validation of this record.

Validator:  
Kevin E. Garrett  
Printed Name

  
Signature

9/26/96  
Date

QA/QC Reviewer:  
*Mark R. Colson*  
Printed Name

  
Signature

9/26/96  
Date

TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 29, 1996  
Report No.: 00032238  
Section A Page 13

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-061  
NUS SAMPLE NO: P0349450  
P.O. NO.: 500101

DATE SAMPLED: 02-JUL-96  
DATE RECEIVED: 03-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	35 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	5 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	98.8 %
11	AASSA	Arsenic, Total (As)	1	1.0 mg/kg J
12	APBS	Lead, Total (Pb)	1	2.1 mg/kg J

COMMENTS:

- 11 Results are reported on a wet weight basis.  
Arsenic was analyzed using the method of standard additions.

**VALIDATED**

Reviewed By Joanne Simanic

Date 7/26/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 29, 1996

Report No.: 00032238  
Section A Page 14

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-062  
NUS SAMPLE NO: P0349451  
P.O. NO.: 500101

DATE SAMPLED: 02-JUL-96  
DATE RECEIVED: 03-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	52 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	2 mg/kg
6	AHGS	Mercury, Total (Hg)	1	0.04 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	97.2 %
11	AASSA	Arsenic, Total (As)	1	1.8 mg/kg J
12	APBS	Lead, Total (Pb)	2	3.8 mg/kg J

COMMENTS:

- Results are reported on a wet weight basis.
- 11 Arsenic was analyzed using the method of standard additions.

**VALIDATED**

Reviewed By Ken G. Simanic

Date 7/26/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 29, 1996

 Report No.: 00032238  
 Section A Page 15

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-063  
 NUS SAMPLE NO: P0349452  
 P.O. NO.: 500101

 DATE SAMPLED: 02-JUL-96  
 DATE RECEIVED: 03-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylenes (total)	1	< 5 ug/kg
10	1620S	Percent Solids at 103C	1	97.7 %

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By [Signature]

 Date 7/26/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 29, 1996  
 Report No.: 00032238  
 Section A Page 16

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-064  
 NUS SAMPLE NO: P0349453  
 P.O. NO.: 500101

 DATE SAMPLED: 02-JUL-96  
 DATE RECEIVED: 03-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	39 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	3 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	97.7 %
11	AASSA	Arsenic, Total (As)	1	1.2 mg/kg J
12	APBS	Lead, Total (Pb)	1	1.8 mg/kg J

## COMMENTS:

- Results are reported on a wet weight basis.
- 11 Arsenic was analyzed using the method of standard additions.

**VALIDATED**

 Reviewed By *Ken V. Smith*

 Date 7/26/96

TEL: (412) 747-2500

FAX: (412) 747-2559

July 29, 1996

Report No.: 00032238

Section A Page 17

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO

ADDRESS: P.O. BOX 2078

CARLSBAD, NM 88221-2078

ATTENTION: MS. PATTY LOUGHMILLER

SAMPLE ID: RA-96-065

NUS SAMPLE NO: P0349454

P.O. NO.: 500101

NUS CLIENT NO: 1783 0003

WORK ORDER NO: 55830

VENDOR NO: 01830727

DATE SAMPLED: 02-JUL-96

DATE RECEIVED: 03-JUL-96

APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylenes (total)	1	< 5 ug/kg
10	I620S	Percent Solids at 103C	1	95.6 %

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *Joanne Simanic*

 Date 7/26/96



TEL: (412) 747-2500  
FAX: (412) 747-2559

July 29, 1996

Report No.: 00032238

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LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-066  
NUS SAMPLE NO: P0349455  
P.O. NO.: 500101

DATE SAMPLED: 02-JUL-96  
DATE RECEIVED: 03-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	34 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	7 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	1620S	Percent Solids at 103C	1	96.3 %
11	AASSA	Arsenic, Total (As)	1	1.3 mg/kg J
12	APBS	Lead, Total (Pb)	5	5.4 mg/kg J

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By [Signature]

Date 7/26/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559

July 29, 1996

 Report No.: 00032238  
 Section A Page 19

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-067  
 NUS SAMPLE NO: P0349456  
 P.O. NO.: 500101

 DATE SAMPLED: 02-JUL-96  
 DATE RECEIVED: 03-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylene (total)	1	< 5 ug/kg
10	I620S	Percent Solids at 103C	1	98.1 %

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By [Signature]

 Date 7/26/96

TEL: (412) 747-2500

FAX: (412) 747-2559

July 29, 1996

Report No.: 00032238

Section A Page 20

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO

ADDRESS: P.O. BOX 2078

CARLSBAD, NM 88221-2078

ATTENTION: MS. PATTY LOUGHMILLER

SAMPLE ID: RA-96-068

NUS SAMPLE NO: P0349457

P.O. NO.: 500101

NUS CLIENT NO: 1783 0003

WORK ORDER NO: 55830

VENDOR NO: 01830727

DATE SAMPLED: 02-JUL-96

DATE RECEIVED: 03-JUL-96

APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	17 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	4 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	97.9 %
11	AASSA	Arsenic, Total (As)	1	0.9 mg/kg J
12	APBS	Lead, Total (Pb)	2	3.2 mg/kg J

## COMMENTS:

Results are reported on a wet weight basis.

11 Arsenic was analyzed using the method of standard additions.

12 This sample was analyzed as a matrix spike. Recovery of the spike for lead was outside established acceptance limits indicating the presence of a possible matrix interference.

**VALIDATED**

 Reviewed By Ren J. Simanic

 Date 7/26/96



TEL: (412) 747-2500

FAX: (412) 747-2559

July 29, 1996

Report No.: 00032238

Section A Page 21

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-069  
NUS SAMPLE NO: P0349458  
P.O. NO.: 500101

DATE SAMPLED: 02-JUL-96  
DATE RECEIVED: 03-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylene (total)	1	< 5 ug/kg
10	1620S	Percent Solids at 103C	1	95.9 %

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By

*[Signature]*

Date

7/26/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 29, 1996  
 Report No.: 00032238  
 Section A Page 22

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
  
 SAMPLE ID: RA-96-070  
 NUS SAMPLE NO: P0349459  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727  
  
 DATE SAMPLED: 02-JUL-96  
 DATE RECEIVED: 03-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	71 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	4 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	96.6 %
11	AASSA	Arsenic, Total (As)	1	1.5 mg/kg J
12	APBS	Lead, Total (Pb)	1	2.4 mg/kg J

## COMMENTS:

- Results are reported on a wet weight basis.
- 11 Arsenic was analyzed using the method of standard additions.

**VALIDATED**

 Reviewed By Ken Womelt

 Date 7/26/96



TEL: (412) 747-2500

FAX: (412) 747-2559

July 29, 1996

Report No.: 00032238

Section A Page 23

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-071  
NUS SAMPLE NO: P0349460  
P.O. NO.: 500101

DATE SAMPLED: 02-JUL-96  
DATE RECEIVED: 03-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003 mg/L
2	ABAW	Barium, Total (Ba)	1	< 0.005 mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005 mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02 mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002 mg/L
6	AHGW	Mercury, Total (Hg)	1	< 0.0001 mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2 mg/L

COMMENTS:

**VALIDATED**

Reviewed By *[Signature]*

Date 9/26/96

TEL: (412) 747-2500

FAX: (412) 747-2559

July 29, 1996

Report No.: 00032238

Section A Page 24

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-072  
 NUS SAMPLE NO: P0349461  
 P.O. NO.: 500101

 DATE SAMPLED: 02-JUL-96  
 DATE RECEIVED: 03-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003 mg/L
2	ABAW	Barium, Total (Ba)	1	< 0.005 mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005 mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02 mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002 mg/L
6	ANHW	Mercury, Total (Hg)	1	0.0001 mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2 mg/L

COMMENTS:

**VALIDATED**

 Reviewed By *[Signature]*

 Date 7/26/96

**Final Validated Analytical Results**

**SWMU #0011, P-5**

**Comparison of Total Metals Results to Action Levels  
SWMU # 0011, Mudpit P-5**

Metal Analyte	Background Concentration (mg/kg) <sup>(1)(2)(7)</sup>	Maximum SWMU Concentration (mg/kg) <sup>(1)(3)(7)</sup>	Subpart S Level (mg/kg) <sup>(4)</sup>
<b>12-24 inches bgs</b>			
Total Arsenic (As)	1.5 J	2.3 J	80
Total Barium (Ba)	120	490	4000
Total Cadmium (Cd)	0.5 UJ	0.5 UJ	40
Total Chromium (Cr)	3	7	400
Total Lead (Pb)	2.2 J	4.2 J	400 <sup>(5)</sup>
Total Mercury (Hg)	0.02 U	0.02 U	20
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>
<b>60-72 inches bgs</b>			
Total Arsenic (As)	0.9 J	2.5 J	80
Total Barium (Ba)	62	400	4000
Total Cadmium (Cd)	0.5 UJ	0.5 UJ	40
Total Chromium (Cr)	4	6	400
Total Lead (Pb)	3.6 J	5.1 J	400 <sup>(5)</sup>
Total Mercury (Hg)	0.03	0.02 U	20
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>

mg/kg Milligrams per kilogram  
bgs Below ground surface

- 1) Results are presented in mg/kg, wet weight.
- 2) Background upgradient soil concentrations as measured in Hole #1.
- 3) Maximum concentration measured in soil samples collected from within Mudpit P-5 (Holes #2 and #3).
- 4) Action levels taken from Appendix D of proposed 40CFR 264.521(d), FR Vol.55, No. 145, VI(D), p. 30870.
- 5) No action levels are included in Subpart S for lead. The action level of 400 mg/kg included in the table is the residential soil cleanup level recommended by the EPA Office of Solid Waste.
- 6) No action levels are included in Subpart S for thallium.
- 7) The following data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994):

J Result should be considered an estimated value  
U Analyte was not detected; value is the method reporting limit  
UJ Analyte was not detected; however the reporting limit presented should be considered an estimated value

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 0011, Mudpit P-5**

<b>HOLE Number:</b>	<b>HOLE #1</b>	<b>HOLE #1</b>	<b>HOLE #2</b>	<b>HOLE #2</b>	<b>HOLE #3</b>	<b>HOLE #3</b>	<b>EQ BLANK</b>	<b>FD BLANK</b>
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	60-72		
<b>TCLP Sample Date:</b>	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	
<b>TCLP Sample Numbers:</b>	RA-95-240	RA-95-241	RA-95-243	RA-95-245	RA-95-249	RA-95-251	RA-95-247	NA
<b>Total Sample Date:</b>	7/8/96	7/8/96	7/8/96	7/8/96	7/8/96	7/8/96	7/8/96	7/8/96
<b>Total Sample Numbers:</b>	RA-96-073	R-96-074	RA-96-076	RA-96-078	RA-96-080	RA-96-082	RA-96-083	RA-96-084

**Analytes**

**Metals**

TCLP Arsenic (As)	0.1 U	0.1 UB	0.2 U	1 U	0.2 U	0.5 U	0.1 U	NA
<b>Total Arsenic (As)</b>	<b>1.5 J</b>	<b>0.9 J</b>	<b>2.3 J</b>	<b>2.3 J</b>	<b>2.3 J</b>	<b>2.5 J</b>	<b>0.003 U</b>	<b>0.003 U</b>
TCLP Barium (Ba)	0.68	0.83	1.1	1.3	1.3	1.5	0.033	NA
<b>Total Barium (Ba)</b>	<b>120</b>	<b>62</b>	<b>490</b>	<b>400</b>	<b>390</b>	<b>290</b>	<b>0.007</b>	<b>0.006</b>
TCLP Cadmium (Cd)	0.005 U	0.01 U	0.02 U	0.05 U	0.02 U	0.02 U	0.005 U	NA
<b>Total Cadmium (Cd)</b>	<b>0.5 UJ</b>	<b>0.005 U</b>	<b>0.005 U</b>					
TCLP Chromium (Cr)	0.02 U	0.02 U	0.04 U	0.2 U	0.04 U	0.1 U	0.02 U	NA
<b>Total Chromium (Cr)</b>	<b>3</b>	<b>4</b>	<b>7</b>	<b>5</b>	<b>5</b>	<b>6</b>	<b>0.02 U</b>	<b>0.02 U</b>
TCLP Lead (Pb)	0.05 U	0.05 U	0.1 U	0.5 U	0.1 U	0.2 U	0.05 U	NA
<b>Total Lead (Pb)</b>	<b>2.2 J</b>	<b>3.6 J</b>	<b>4.2 J</b>	<b>5.1 J</b>	<b>3.5 J</b>	<b>3.6 J</b>	<b>0.002 U</b>	<b>0.002 U</b>
TCLP Mercury (Hg)	0.0001 U	NA						
<b>Total Mercury (Hg)</b>	<b>0.02 U</b>	<b>0.03</b>	<b>0.02 U</b>	<b>0.02 U</b>	<b>0.02 U</b>	<b>0.02 U</b>	<b>0.0001 U</b>	<b>0.0001 U</b>
TCLP Thallium (Tl)	0.2 U	0.2 U	0.4 U	2 U	0.4 U	1 U	0.2 U	NA
<b>Total Thallium (Tl)</b>	<b>20 U</b>	<b>0.2 U</b>	<b>0.2 U</b>					

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 0011, Mudpit P-5 (cont.)**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	EQ BLANK	FD BLANK
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	60-72		
<b>TCLP Sample Date:</b>	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	11/7/95	
<b>TCLP Sample Numbers:</b>	NA	NA	RA-95-242	RA-95-244	RA-95-248	RA-95-250	RA-95-246	NA
<b>Total Sample Date:</b>			7/8/96	7/8/96	7/8/96	7/8/96		
<b>Total Sample Numbers:</b>	NA	NA	RA-96-075	RA-96-077	RA-96-079	RA-96-081	NA	NA

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
<b>Total 1,1,1-Trichloroethane</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP 1,2-Dichloroethane	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
<b>Total 1,2-Dichloroethane</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Benzene	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
<b>Total Benzene</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Chloroform	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
<b>Total Chloroform</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Ethyl benzene	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
<b>Total Ethyl benzene</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Toluene	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
<b>Total Toluene</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Vinyl chloride	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NA
<b>Total Vinyl chloride</b>	NA	NA	<b>0.01 U</b>	<b>0.01 U</b>	<b>0.01 U</b>	<b>0.01 U</b>	NA	NA
Xylenes, total	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA
<b>Xylenes, total</b>	NA	NA	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

WIPP Soil Samples  
Data Review Form

**Statement of Purpose:**

To review laboratory data packages for soil samples collected at SWMUs, evaluate data package completeness, and compare analytical quality control data to program objectives.

**Section 1: Data Package Identification**

P.O. Number: 500101	No. Of Samples In Package: 12
Sample Collection Date: 7/8/96	Sample Receipt Date: 7/9/96
Sample Report Date: 7/31/96	Analytical Parameters: Total Metals, Volatiles
Sample Numbers in Data Package: RA-96-073, RA-96-074, RA-96-075, RA-96-076, RA-96-077, RA-96-078, RA-96-079, RA-96-080, RA-96-081, RA-96-082, RA-96-083, RA-96-084	
Data Reviewer: Kevin E. Garrett	Date of Review: 9/19/96

Symbols used in the sections below are defined as follows:

<u>X</u>	Included: no problem	<u>R</u>	Resubmission
<u>*</u>	Included: problems noted	<u>NR</u>	Not Required
<u>O</u>	Not Included		

**Section 2. Data Summary**

Data for the above listed samples are:

<u>      </u>	Acceptable for use
<u>  X  </u>	Acceptable for use with qualifications noted
<u>      </u>	Preliminary - pending action or verification
<u>      </u>	Unacceptable for use
<u>      </u>	To be reviewed by senior chemist
	Reviewed by: _____ Date: _____

### Section 3. Data Package Completeness Review

<u>X</u>	Chain of Custody/Request for Analysis
<u>X</u>	Laboratory Analysis Report
<u>X</u>	Holding Times
<u>X</u>	Method Reporting Limits
<u>X</u>	Dilution Factor
<u>X</u>	Quality Control Report

### Section 4. QC Review (from Laboratory Quality Control Report)

#### Volatiles

<u>X</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>X</u>	Surrogate Standard Recovery
<u>X</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>X</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

#### Semivolatiles

<u>NR</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>NR</u>	Surrogate Standard Recovery
<u>NR</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>NR</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

#### Metals

<u>X</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>* (1)</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>* (2)</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

### Section 5. Calibration Data

#### Volatiles

<u>X</u>	GC/MS Analysis Log
<u>X</u>	GC/MS Initial Calibration Data
<u>X</u>	GC/MS Continuing Calibration Data

## Section 5. Calibration Data (continued)

### Semivolatiles

<u>NR</u>	GC/MS Analysis Log
<u>NR</u>	GC/MS Initial Calibration Data
<u>NR</u>	GC/MS Continuing Calibration Data

### Metals

<u>X</u>	ICP Analysis Log
<u>X</u>	GFAA Analysis Log
<u>X</u>	CVAA Analysis Log
<u>X</u>	ICP Initial Calibration Data
<u>O (3)</u>	ICP Continuing Calibration Data
<u>X</u>	GFAA Initial Calibration Data
<u>O (3)</u>	GFAA Continuing Calibration Data
<u>X</u>	CVAA Initial Calibration Data
<u>O (3)</u>	CVAA Continuing Calibration Data

## Section 6. Comments

1) Matrix spike (MS) recoveries and matrix spike duplicate (MSD) recoveries for arsenic (69.0, 75.3, 77.3, 77.3 percent) were below the 80.4 percent lower laboratory QC limit. One recovery was also below the EPA functional guideline lower control limit of 75 percent. Therefore, the arsenic results in the associated investigative samples (RA-96-073, RA-96-074, RA-96-076, RA-96-078, RA-96-080, RA-96-082) were qualified as estimated (J). Two MSD recoveries for cadmium (70.0 and 68.0 percent) were below the 70.2 percent lower laboratory QC limit and the EPA functional guideline lower control limit (75 percent). Therefore, the cadmium results in the associated investigative samples (RA-96-073, RA-96-074, RA-96-076, RA-96-078, RA-96-080, RA-96-082) were qualified as estimated (J). A MS recovery for lead (154 percent) exceeded the 108 percent upper laboratory QC limit and the EPA functional guideline lower control limit of 75 percent. Therefore, the detections for lead in the associated investigative samples (RA-96-073, RA-96-074, RA-96-076, RA-96-078, RA-96-080, RA-96-082) were qualified as estimated (J). The percent recoveries for one MS and MSD pair for chromium (75.0 and 65.0 percent) were below the 76.0 percent lower laboratory QC limit, and the MS recovery for this pair was also below the EPA functional guideline lower QC limit of 75 percent. However, the laboratory noted that the sample concentration for this MS and MSD was greater than 4 times the spiking concentration. Therefore, no qualification of the associated chromium results was necessary. Relative percent differences (RPDs) for cadmium (23.4 percent), and lead (21.5 percent) slightly exceeded the 20 percent upper laboratory QC limit. No additional qualifications were made due to the slightly high RPDs.

2) The laboratory control sample (LCS) percent recoveries for thallium (113 percent) was above the upper laboratory QC limits (105 percent). However, these recoveries were below the upper QC limit of 120 percent specified in the EPA functional guidelines; therefore, no qualifications were added to the associated investigative samples.

3) The initial calibration verification (ICV) and continuing calibration verification (CCV) percent recovery results for the metals analyses were incomplete. However, no problems were found with the partial ICV and CCV information that was provided. Therefore, no qualifications have been made due to the missing ICV and CCV results at this time.

Signatures below constitute validation of this record.

Validator:

Kevin E. Garrett

Printed Name

Signature

Date

QA/QC Reviewer:

Printed Name

Signature

Date



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032283  
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-073  
NUS SAMPLE NO: P0350056  
P.O. NO.: 500101

DATE SAMPLED: 08-JUL-96  
DATE RECEIVED: 09-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNIT
2	ABAS	Barium, Total (Ba)	1	120	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg J
4	ACRS	Chromium, Total (Cr)	1	3	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg
10	I620S	Percent Solids at 103C	1	96.2	%
11	AASSA	Arsenic, Total (As)	1	1.5	mg/kg J
12	APBS	Lead, Total (Pb)	1	2.2	mg/kg J

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By Joanne Simanic

Date 9/17/96





TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032283  
Section A Page 3

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-075  
NUS SAMPLE NO: P0350058  
P.O. NO.: 500101

DATE SAMPLED: 08-JUL-96  
DATE RECEIVED: 09-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylenes (total)	1	< .005	mg/kg
10	I620S	Percent Solids at 103C		90.0	%

COMMENTS:

**VALIDATED**

Reviewed By [Signature]  
Date 9/17/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996  
Report No.: 00032283  
Section A Page 4

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-076  
NUS SAMPLE NO: P0350059  
P.O. NO.: 500101

DATE SAMPLED: 08-JUL-96  
DATE RECEIVED: 09-JUL-96  
APPROVED BY: Simanic, Joanne

<u>LN</u>	<u>TEST CODE</u>	<u>DETERMINATION</u>	<u>DILN</u>	<u>RESULT</u>	<u>UNITS</u>
2	ABAS	Barium, Total (Ba)	1	490	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg J
4	ACRS	Chromium, Total (Cr)	1	7	mg/kg
6	ANGS	Mercury, Total (Hg)	1	< 0.02	mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg
10	I620S	Percent Solids at 103C	1	93.5	%
11	AASSA	Arsenic, Total (As)	1	2.3	mg/kg J
12	APBS	Lead, Total (Pb)	4	4.2	mg/kg J

COMMENTS:

- Results are reported on a wet weight basis.
- 11 Arsenic was analyzed using the method of standard additions.

**VALIDATED**  
Reviewed By [Signature]  
Date 7/19/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996  
Report No.: 00032283  
Section A Page 5

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER  
  
SAMPLE ID: RA-96-077  
NUS SAMPLE NO: P0350060  
P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727  
  
DATE SAMPLED: 08-JUL-96  
DATE RECEIVED: 09-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylene (total)	1	< .005	mg/kg
10	1620S	Percent Solids at 103C	1	90.8	%

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By *Jan Elmer*

Date 7/19/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996  
Report No.: 00032283  
Section A Page 6

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER  
  
SAMPLE ID: RA-96-078  
NUS SAMPLE NO: P0350061  
P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

DATE SAMPLED: 08-JUL-96  
DATE RECEIVED: 09-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	400	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg J
4	ACRS	Chromium, Total (Cr)	1	5	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg
10	I620S	Percent Solids at 103C	1	92.2	%
11	AASSA	Arsenic, Total (As)	2	2.3	mg/kg J
12	APBS	Lead, Total (Pb)	5	5.1	mg/kg J

COMMENTS:  
Results are reported on a wet weight basis.

**VALIDATED**  
Reviewed By [Signature]  
Date 3/19/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996  
Report No.: 00032283  
Section A Page 7

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER  
  
SAMPLE ID: RA-96-079  
NUS SAMPLE NO: P0350062  
P.O. NO.: 500101

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

DATE SAMPLED: 08-JUL-96  
DATE RECEIVED: 09-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylene (total)	1	< .005	mg/kg
10	1620S	Percent Solids at 103C	1	92.0	%

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By [Signature]  
Date 7/19/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996  
Report No.: 00032283  
Section A Page 8

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-080  
NUS SAMPLE NO: P0350063  
P.O. NO.: 500101

DATE SAMPLED: 08-JUL-96  
DATE RECEIVED: 09-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	390	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg J
4	ACRS	Chromium, Total (Cr)	1	5	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg
10	I620S	Percent Solids at 103C	1	93.9	%
11	AASSA	Arsenic, Total (As)	1	2.3	mg/kg J
12	APBS	Lead, Total (Pb)	2	3.5	mg/kg J

COMMENTS:  
Results are reported on a wet weight basis.

**VALIDATED**  
Reviewed By [Signature]  
Date 7/17/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996  
Report No.: 00032283  
Section A Page 9

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-081  
NUS SAMPLE NO: P0350064  
P.O. NO.: 500101

DATE SAMPLED: 08-JUL-96  
DATE RECEIVED: 09-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
8	OVTCS	TCL - VOLATILES			
		1,1,1-trichloroethane	1	< .005	mg/kg
		1,2-dichloroethane	1	< .005	mg/kg
		benzene	1	< .005	mg/kg
		chloroform	1	< .005	mg/kg
		ethylbenzene	1	< .005	mg/kg
		toluene	1	< .005	mg/kg
		vinyl chloride	1	< .010	mg/kg
		xylene (total)	1	< .005	mg/kg
10	1620S	Percent Solids at 103C	1	89.5	%

COMMENTS:

Results are reported on a wet weight basis.

Reviewed By *Ben J. Smith*  
Date *9/19/96*

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032283  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
  
 SAMPLE ID: RA-96-082  
 NUS SAMPLE NO: P0350065  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 DATE SAMPLED: 08-JUL-96  
 DATE RECEIVED: 09-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
2	ABAS	Barium, Total (Ba)	1	290	mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5	mg/kg J
4	ACRS	Chromium, Total (Cr)	1	6	mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.02	mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20	mg/kg
10	I620S	Percent Solids at 103C	1	90.1	%
11	AASSA	Arsenic, Total (As)	3	2.5	mg/kg J
12	APBS	Lead, Total (Pb)	2	3.6	mg/kg J

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *[Signature]*

 Date 7/17/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032283  
 Section A Page 11

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-083  
 NUS SAMPLE NO: P0350066  
 P.O. NO.: 500101

 DATE SAMPLED: 08-JUL-96  
 DATE RECEIVED: 09-JUL-96  
 APPROVED BY: Simanic, Joanne

<u>LN</u>	<u>TEST CODE</u>	<u>DETERMINATION</u>	<u>DILN</u>	<u>RESULT</u>	<u>UNITS</u>
1	AASA	Arsenic, Total (As)	1	< 0.003	mg/L
2	ABAW	Barium, Total (Ba)	1	0.007	mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005	mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02	mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002	mg/L
6	AHGW	Mercury, Total (Hg)	1	< 0.0001	mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2	mg/L

COMMENTS:

**VALIDATED**

 Reviewed By [Signature]

 Date 9/17/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032283  
 Section A Page 12

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATION, WID/WIPP	NUS CLIENT NO: 1783 0003
ADDRESS: P.O. BOX 2078	WORK ORDER NO: 55830
CARLSBAD, NH 88221-2078	VENDOR NO: 01830727
ATTENTION: MS. PATTY LOUGHMILLER	
SAMPLE ID: RA-96-084	DATE SAMPLED: 08-JUL-96
NUS SAMPLE NO: P0350067	DATE RECEIVED: 09-JUL-96
P.O. NO.: 500101	APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILN	RESULT	UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003	mg/L
2	ABAW	Barium, Total (Ba)	1	0.006	mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005	mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02	mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002	mg/L
6	AHGW	Mercury, Total (Hg)	1	< 0.0001	mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2	mg/L

COMMENTS:

**VALIDATED**

 Reviewed By [Signature]  
 Date 7/19/96

**Final Validated Analytical Results**

**SWMU #001x, WIPP-13**

**Comparison of Total Metals Results to Action Levels  
SWMU # 001x, WIPP-13**

<b>Metal Analyte</b>	<b>Background Concentration (mg/kg) <sup>(1)(2)(7)</sup></b>	<b>Maximum SWMU Concentration (mg/kg) <sup>(1)(2)(7)</sup></b>	<b>Subpart S Level (mg/kg) <sup>(4)</sup></b>
<b>12-24 inches bgs</b>			
Total Arsenic (As)	0.3 U	1	80
Total Barium (Ba)	10	3800	4000
Total Cadmium (Cd)	0.5 U	0.6	40
Total Chromium (Cr)	3	36	400
Total Lead (Pb)	1.6	270	400 <sup>(5)</sup>
Total Mercury (Hg)	0.03 U	0.03 U	20
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>
<b>60-72 inches bgs</b>			
Total Arsenic (As)	0.6	1.2	80
Total Barium (Ba)	12	680	4000
Total Cadmium (Cd)	0.5	0.5 U	40
Total Chromium (Cr)	4	10	400
Total Lead (Pb)	1.5	5	400 <sup>(5)</sup>
Total Mercury (Hg)	0.03 U	0.03 U	20
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>

mg/kg Milligrams per kilogram  
bgs Below ground surface

- 1) Results are presented in mg/kg, wet weight.
- 2) Background upgradient soil concentrations as measured in Hole #1.
- 3) Maximum concentration measured in soil samples collected from within WIPP-13 (Holes #3 and #4).
- 4) Action levels taken from Appendix D of proposed 40CFR 264.521(d), FR Vol.55, No. 145, VI(D), p. 30870.
- 5) No action levels are included in Subpart S for lead. The action level of 400 mg/kg included in the table is the residential soil cleanup level recommended by the EPA Office of Solid Waste.
- 6) No action levels are included in Subpart S for thallium.
- 7) The following data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994):

- J Result should be considered an estimated value
- U Analyte was not detected; value is the method reporting limit
- UJ Analyte was not detected; however the reporting limit presented should be considered an estimated value

**Final Soil TCLP and Total Analytical Results**  
**Voluntary Release Assessment**  
**SWMU # 001x, WIPP-13**

	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #3	HOLE #3	HOLE #4
<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #3	HOLE #3	HOLE #4
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	12-24 (DUP)	60-72	60-72 (DUP)	12-24
<b>TCLP Sample Date:</b>	8/9/95	8/9/95	8/9/95	8/9/95	8/9/95	8/9/95	8/9/95	8/9/95	8/9/95
<b>TCLP Sample Numbers:</b>	RA-95-108	RA-95-110	RA-95-112	RA-95-114	RA-95-117	RA-95-118	RA-95-121	RA-95-122	RA-95-126
<b>Total Sample Date:</b>	7/10/96	7/10/96	7/10/96	7/10/96	7/10/96		7/10/96		7/10/96
<b>Total Sample Numbers:</b>	RA-96-123	RA-96-124	RA-96-125	RA-96-126	RA-96-128	NA	RA-96-130	NA	RA-96-132

### Analytes

#### Metals

TCLP Arsenic (As)	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
<b>Total Arsenic (As)</b>	<b>0.3 U</b>	<b>0.6</b>	<b>0.4</b>	<b>0.7</b>	<b>0.6</b>	<b>NA</b>	<b>1.2</b>	<b>NA</b>	<b>1</b>
TCLP Barium (Ba)	0.34 UB	0.33 UB	0.38 UB	0.36 UB	0.28 UB	0.3 UB	0.44 B	0.25 UB	0.19 UB
<b>Total Barium (Ba)</b>	<b>10</b>	<b>12</b>	<b>13</b>	<b>17</b>	<b>16</b>	<b>NA</b>	<b>40</b>	<b>NA</b>	<b>3800</b>
TCLP Cadmium (Cd)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Cadmium (Cd)</b>	<b>0.5 U</b>	<b>0.5</b>	<b>0.5 U</b>	<b>0.5 U</b>	<b>0.6</b>	<b>NA</b>	<b>0.5 U</b>	<b>NA</b>	<b>0.5 U</b>
TCLP Chromium (Cr)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
<b>Total Chromium (Cr)</b>	<b>3</b>	<b>4</b>	<b>6</b>	<b>3</b>	<b>7</b>	<b>NA</b>	<b>8</b>	<b>NA</b>	<b>36</b>
TCLP Lead (Pb)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U				
<b>Total Lead (Pb)</b>	<b>1.6</b>	<b>1.5</b>	<b>1.3</b>	<b>1.7</b>	<b>1.8</b>	<b>NA</b>	<b>2.8</b>	<b>NA</b>	<b>270</b>
TCLP Mercury (Hg)	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U				
<b>Total Mercury (Hg)</b>	<b>0.03 U</b>	<b>NA</b>	<b>0.03 U</b>	<b>NA</b>	<b>0.03 U</b>				
TCLP Thallium (Tl)	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
<b>Total Thallium (Tl)</b>	<b>20 U</b>	<b>NA</b>	<b>20 U</b>	<b>NA</b>	<b>20 U</b>				

#### Data qualifiers and abbreviations:

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

#### Notes:

- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
- 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
- 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001x, WIPP-13 (cont.)**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #3	HOLE #3	HOLE #4
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	12-24 (DUP)	60-72	60-72 (DUP)	12-24
<b>TCLP Sample Date:</b>	8/9/95	8/9/95	8/9/95	8/9/95	8/9/95	8/9/95	8/9/95	8/9/95	8/9/95
<b>TCLP Sample Numbers:</b>	RA-95-107	RA-95-109	RA-95-111	RA-95-113	RA-95-115	RA-95-116	RA-95-119	RA-95-120	RA-95-125
<b>Total Sample Date:</b>					7/10/96		7/10/96		7/10/96
<b>Total Sample Numbers:</b>	NA	NA	NA	NA	RA-96-127	NA	RA-96-129	NA	RA-96-131

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total 1,1,1-Trichloroethane</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>	NA	<b>0.620 U</b>
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total 1,2-Dichloroethane</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>	NA	<b>0.620 U</b>
TCLP Benzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Benzene</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>	NA	<b>0.620 U</b>
TCLP Chloroform	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Chloroform</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>	NA	<b>0.620 U</b>
TCLP Ethyl benzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Ethyl benzene</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>	NA	<b>0.620 U</b>
TCLP Toluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Toluene</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>	NA	<b>0.620 U</b>
TCLP Vinyl chloride	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U				
<b>Total Vinyl chloride</b>	NA	NA	NA	NA	<b>0.01 U</b>	NA	<b>0.01 U</b>	NA	<b>1.20 U</b>
TCLP Xylenes, total	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U				
<b>Total Xylenes, total</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>	NA	<b>0.620 U</b>

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

**Notes:**

- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
- 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
- 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001x, WIPP-13 (cont.)**

<b>Bore Number:</b>	HOLE #4	EQ BLANK	FD BLANK
<b>Depth (inches):</b>	60-72		
<b>Sample Date:</b>	8/9/95	8/9/95	8/9/95
	RA-95-128	RA-95-124	RA-95-130
<b>Sample Date:</b>	7/10/96	7/10/96	7/10/96
<b>WID Sample Numbers:</b>	RA-96-134	RA-96-135	RA-96-136

**Analytes**

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**Metals**

TCLP Arsenic (As)	0.2 UB	1 U	0.1 U
<b>Total Arsenic (As)</b>	<b>0.7</b>	<b>0.003 U</b>	<b>0.003 U</b>
TCLP Barium (Ba)	0.36 UB	0.05 U	0.012 UB
<b>Total Barium (Ba)</b>	<b>680</b>	<b>0.02</b>	<b>0.008</b>
TCLP Cadmium (Cd)	0.005 U	0.05 U	0.005 U
<b>Total Cadmium (Cd)</b>	<b>0.5 U</b>	<b>0.006</b>	<b>0.005 U</b>
TCLP Chromium (Cr)	0.02 U	0.2 U	0.02 U
<b>Total Chromium (Cr)</b>	<b>10</b>	<b>0.02 U</b>	<b>0.02 U</b>
TCLP Lead (Pb)	0.05 U	0.5 U	0.05 U
<b>Total Lead (Pb)</b>	<b>5</b>	<b>0.002 UJ</b>	<b>0.002 UJ</b>
TCLP Mercury (Hg)	0.0002 U	0.0002 U	0.0002 U
<b>Total Mercury (Hg)</b>	<b>0.03 U</b>	<b>0.0001 U</b>	<b>0.0002</b>
TCLP Thallium (Tl)	0.2 U	2 U	0.2 U
<b>Total Thallium (Tl)</b>	<b>20 U</b>	<b>0.2 U</b>	<b>0.2 U</b>

---

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 001x, WIPP-13 (cont.)**

<b>Bore Number:</b>	HOLE #4	EQ BLANK	FD BLANK
<b>Depth (inches):</b>	60-72		
<b>Sample Date:</b>	8/9/95	8/9/95	8/9/95
<b>WID Sample Numbers:</b>	RA-95-127	RA-95-123	RA-95-129
<b>Sample Date:</b>	7/10/96		
<b>WID Sample Numbers:</b>	RA-96-133	NA	NA

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	0.05 U
<b>Total 1,1,1-Trichloroethane</b>	<b>0.025 U</b>	<b>NA</b>	<b>NA</b>
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	0.05 U
<b>Total 1,2-Dichloroethane</b>	<b>0.025 U</b>	<b>NA</b>	<b>NA</b>
TCLP Benzene	0.05 U	0.05 U	0.05 U
<b>Total Benzene</b>	<b>0.025 U</b>	<b>NA</b>	<b>NA</b>
TCLP Chloroform	0.05 U	0.05 U	0.05 U
<b>Total Chloroform</b>	<b>0.025 U</b>	<b>NA</b>	<b>NA</b>
TCLP Ethyl benzene	0.05 U	0.05 U	0.05 U
<b>Total Ethyl benzene</b>	<b>0.025 U</b>	<b>NA</b>	<b>NA</b>
TCLP Toluene	0.05 U	0.05 U	0.05 U
<b>Total Toluene</b>	<b>0.025 U</b>	<b>NA</b>	<b>NA</b>
TCLP Vinyl chloride	0.1 U	0.1 U	0.1 U
<b>Total Vinyl chloride</b>	<b>0.050 U</b>	<b>NA</b>	<b>NA</b>
TCLP Xylenes, total	0.05 U	0.05 U	0.05 U
<b>Total Xylenes, total</b>	<b>0.025 U</b>	<b>NA</b>	<b>NA</b>

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

WIPP Soil Samples  
Data Review Form

**Statement of Purpose:**

To review laboratory data packages for soil samples collected at SWMUs, evaluate data package completeness, and compare analytical quality control data to program objectives.

**Section 1: Data Package Identification**

P.O. Number: 500101	No. Of Samples In Package: 14
Sample Collection Date: 7/10/96	Sample Receipt Date: 7/11/96
Sample Report Date: 7/31/96	Analytical Parameters: Total Metals, Volatiles
Sample Numbers in Data Package: RA-96-123, RA-96-124, RA-96-125, RA-96-126, RA-96-127, RA-96-128, RA-96-129, RA-96-130, RA-96-131, RA-96-132, RA-96-133, RA-96-134, RA-96-135, RA-96-136	
Data Reviewer: Kevin E. Garrett	Date of Review: 9/25/96

Symbols used in the sections below are defined as follows:

<u>X</u>	Included: no problem	<u>R</u>	Resubmission
<u>*</u>	Included: problems noted	<u>NR</u>	Not Required
<u>O</u>	Not Included		

**Section 2. Data Summary**

Data for the above listed samples are:

<u>      </u>	Acceptable for use
<u>  X  </u>	Acceptable for use with qualifications noted
<u>      </u>	Preliminary - pending action or verification
<u>      </u>	Unacceptable for use
<u>      </u>	To be reviewed by senior chemist
	Reviewed by: _____ Date: _____

### Section 3. Data Package Completeness Review

<u>X</u>	Chain of Custody/Request for Analysis
<u>X</u>	Laboratory Analysis Report
<u>X</u>	Holding Times
<u>X</u>	Method Reporting Limits
<u>X</u>	Dilution Factor
<u>X</u>	Quality Control Report

### Section 4. QC Review (from Laboratory Quality Control Report)

#### Volatiles

<u>X</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>X</u>	Surrogate Standard Recovery
<u>X</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>X</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

#### Semivolatiles

<u>NR</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>NR</u>	Surrogate Standard Recovery
<u>NR</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>NR</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

#### Metals

<u>X</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>* (1)</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>* (2)</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

### Section 5. Calibration Data

#### Volatiles

<u>X</u>	GC/MS Analysis Log
<u>X</u>	GC/MS Initial Calibration Data
<u>X</u>	GC/MS Continuing Calibration Data

## Section 5. Calibration Data (continued)

### Semivolatiles

NR GC/MS Analysis Log  
NR GC/MS Initial Calibration Data  
NR GC/MS Continuing Calibration Data

### Metals

X ICP Analysis Log  
X GFAA Analysis Log  
X CVAA Analysis Log  
X ICP Initial Calibration Data  
O (3) ICP Continuing Calibration Data  
X GFAA Initial Calibration Data  
O (3) GFAA Continuing Calibration Data  
X CVAA Initial Calibration Data  
O (3) CVAA Continuing Calibration Data

## Section 6. Comments

1) Some MS recoveries and MSD recoveries for arsenic were slightly outside the laboratory QC limits of 80.4 percent to 104 percent but were within the EPA functional guideline QC limits of 75-125 percent. Therefore, qualifiers were not added to the arsenic results based on the MS/MSD recoveries. The MS recovery and MSD recovery for lead (53.5, 56.0 percent) were below the 75.2 percent lower laboratory QC limit and the EPA functional guideline QC limit of 75 percent. Therefore, the lead results in the associated investigative samples (RA-96-135, RA-96-136) were qualified as estimated (J).

2) The laboratory control sample (LCS) percent recovery for barium (80.9 percent) and chromium (85.5 percent) were below the lower QC laboratory limits (92.2 percent and 86.2 percent, respectively). However, the barium and chromium recoveries were above the 80 percent lower EPA functional guideline QC limits. Therefore, the barium and chromium results were not qualified. The LCS percent recovery for arsenic (106 percent) was above the 98.1 percent upper laboratory QC limits. However, the arsenic recoveries were below the 120 percent upper EPA functional guideline QC limits. Therefore, the arsenic results were not qualified.

3) The initial calibration verification (ICV) and continuing calibration verification (CCV) percent recovery results for the metals analyses were incomplete. However, no problems were found with the partial ICV and CCV information that was provided. Therefore, no qualifications have been made due to the missing ICV and CCV results at this time.

Signatures below constitute validation of this record.

Validator:

Kevin E. Garrett  
Printed Name

Signature

Date

QA/QC Reviewer:

Mark R. Colman  
Printed Name

Signature

Date



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032285  
Section A Page 1

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-123  
NUS SAMPLE NO: P0350189  
P.O. NO.: 500101

DATE SAMPLED: 10-JUL-96  
DATE RECEIVED: 11-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	10 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	3 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	99.2 %
11	AASSA	Arsenic, Total (As)	1	< 0.3 mg/kg
12	APBS	Lead, Total (Pb)	2	1.6 mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By Kevin G. Stone

Date 7/25/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032285  
Section A Page 2

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-124  
NUS SAMPLE NO: P0350190  
P.O. NO.: 500101

DATE SAMPLED: 10-JUL-96  
DATE RECEIVED: 11-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	12 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	4 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	1620S	Percent Solids at 103C	1	99.1 %
11	AASSA	Arsenic, Total (As)	1	0.6 mg/kg
12	APBS	Lead, Total (Pb)	1	1.5 mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By Ken Dorsett

Date 7/25/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032285  
Section A Page 3

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-125  
NUS SAMPLE NO: P0350191  
P.O. NO.: 500101

DATE SAMPLED: 10-JUL-96  
DATE RECEIVED: 11-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	13 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	6 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	1620S	Percent Solids at 103C	1	98.2 %
11	AASSA	Arsenic, Total (As)	1	0.4 mg/kg
12	APBS	Lead, Total (Pb)	1	1.3 mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By Ann Bennett

Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032285  
 Section A Page 4

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-126  
 NUS SAMPLE NO: P0350192  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	17 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	3 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	98.7 %
11	AASSA	Arsenic, Total (As)	1	0.7 mg/kg
12	APBS	Lead, Total (Pb)	1	1.7 mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *Kevin V. Barrett*

 Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032285  
 Section A Page 5

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
 SAMPLE ID: RA-96-127  
 NUS SAMPLE NO: P0350193  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylenes (total)	1	< 5 ug/kg
10	I620S	Percent Solids at 103C	1	96.5 %

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Ken Wanst

 Date 9/35/96



TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032285  
 Section A Page 7

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER  
  
 SAMPLE ID: RA-96-129  
 NUS SAMPLE NO: P0350195  
 P.O. NO.: 500101

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylene (total)	1	< 5 ug/kg
10	I620S	Percent Solids at 103C	1	92.9 %

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Pen Sam

 Date 7/25/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032285  
Section A Page 8

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-130  
NUS SAMPLE NO: P0350196  
P.O. NO.: 500101

DATE SAMPLED: 10-JUL-96  
DATE RECEIVED: 11-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	40 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	8 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	92.9 %
11	AASSA	Arsenic, Total (As)	1	1.2 mg/kg
12	APBS	Lead, Total (Pb)	1	2.8 mg/kg

COMMENTS:

Results are reported on a wet weight basis.  
11 Arsenic was analyzed using the method of standard additions.

**VALIDATED**

Reviewed By Ken Barrett

Date 9/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032285  
 Section A Page 9

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-131  
 NUS SAMPLE NO: P0350197  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 620 ug/kg
		1,2-dichloroethane	1	< 620 ug/kg
		benzene	1	< 620 ug/kg
		chloroform	1	< 620 ug/kg
		ethylbenzene	1	< 620 ug/kg
		toluene	1	< 620 ug/kg
		vinyl chloride	1	< 1200 ug/kg
		xlenes (total)	1	< 620 ug/kg
10	1620S	Percent Solids at 103C	1	92.7 %

## COMMENTS:

- Results are reported on a wet weight basis.
- 8 The VOA GC/MS analysis was performed by the medium level soil procedure. The dilution factor indicated on the report represents dilution performed upon the medium level soil extract.
- The VOA GC/MS sample could not be analyzed as a low level soil due to the high concentrations of non-target analytes present in the sample.

 Reviewed By Ren Platt

 Date 7/31/96
**VALIDATED**

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032285  
 Section A Page 10

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-132  
 NUS SAMPLE NO: P0350198  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	3800 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	36 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	1620S	Percent Solids at 103C	1	87.3 %
11	AASSA	Arsenic, Total (As)	1	1.0 mg/kg
12	APBS	Lead, Total (Pb)	200	270 mg/kg

## COMMENTS:

- Results are reported on a wet weight basis.
- 11 Result was obtained by method of standard addition. A linear correlation was unable to be established. Matrix interference is suspected. This should be considered when evaluating the data.

**VALIDATED**

Reviewed By [Signature]  
 Date 9/25/96





NUS LABORATORY  
5350 Campbells Run Road  
Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032285  
Section A Page 12

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-134  
NUS SAMPLE NO: P0350200  
P.O. NO.: 500101

DATE SAMPLED: 10-JUL-96  
DATE RECEIVED: 11-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	680 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	10 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	87.1 %
11	AASSA	Arsenic, Total (As)	1	0.7 mg/kg
12	APBS	Lead, Total (Pb)	5	5.0 mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By [Signature]

Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032285  
 Section A Page 13

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-135  
 NUS SAMPLE NO: P0350201  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003 mg/L
2	ABAW	Barium, Total (Ba)	1	0.020 mg/L
3	ACDW	Cadmium, Total (Cd)	1	0.006 mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02 mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002 mg/L J
6	AHGW	Mercury, Total (Hg)	1	< 0.0001 mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2 mg/L

COMMENTS:

**VALIDATED**

 Reviewed By *Kim Smith*

 Date 7/25/96

TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032285  
Section A Page 14

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-136  
NUS SAMPLE NO: P0350202  
P.O. NO.: 500101

DATE SAMPLED: 10-JUL-96  
DATE RECEIVED: 11-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003 mg/L
2	ABAW	Barium, Total (Ba)	1	0.008 mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005 mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02 mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002 mg/L J
6	AHGW	Mercury, Total (Hg)	1	0.0002 mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2 mg/L

COMMENTS:

**VALIDATED**

Reviewed By [Signature]

Date 9/25/96

**Final Validated Analytical Results**

**SWMU #001j, P-3**

**Comparison of Total Metals Results to Action Levels  
SWMU # 001j, Mudpit P-3**

Metal Analyte	Background Concentration (mg/kg) <sup>(1)(2)(7)</sup>	Maximum SWMU Concentration (mg/kg) <sup>(1)(3)(7)</sup>	Subpart S Level (mg/kg) <sup>(4)</sup>
<b>12-24 inches bgs</b>			
Total Arsenic (As)	0.5	0.8	80
Total Barium (Ba)	17	34	4000
Total Cadmium (Cd)	0.5 U	0.5 U	40
Total Chromium (Cr)	26	22	400
Total Lead (Pb)	1.5	2.1	400 <sup>(5)</sup>
Total Mercury (Hg)	0.03	0.06	20
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>
<b>60-72 inches bgs</b>			
Total Arsenic (As)	0.6	1.2	80
Total Barium (Ba)	20	32	4000
Total Cadmium (Cd)	0.5 U	0.5 U	40
Total Chromium (Cr)	5	5	400
Total Lead (Pb)	2	2.6	400 <sup>(5)</sup>
Total Mercury (Hg)	0.03 U	0.06	20
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>

mg/kg Milligrams per kilogram  
bgs Below ground surface

- 1) Results are presented in mg/kg, wet weight.
- 2) Background upgradient soil concentrations as measured in Hole #3.
- 3) Maximum concentration measured in soil samples collected from within Mudpit P-3 (Holes #1 and #2).
- 4) Action levels taken from Appendix D of proposed 40CFR 264.521(d), FR Vol.55, No. 145, VI(D), p. 30870.
- 5) No action levels are included in Subpart S for lead. The action level of 400 mg/kg included in the table is the residential soil cleanup level recommended by the EPA Office of Solid Waste.
- 6) No action levels are included in Subpart S for thallium.
- 7) The following data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994):

J Result should be considered an estimated value  
U Analyte was not detected; value is the method reporting limit  
UJ Analyte was not detected; however the reporting limit presented should be considered an estimated value

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001j, Mudpit P-3**

<b>HOLE Number:</b>	<b>HOLE #1</b>	<b>HOLE #1</b>	<b>HOLE #2</b>	<b>HOLE #2</b>	<b>HOLE #3</b>	<b>HOLE #3</b>	<b>HOLE #3</b>	<b>HOLE #3</b>
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	12-24 (DUP)	60-72	60-72 (DUP)
<b>TCLP Sample Date:</b>	7/26/95	7/26/95	7/26/95	7/26/95	7/26/95	7/26/95	7/27/95	7/27/95
<b>TCLP Sample Numbers:</b>	RA-95-003	RA-95-006	RA-95-015	RA-95-018	RA-95-020	RA-95-022	RA-95-025	RA-95-026
<b>Total Sample Date:</b>	7/10/96	7/10/96	7/10/96	7/10/96	7/10/96		7/10/96	
<b>Total Sample Numbers:</b>	RA-96-138	RA-96-140	RA-96-142	RA-96-144	RA-96-145	NA	RA-96-146	NA

**Analytes**

**Metals**

TCLP Arsenic (As)	0.2 UB	0.2 UB	0.2 UB	0.2 UB	0.1 UB	1 U	1 U	1 U
<b>Total Arsenic (As)</b>	<b>0.8</b>	<b>0.9</b>	<b>0.8</b>	<b>1.2</b>	<b>0.5</b>	<b>NA</b>	<b>0.6</b>	<b>NA</b>
TCLP Barium (Ba)	0.47 UB	0.75 B	0.71 UB	1.1 B	0.35 UB	0.42 UB	0.48 UB	0.69 UB
<b>Total Barium (Ba)</b>	<b>34</b>	<b>32</b>	<b>18</b>	<b>29</b>	<b>17</b>	<b>NA</b>	<b>20</b>	<b>NA</b>
TCLP Cadmium (Cd)	0.005 U	0.005 U	0.005 U	0.005 U	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Cadmium (Cd)</b>	<b>0.5 U</b>	<b>0.5 U</b>	<b>0.5 U</b>	<b>0.5 U</b>	<b>0.5 U</b>	<b>NA</b>	<b>0.5 U</b>	<b>NA</b>
TCLP Chromium (Cr)	0.02 U	0.02 U	0.02 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2 U
<b>Total Chromium (Cr)</b>	<b>12</b>	<b>5</b>	<b>22</b>	<b>5</b>	<b>26</b>	<b>NA</b>	<b>5</b>	<b>NA</b>
TCLP Lead (Pb)	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.5 U	0.5 U	0.5 U
<b>Total Lead (Pb)</b>	<b>2.1</b>	<b>2.3</b>	<b>1.7</b>	<b>2.6</b>	<b>1.5</b>	<b>NA</b>	<b>2</b>	<b>NA</b>
TCLP Mercury (Hg)	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
<b>Total Mercury (Hg)</b>	<b>0.03 U</b>	<b>0.03 U</b>	<b>0.06</b>	<b>0.06</b>	<b>0.03</b>	<b>NA</b>	<b>0.03 U</b>	<b>NA</b>
TCLP Thallium (Tl)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2 U	2 U	2 U
<b>Total Thallium (Tl)</b>	<b>20 U</b>	<b>20 U</b>	<b>20 U</b>	<b>20 U</b>	<b>20 U</b>	<b>NA</b>	<b>20 U</b>	<b>NA</b>

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) Containers for samples RA-95-007 and RA-95-010 from SWMU #001j were broken in transit.
  - 4) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001j, Mudpit P-3 (cont.)**

HOLE Number:	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #3	HOLE #3
Depth (inches):	12-24	60-72	12-24	60-72	12-24	12-24 (DUP)	60-72	60-72 (DUP)
TCLP Sample Date:	7/26/95	7/26/95	7/26/95	7/26/95	7/26/95	7/26/95	7/27/95	7/27/95
TCLP Sample Numbers:	RA-95-001	RA-95-004	RA-95-013	RA-95-016	RA-95-019	RA-95-021	RA-95-024	RA-95-023
Total Sample Date:	7/10/96	7/10/96	7/10/96	7/10/96				
Total Sample Numbers:	RA-96-137	RA-96-139	RA-96-141	RA-96-143	NA	NA	NA	NA

### Analytes

#### Volatiles

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total 1,1,1-Trichloroethane</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA	NA	NA
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total 1,2-Dichloroethane</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA	NA	NA
TCLP Benzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Benzene</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA	NA	NA
TCLP Chloroform	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Chloroform</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA	NA	NA
TCLP Ethyl benzene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Ethyl benzene</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA	NA	NA
TCLP Toluene	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Toluene</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA	NA	NA
TCLP Vinyl chloride	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
<b>Total Vinyl chloride</b>	<b>0.01 U</b>	<b>0.01 U</b>	<b>0.01 U</b>	<b>0.01 U</b>	NA	NA	NA	NA
TCLP Xylenes, total	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Xylenes, total</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA	NA	NA

#### Data qualifiers and abbreviations:

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

- Notes:
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) Containers for samples RA-95-007 and RA-95-010 from SWMU #001j were broken in transit.
  - 4) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001j, Mudpit P-3 (cont.)**

	HOLE #4	HOLE #4	HOLE #4	HOLE #4	EQ BLANK	FD BLANK
<b>HOLE Number:</b>	HOLE #4	HOLE #4	HOLE #4	HOLE #4	EQ BLANK	FD BLANK
<b>Depth (inches):</b>	12-24	12-24 (DUP)	60-72	60-72 (DUP)		
<b>TCLP Sample Date:</b>	7/27/95	7/27/95	7/27/95	7/27/95	7/26/95	7/26/95
<b>TCLP Sample Numbers:</b>	RA-95-029	RA-95-030	RA-95-033	RA-95-034	RA-95-009	RA-95-012
<b>Total Sample Date:</b>	7/10/96		7/10/96		7/10/96	7/10/96
<b>Total Sample Numbers:</b>	RA-96-147	NA	RA-96-148	NA	RA-96-149	RA-96-150

**Analytes**

**Metals**

TCLP Arsenic (As)	1 U	0.1 U	1 U	1 U	0.1 U	0.1 U
<b>Total Arsenic (As)</b>	<b>0.7</b>	<b>NA</b>	<b>1</b>	<b>NA</b>	<b>0.003 U</b>	<b>0.003 U</b>
TCLP Barium (Ba)	0.68 UB	1.2 B	0.67 UB	0.76 B	0.019 UB	0.016 UB
<b>Total Barium (Ba)</b>	<b>16</b>	<b>NA</b>	<b>33</b>	<b>NA</b>	<b>0.045</b>	<b>0.044</b>
TCLP Cadmium (Cd)	0.05 U	0.06	0.06	0.05 U	0.005 U	0.005 U
<b>Total Cadmium (Cd)</b>	<b>0.5 U</b>	<b>NA</b>	<b>0.5 U</b>	<b>NA</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Chromium (Cr)	0.2 U	0.2 U	0.2 U	0.2 U	0.02 U	0.02 U
<b>Total Chromium (Cr)</b>	<b>4</b>	<b>NA</b>	<b>4</b>	<b>NA</b>	<b>0.02 U</b>	<b>0.02 U</b>
TCLP Lead (Pb)	0.5 U	0.5 U	0.5 U	0.5 U	0.05 U	0.05 U
<b>Total Lead (Pb)</b>	<b>1.9</b>	<b>NA</b>	<b>2.3</b>	<b>NA</b>	<b>0.002 UJ</b>	<b>0.002 UJ</b>
TCLP Mercury (Hg)	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0008 U	0.0008 U
<b>Total Mercury (Hg)</b>	<b>0.03 U</b>	<b>NA</b>	<b>0.03 U</b>	<b>NA</b>	<b>0.0001</b>	<b>0.0001 U</b>
TCLP Thallium (Tl)	2 U	2 U	2 U	2 U	0.2 U	0.2 U
<b>Total Thallium (Tl)</b>	<b>20 U</b>	<b>NA</b>	<b>20 U</b>	<b>NA</b>	<b>0.2</b>	<b>0.2 U</b>

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
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NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
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- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) Containers for samples RA-95-007 and RA-95-010 from SWMU #001j were broken in transit.
  - 4) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001j, Mudpit P-3 (cont.)**

<b>HOLE Number:</b>	HOLE #4	HOLE #4	HOLE #4	HOLE #4	EQ BLANK	FD BLANK
<b>Depth (inches):</b>	12-24	12-24 (DUP)	60-72	60-72 (DUP)		
<b>TCLP Sample Date:</b>	7/27/95	7/27/95	7/27/95	7/27/95		
<b>TCLP Sample Numbers:</b>	RA-95-027	RA-95-028	RA-95-031	RA-95-032	NA	NA
<b>Total Sample Date:</b>						
<b>Total Sample Numbers:</b>	NA	NA	NA	NA	NA	NA

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA
<b>Total 1,1,1-Trichloroethane</b>	NA	NA	NA	NA	NA	NA
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA
<b>Total 1,2-Dichloroethane</b>	NA	NA	NA	NA	NA	NA
TCLP Benzene	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA
<b>Total Benzene</b>	NA	NA	NA	NA	NA	NA
TCLP Chloroform	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA
<b>Total Chloroform</b>	NA	NA	NA	NA	NA	NA
TCLP Ethyl benzene	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA
<b>Total Ethyl benzene</b>	NA	NA	NA	NA	NA	NA
TCLP Toluene	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA
<b>Total Toluene</b>	NA	NA	NA	NA	NA	NA
TCLP Vinyl chloride	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA
<b>Total Vinyl chloride</b>	NA	NA	NA	NA	NA	NA
TCLP Xylenes, total	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA
<b>Total Xylenes, total</b>	NA	NA	NA	NA	NA	NA

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) Containers for samples RA-95-007 and RA-95-010 from SWMU #001j were broken in transit.
  - 4) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

WIPP Soil Samples  
Data Review Form

**Statement of Purpose:**

To review laboratory data packages for soil samples collected at SWMUs, evaluate data package completeness, and compare analytical quality control data to program objectives.

**Section 1: Data Package Identification**

P.O. Number: 500101	No. Of Samples In Package: 14
Sample Collection Date: 7/10/96	Sample Receipt Date: 7/11/96
Sample Report Date: 7/31/96	Analytical Parameters: Total Metals, Volatiles
Sample Numbers in Data Package: RA-96-137, RA-96-138, RA-96-139, RA-96-140, RA-96-141, RA-96-142, RA-96-143, RA-96-144, RA-96-145, RA-96-146, RA-96-147, RA-96-148, RA-96-149, RA-96-150	
Data Reviewer: Kevin E. Garrett	Date of Review: 9/25/96

Symbols used in the sections below are defined as follows:

<u>X</u>	Included: no problem	<u>R</u>	Resubmission
<u>*</u>	Included: problems noted	<u>NR</u>	Not Required
<u>O</u>	Not Included		

**Section 2. Data Summary**

Data for the above listed samples are:

<u>      </u>	Acceptable for use
<u>  X  </u>	Acceptable for use with qualifications noted
<u>      </u>	Preliminary - pending action or verification
<u>      </u>	Unacceptable for use
<u>      </u>	To be reviewed by senior chemist

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

### Section 3. Data Package Completeness Review

  X   Chain of Custody/Request for Analysis  
  X   Laboratory Analysis Report  
  X   Holding Times  
  X   Method Reporting Limits  
  X   Dilution Factor  
  X   Quality Control Report

### Section 4. QC Review (from Laboratory Quality Control Report)

#### Volatiles

  X   Method Blank  
 NR  Leachate Blank  
  X   Surrogate Standard Recovery  
\* (1) Matrix Spike/Matrix Spike Duplicate Samples  
  X   Laboratory Control Sample  
 NR  Duplicate Sample

#### Semivolatiles

 NR  Method Blank  
 NR  Leachate Blank  
 NR  Surrogate Standard Recovery  
 NR  Matrix Spike/Matrix Spike Duplicate Samples  
 NR  Laboratory Control Sample  
 NR  Duplicate Sample

#### Metals

  X   Method Blank  
 NR  Leachate Blank  
\* (2) Matrix Spike/Matrix Spike Duplicate Samples  
  X   Laboratory Control Sample  
 NR  Duplicate Sample

### Section 5. Calibration Data

#### Volatiles

  X   GC/MS Analysis Log  
  X   GC/MS Initial Calibration Data  
  X   GC/MS Continuing Calibration Data

**Section 5. Calibration Data (continued)**

**Semivolatiles**

NR GC/MS Analysis Log  
NR GC/MS Initial Calibration Data  
NR GC/MS Continuing Calibration Data

**Metals**

X ICP Analysis Log  
X GFAA Analysis Log  
X CVAA Analysis Log  
X ICP Initial Calibration Data  
O (3) ICP Continuing Calibration Data  
X GFAA Initial Calibration Data  
O (3) GFAA Continuing Calibration Data  
X CVAA Initial Calibration Data  
O (3) CVAA Continuing Calibration Data

**Section 6. Comments**

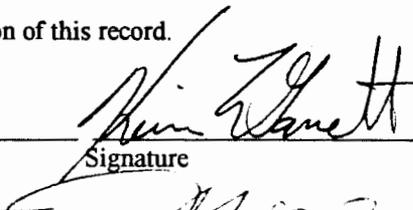
1) The matrix spike duplicate (MSD) recovery for ethylbenzene (78 percent) was below the 80 percent lower laboratory QC limit. However, since the matrix spike (MS) recovery and relative percent difference (RPD) were within the QC limits, and since EPA functional guidelines specify wider QC limits for volatile organic analyses in soils (e.g. 66-142 percent for aromatic analytes), no qualifications were necessary.

2) Some MS recoveries and MSD recoveries for arsenic were slightly outside the laboratory QC limits of 80.4 percent to 104 percent but were within the EPA functional guideline QC limits of 75-125 percent. Therefore, qualifiers were not added to the arsenic results based on the MS/MSD recoveries. The MS recovery and MSD recovery for lead (53.5, 56.0 percent) were below the 75.2 percent lower laboratory QC limit and the EPA functional guideline QC limit of 75 percent. Therefore, the lead results in the associated investigative samples (RA-96-149, RA-96-150) were qualified as estimated (J).

3) The initial calibration verification (ICV) and continuing calibration verification (CCV) percent recovery results for the metals analyses were incomplete. However, no problems were found with the partial ICV and CCV information that was provided. Therefore, no qualifications have been made due to the missing ICV and CCV results at this time.

Signatures below constitute validation of this record.

Validator:  
Kevin E. Garrett  
Printed Name

  
Signature

9/25/96  
Date

QA/QC Reviewer:  
Mark R. Collins  
Printed Name

  
Signature

9/26/96  
Date

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032285  
 Section A Page 15

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-137  
 NUS SAMPLE NO: P0350203  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylene (total)	1	< 5 ug/kg
10	1620S	Percent Solids at 103C	1	98.3 %

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Kim G. Lane

 Date 7/31/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032285  
Section A Page 16

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-138  
NUS SAMPLE NO: P0350204  
P.O. NO.: 500101

DATE SAMPLED: 10-JUL-96  
DATE RECEIVED: 11-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	34 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	12 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	1620S	Percent Solids at 103C	1	98.8 %
11	AASSA	Arsenic, Total (As)	1	0.8 mg/kg
12	APBS	Lead, Total (Pb)	1	2.1 mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By Joanne Simanic

Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032285  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 MUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-139  
 NUS SAMPLE NO: P0350205  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylenes (total)	1	< 5 ug/kg
10	I620S	Percent Solids at 103C	1	97.2 %

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Joanne Simanic

 Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032285  
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LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO	NUS CLIENT NO: 1783 0003
ADDRESS: P.O. BOX 2078	WORK ORDER NO: 55830
CARLSBAD, NM 88221-2078	VENDOR NO: 01830727
ATTENTION: MS. PATTY LOUGHMILLER	
SAMPLE ID: RA-96-140	DATE SAMPLED: 10-JUL-96
NUS SAMPLE NO: P0350206	DATE RECEIVED: 11-JUL-96
P.O. NO.: 500101	APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	32 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	5 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	97.6 %
11	AASSA	Arsenic, Total (As)	1	0.9 mg/kg
12	APBS	Lead, Total (Pb)	1	2.3 mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

11 Arsenic was analyzed using the method of standard additions.

**VALIDATED**

 Reviewed By Ren [Signature]

 Date 7/25/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032285  
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LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-141  
NUS SAMPLE NO: P0350207  
P.O. NO.: 500101

DATE SAMPLED: 10-JUL-96  
DATE RECEIVED: 11-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylene (total)	1	< 5 ug/kg
10	1620S	Percent Solids at 103C	1	98.7 %

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By [Signature]  
Date 9/25/96





TEL: (412) 747-2500  
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July 31, 1996

Report No.: 00032285  
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LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-143  
NUS SAMPLE NO: P0350209  
P.O. NO.: 500101

DATE SAMPLED: 10-JUL-96  
DATE RECEIVED: 11-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylene (total)	1	< 5 ug/kg
10	1620S	Percent Solids at 103C	1	96.6 %

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By [Signature]

Date 9/25/96





# Halliburton NUS CORPORATION

**NUS LABORATORY**  
 5350 Campbells Run Road  
 Pittsburgh, Pennsylvania 15205

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

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LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

SAMPLE ID: RA-96-145  
 NUS SAMPLE NO: P0350211  
 P.O. NO.: 500101

DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	17 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	26 mg/kg
6	AHGS	Mercury, Total (Hg)	1	0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	98.4 %
11	AASSA	Arsenic, Total (As)	1	0.5 mg/kg
12	APBS	Lead, Total (Pb)	1	1.5 mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By [Signature]  
 Date 9/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032285  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-146  
 NUS SAMPLE NO: P0350212  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	20 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	5 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	98.3 %
11	AASSA	Arsenic, Total (As)	1	0.6 mg/kg
12	APBS	Lead, Total (Pb)	1	2.0 mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Kim, Joanne

 Date 9/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032285  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-147  
 NUS SAMPLE NO: P0350213  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	16 mg/kg
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	4 mg/kg
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	98.9 %
11	AASSA	Arsenic, Total (As)	1	0.7 mg/kg
12	APBS	Lead, Total (Pb)	1	1.9 mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Gen G. Smith  
 Date 9/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032285  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-148  
 NUS SAMPLE NO: P0350214  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	33 mg/kg
3	ACGS	Cadmium, Total (Cd)	1	< 0.5 mg/kg
4	ACRS	Chromium, Total (Cr)	1	4 mg/kg
6	ANGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	97.4 %
11	AASSA	Arsenic, Total (As)	1	1.0 mg/kg
12	APBS	Lead, Total (Pb)	1	2.3 mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Joanne Simanic

 Date 7/25/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032285  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-149  
 NUS SAMPLE NO: P0350215  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003 mg/L
2	ABAW	Barium, Total (Ba)	1	0.045 mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005 mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02 mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002 mg/L <sup>J</sup>
6	AHGW	Mercury, Total (Hg)	1	0.0001 mg/L
7	ATLW	Thallium, Total (Tl)	1	0.2 mg/L

COMMENTS:

**VALIDATED**

Reviewed By *Joanne Simanic*  
 Date *9/25/96*

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032285  
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LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078-  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-150  
 NUS SAMPLE NO: P0350216  
 P.O. NO.: 500101

 DATE SAMPLED: 10-JUL-96  
 DATE RECEIVED: 11-JUL-96  
 APPROVED BY: Simanic, Joanne

LW	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003 mg/L
2	ABAW	Barium, Total (Ba)	1	0.044 mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005 mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02 mg/L
5	APBA	Lead, Low Level (Pb)	1	< 0.002 mg/L J
6	AHGW	Mercury, Total (Hg)	1	< 0.0001 mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2 mg/L

COMMENTS:

**VALIDATED**

 Reviewed By Ben [Signature]

 Date 7/25/96

**Final Validated Analytical Results**

**SWMU #001m, P-6**

**Comparison of Total Metals Results to Action Levels  
SWMU # 001m, Mudpit P-6**

<b>Metal Analyte</b>	<b>Background Concentration (mg/kg) <sup>(1)(2)(7)</sup></b>	<b>Maximum SWMU Concentration (mg/kg) <sup>(1)(3)(7)</sup></b>	<b>Subpart S Level (mg/kg) <sup>(4)</sup></b>
<b>12-24 inches bgs</b>			
Total Arsenic (As)	0.4 J	0.6 J	80
Total Barium (Ba)	11 J	24 J	4000
Total Cadmium (Cd)	0.5 UJ	0.5 UJ	40
Total Chromium (Cr)	2 UJ	3 J	400
Total Lead (Pb)	1.3	1.6	400 <sup>(5)</sup>
Total Mercury (Hg)	0.03 U	0.05	20
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>
<b>60-72 inches bgs</b>			
Total Arsenic (As)	0.5 J	1 J	80
Total Barium (Ba)	10 J	83 J	4000
Total Cadmium (Cd)	0.5 UJ	0.5 UJ	40
Total Chromium (Cr)	4 J	6 J	400
Total Lead (Pb)	1.2	1.8	400 <sup>(5)</sup>
Total Mercury (Hg)	0.03 U	0.04	20
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>

mg/kg Milligrams per kilogram  
bgs Below ground surface

- 1) Results are presented in mg/kg, wet weight.
- 2) Background upgradient soil concentrations as measured in Hole #1.
- 3) Maximum concentration measured in soil samples collected from within Mudpit P-6 (Holes #3 and #4).
- 4) Action levels taken from Appendix D of proposed 40CFR 264.521(d), FR Vol.55, No. 145, VI(D), p. 30870.
- 5) No action levels are included in Subpart S for lead. The action level of 400 mg/kg included in the table is the residential soil cleanup level recommended by the EPA Office of Solid Waste.
- 6) No action levels are included in Subpart S for thallium.
- 7) The following data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994):

J Result should be considered an estimated value  
 U Analyte was not detected; value is the method reporting limit  
 UJ Analyte was not detected; however the reporting limit presented should be considered an estimated value

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001m, Mudpit P-6**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #3
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	12-24 (DUP)	60-72
<b>TCLP Sample Date:</b>	8/2/95	8/2/95	8/2/95	8/2/95	8/2/95	8/2/95	8/2/95
<b>TCLP Sample Numbers:</b>	RA-95-062	RA-95-064	RA-95-066	RA-95-068	RA-95-071	RA-95-072	RA-95-078
<b>Total Sample Date:</b>	7/11/96	7/11/96	7/11/96	7/11/96	7/11/96		7/11/96
<b>Total Sample Numbers:</b>	RA-96-165	RA-96-166	RA-96-167	RA-96-168	RA-96-170	NA	RA-96-172

**Analytes**

**Metals**

TCLP Arsenic (As)	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
<b>Total Arsenic (As)</b>	<b>0.4 J</b>	<b>0.5 J</b>	<b>3.1 J</b>	<b>0.9 J</b>	<b>0.5 J</b>	<b>NA</b>	<b>1 J</b>
TCLP Barium (Ba)	0.46 UB	0.26 UB	0.24 UB	0.95 B	0.46 UB	0.71 UB	0.35 UB
<b>Total Barium (Ba)</b>	<b>11 J</b>	<b>10 J</b>	<b>20 J</b>	<b>19 J</b>	<b>24 J</b>	<b>NA</b>	<b>83 J</b>
TCLP Cadmium (Cd)	0.05 U	0.05 U	0.05 U				
<b>Total Cadmium (Cd)</b>	<b>0.5 UJ</b>	<b>NA</b>	<b>0.5 UJ</b>				
TCLP Chromium (Cr)	0.2 U	0.2 U	0.2 U				
<b>Total Chromium (Cr)</b>	<b>2 UJ</b>	<b>4 J</b>	<b>6 J</b>	<b>4 J</b>	<b>3 J</b>	<b>NA</b>	<b>6 J</b>
TCLP Lead (Pb)	0.5 U	0.5 U	0.5 U				
<b>Total Lead (Pb)</b>	<b>1.3</b>	<b>1.2</b>	<b>5.1</b>	<b>1.8</b>	<b>1.2</b>	<b>NA</b>	<b>1.4</b>
TCLP Mercury (Hg)	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0003 UBJ	0.0002 UJ	0.0002 UJ
<b>Total Mercury (Hg)</b>	<b>0.03 U</b>	<b>0.03 U</b>	<b>0.03 U</b>	<b>0.03 U</b>	<b>0.05</b>	<b>NA</b>	<b>0.03</b>
TCLP Thallium (Tl)	2 U	2 U	2 U	2 U	0.2 U	2 U	0.2 U
<b>Total Thallium (Tl)</b>	<b>20 U</b>	<b>NA</b>	<b>20 U</b>				

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed	DUP	Field duplicate sample
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

**Notes:**

- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
- 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
- 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001m, Mudpit P-6 (cont.)**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #3
<b>Depth (inches):</b>	12-24	60-72	12-24	60-72	12-24	12-24 (DUP)	60-72
<b>TCLP Sample Date:</b>	8/2/95	8/2/95	8/2/95	8/2/95	8/2/95	8/2/95	8/2/95
<b>TCLP Sample Numbers:</b>	RA-95-061	RA-95-063	RA-95-065	RA-95-067	RA-95-069	RA-95-070	RA-95-077
<b>Total Sample Date:</b>					7/11/96		7/11/96
<b>Total Sample Numbers:</b>	NA	NA	NA	NA	RA-96-169	NA	RA-96-171

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	0.05 U				
<b>Total 1,1,1-Trichloroethane</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	0.05 U				
<b>Total 1,2-Dichloroethane</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>
TCLP Benzene	0.05 U	0.05 U	0.05 U				
<b>Total Benzene</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>
TCLP Chloroform	0.05 U	0.05 U	0.05 U				
<b>Total Chloroform</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>
TCLP Ethyl benzene	0.05 U	0.05 U	0.05 U				
<b>Total Ethyl benzene</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>
TCLP Toluene	0.05 U	0.05 U	0.05 U				
<b>Total Toluene</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>
TCLP Vinyl chloride	0.1 U	0.1 U	0.1 U				
<b>Total Vinyl chloride</b>	NA	NA	NA	NA	<b>0.01 U</b>	NA	<b>0.01 U</b>
TCLP Xylenes, total	0.05 U	0.07	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Xylenes, total</b>	NA	NA	NA	NA	<b>0.005 U</b>	NA	<b>0.005 U</b>

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001m, Mudpit P-6 (cont.)**

<b>HOLE Number:</b>	<b>HOLE #4</b>	<b>HOLE #4</b>	<b>EQ BLANK</b>	<b>FD BLANK</b>
<b>Depth (inches):</b>	12-24	60-72		
<b>TCLP Sample Date:</b>	8/2/95	8/2/95	8/2/95	8/2/95
<b>TCLP Sample Numbers:</b>	RA-95-080	RA-95-082	RA-95-074	RA-95-076
<b>Total Sample Date:</b>	7/11/96	7/11/96	7/11/96	7/11/96
<b>Total Sample Numbers:</b>	RA-96-174	RA-96-176	RA-96-177	RA-96-178

**Analytes**

**Metals**

TCLP Arsenic (As)	1 U	1 U	1 U	1 U
<b>Total Arsenic (As)</b>	<b>0.6 J</b>	<b>0.9 J</b>	<b>0.003 U</b>	<b>0.003 U</b>
TCLP Barium (Ba)	0.68 UB	1.2 B	0.1 UB	0.05 UB
<b>Total Barium (Ba)</b>	<b>16 J</b>	<b>39 J</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Cadmium (Cd)	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Cadmium (Cd)</b>	<b>0.5 UJ</b>	<b>0.5 UJ</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Chromium (Cr)	0.2 U	0.2 U	0.2 U	0.2 U
<b>Total Chromium (Cr)</b>	<b>3 J</b>	<b>5 J</b>	<b>0.02 UJ</b>	<b>0.02 UJ</b>
TCLP Lead (Pb)	0.5 U	0.5 U	0.5 U	0.5 U
<b>Total Lead (Pb)</b>	<b>1.6</b>	<b>1.8</b>	<b>0.002 U</b>	<b>0.002 U</b>
TCLP Mercury (Hg)	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ
<b>Total Mercury (Hg)</b>	<b>0.03 U</b>	<b>0.04</b>	<b>0.0001 U</b>	<b>0.0001 U</b>
TCLP Thallium (Tl)	2 U	2 U	2 U	2 U
<b>Total Thallium (Tl)</b>	<b>20 U</b>	<b>20 U</b>	<b>0.2 U</b>	<b>0.2 U</b>

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

**Notes:**

- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
- 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
- 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU #001m, Mudpit P-6 (cont.)**

<b>HOLE Number:</b>	<b>HOLE #4</b>	<b>HOLE #4</b>	<b>EQ BLANK</b>	<b>FD BLANK</b>
<b>Depth (inches):</b>	12-24	60-72		
<b>TCLP Sample Date:</b>	8/2/95	8/2/95	8/2/95	8/2/95
<b>TCLP Sample Numbers:</b>	RA-95-079	RA-95-081	RA-95-073	RA-95-075
<b>Total Sample Date:</b>	7/11/96	7/11/96		
<b>Total Sample Numbers:</b>	RA-96-173	RA-96-175	NA	NA

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total 1,1,1-Trichloroethane</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP 1,2-Dichloroethane	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total 1,2-Dichloroethane</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Benzene	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Benzene</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Chloroform	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Chloroform</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Ethyl benzene	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Ethyl benzene</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Toluene	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Toluene</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA
TCLP Vinyl chloride	0.1 U	0.1 U	0.1 U	0.1 U
<b>Total Vinyl chloride</b>	<b>0.01 U</b>	<b>0.01 U</b>	NA	NA
TCLP Xylenes, total	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Xylenes, total</b>	<b>0.005 U</b>	<b>0.005 U</b>	NA	NA

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	DUP Field duplicate sample
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

**Notes:**

- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
- 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
- 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

WIPP Soil Samples  
Data Review Form

**Statement of Purpose:**

To review laboratory data packages for soil samples collected at SWMUs, evaluate data package completeness, and compare analytical quality control data to program objectives.

**Section 1: Data Package Identification**

P.O. Number: 500101	No. Of Samples In Package: 14
Sample Collection Date: 7/11/96	Sample Receipt Date: 7/13/96
Sample Report Date: 7/31/96	Analytical Parameters: Total Metals, Volatiles
Sample Numbers in Data Package: RA-96-165, RA-96-166, RA-96-167, RA-96-168, RA-96-169, RA-96-170, RA-96-171, RA-96-172, RA-96-173, RA-96-174, RA-96-175, RA-96-176, RA-96-177, RA-96-178	
Data Reviewer: Kevin E. Garrett	Date of Review: 9/19/96

Symbols used in the sections below are defined as follows:

<u>X</u>	Included: no problem	<u>R</u>	Resubmission
<u>*</u>	Included: problems noted	<u>NR</u>	Not Required
<u>O</u>	Not Included		

**Section 2. Data Summary**

Data for the above listed samples are:

<u>          </u>	Acceptable for use
<u>X (1)</u>	Acceptable for use with qualifications noted
<u>          </u>	Preliminary - pending action or verification
<u>          </u>	Unacceptable for use
<u>          </u>	To be reviewed by senior chemist

Reviewed by: \_\_\_\_\_ Date: \_\_\_\_\_

### **Section 3. Data Package Completeness Review**

<u>X</u>	Chain of Custody/Request for Analysis
<u>X</u>	Laboratory Analysis Report
<u>X</u>	Holding Times
<u>X</u>	Method Reporting Limits
<u>X</u>	Dilution Factor
<u>X</u>	Quality Control Report

### **Section 4. QC Review (from Laboratory Quality Control Report)**

#### **Volatiles**

<u>X</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>X</u>	Surrogate Standard Recovery
<u>X</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>X</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

#### **Semivolatiles**

<u>NR</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>NR</u>	Surrogate Standard Recovery
<u>NR</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>NR</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

#### **Metals**

<u>X</u>	Method Blank
<u>NR</u>	Leachate Blank
<u>* (2)</u>	Matrix Spike/Matrix Spike Duplicate Samples
<u>* (3)</u>	Laboratory Control Sample
<u>NR</u>	Duplicate Sample

### **Section 5. Calibration Data**

#### **Volatiles**

<u>O (4)</u>	GC/MS Analysis Log
<u>O (4)</u>	GC/MS Initial Calibration Data
<u>O (4)</u>	GC/MS Continuing Calibration Data

## Section 5. Calibration Data (continued)

### Semivolatiles

<u>NR</u>	GC/MS Analysis Log
<u>NR</u>	GC/MS Initial Calibration Data
<u>NR</u>	GC/MS Continuing Calibration Data

### Metals

<u>X</u>	ICP Analysis Log
<u>X</u>	GFAA Analysis Log
<u>X</u>	CVAA Analysis Log
<u>X</u>	ICP Initial Calibration Data
<u>O (5)</u>	ICP Continuing Calibration Data
<u>X</u>	GFAA Initial Calibration Data
<u>O (5)</u>	GFAA Continuing Calibration Data
<u>X</u>	CVAA Initial Calibration Data
<u>O (5)</u>	CVAA Initial Calibration Data

## Section 6. Comments

1) The laboratory did not include the chain of custody (COC) forms for most of the samples in this data package. In addition, many of the QC summary results and the raw data were not included. However, the COC forms, QC summary, and raw data were available in a different data package. These COCs, QC summary, and raw data were reviewed and found to be acceptable. Problems that were found on these QC summary forms and in these missing raw data are included in the discussions below.

2) MS recovery for arsenic (<sup>71.3</sup>~~73.7~~ percent) was below the lower laboratory QC limits (80.4 percent), and was also below the EPA functional guideline QC limit of 75 percent. Therefore, the arsenic results in the associated investigative samples (RA-96-165, RA-96-166, RA-96-167, RA-96-168, RA-96-170, RA-96-172, RA-96-174, RA-96-176) were qualified as estimated (J). MS recovery for chromium (65.5 percent) was below the lower laboratory QC limits (76.0 percent), and was also below the EPA functional guideline QC limit of 75 percent. Therefore, the chromium results in the associated investigative samples (RA-96-177, RA-96-178) were qualified as estimated (J).

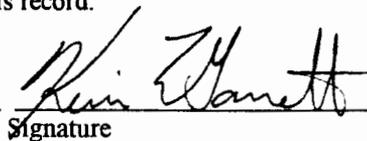
3) The LCS percent recovery for barium (79.6 percent), cadmium (79.8 percent), chromium (79.4 percent), and arsenic (78.0 percent) were below the lower laboratory QC limits of 92.2 percent for barium, 83.8 percent for cadmium, 86.2 percent for chromium, and 84.3 percent for arsenic. These recoveries were also below the EPA functional guideline QC limit of 80 percent for LCS. Therefore, the barium, cadmium, chromium, and arsenic results in the associated investigative samples (RA-96-165, RA-96-166, RA-96-167, RA-96-168, RA-96-170, RA-96-172, RA-96-174, RA-96-176) were qualified as estimated (J).

4) No calibration raw data for the volatile organic analyses (VOA) were provided in the data package. The laboratory has been requested to submit the missing VOA raw data. However, VOA calibration performance appears to be generally acceptable based on the review of the VOA calibration data from other data packages. Therefore, no qualifications to the VOA results have been made at this time based on the missing calibration data.

5) The initial calibration verification (ICV) and continuing calibration verification (CCV) percent recovery results for the metals analyses were incomplete. However, no problems were found with the partial ICV and CCV information that was provided. Therefore, no qualifications have been made due to the missing ICV and CCV results at this time.

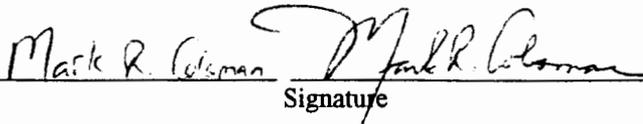
Signatures below constitute validation of this record.

Validator:  
Kevin E. Garrett  
Printed Name

  
Signature

9/17/96  
Date

QA/QC Reviewer:  
Mark R. Coleman  
Printed Name

  
Signature

9/26/96  
Date

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032286  
 Section A Page 15

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-165  
 NUS SAMPLE NO: P0350309  
 P.O. NO.: 500101

 DATE SAMPLED: 11-JUL-96  
 DATE RECEIVED: 13-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	11 mg/kg J
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	< 2 mg/kg J
6	ANGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	98.5 %
11	AASSA	Arsenic, Total (As)	1	0.4 mg/kg J
12	APBS	Lead, Total (Pb)	1	1.3 mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Tom Albright

 Date 7/17/96

TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996  
Report No.: 00032286  
Section A Page 16

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-166  
NUS SAMPLE NO: P0350310  
P.O. NO.: 500101

DATE SAMPLED: 11-JUL-96  
DATE RECEIVED: 13-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	.10 mg/kg J
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	4 mg/kg J
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	98.3 %
11	AASSA	Arsenic, Total (As)	1	0.5 mg/kg J
12	APBS	Lead, Total (Pb)	1	1.2 mg/kg

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By Joanne Simanic  
Date 9/19/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032286  
Section A Page 17

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-167  
NUS SAMPLE NO: P0350311  
P.O. NO.: 500101

DATE SAMPLED: 11-JUL-96  
DATE RECEIVED: 13-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	20 mg/kg J
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	6 mg/kg J
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	95.2 %
11	AASSA	Arsenic, Total (As)	1	3.1 mg/kg J
12	APBS	Lead, Total (Pb)	4	5.1 mg/kg

COMMENTS:

- 11 Results are reported on a wet weight basis.  
Arsenic was analyzed using the method of standard additions.  
This sample was analyzed as a matrix spike. Recovery of the spike was outside established acceptance limits indicating the presence of a possible matrix interference.

**VALIDATED**

Reviewed By [Signature]  
Date 7/1996

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032286  
 Section A Page 18

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO	NUS CLIENT NO: 1783 0003
ADDRESS: P.O. BOX 2078	WORK ORDER NO: 55830
CARLSBAD, NM 88221-2078	VENDOR NO: 01830727
ATTENTION: MS. PATTY LOUGHMILLER	
SAMPLE ID: RA-96-168	DATE SAMPLED: 11-JUL-96
NUS SAMPLE NO: P0350312	DATE RECEIVED: 13-JUL-96
P.O. NO.: 500101	APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	19 mg/kg J
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	4 mg/kg J
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	96.6 %
11	AASSA	Arsenic, Total (As)	1	0.9 mg/kg J
12	APBS	Lead, Total (Pb)	1	1.8 mg/kg

COMMENTS:  
 Results are reported on a wet weight basis.

**VALIDATED**  
 Reviewed By [Signature]  
 Date 7/19/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032286  
 Section A Page 19

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-169  
 NUS SAMPLE NO: P0350313  
 P.O. NO.: 500101

 DATE SAMPLED: 11-JUL-96  
 DATE RECEIVED: 13-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylenes (total)	1	< 5 ug/kg
10	I620S	Percent Solids at 103C	1	97.4 %

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By *Ann G. Smith*

 Date 7/17/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032286  
 Section A Page 20

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-170  
 NUS SAMPLE NO: P0350314  
 P.O. NO.: 500101

 DATE SAMPLED: 11-JUL-96  
 DATE RECEIVED: 13-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	24 mg/kg J
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	3 mg/kg J
6	ANGS	Mercury, Total (Hg)	1	0.05 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	97.8 %
11	AASSA	Arsenic, Total (As)	1	0.5 mg/kg J
12	APBS	Lead, Total (Pb)	1	1.2 mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Joanne Simanic

 Date 7/17/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032286  
 Section A Page 21

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-171  
 NUS SAMPLE NO: P0350315  
 P.O. NO.: 500101

 DATE SAMPLED: 11-JUL-96  
 DATE RECEIVED: 13-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylene (total)	1	< 5 ug/kg
10	1620S	Percent Solids at 103C	1	93.7 %

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Ami S. [Signature]

 Date 9/17/96



TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032286  
 Section A Page 23

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-173  
 NUS SAMPLE NO: P0350317  
 P.O. NO.: 500101

 DATE SAMPLED: 11-JUL-96  
 DATE RECEIVED: 13-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylenes (total)	1	< 5 ug/kg
10	I620S	Percent Solids at 103C	1	97.8 %

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By Ann Stanth

 Date 9/17/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032286  
 Section A Page 24

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO	NUS CLIENT NO: 1783 0003
ADDRESS: P.O. BOX 2078	WORK ORDER NO: 55830
CARLSBAD, NM 88221-2078	VENDOR NO: 01830727
ATTENTION: MS. PATTY LOUGHMILLER	
SAMPLE ID: RA-96-174	DATE SAMPLED: 11-JUL-96
NUS SAMPLE NO: P0350318	DATE RECEIVED: 13-JUL-96
P.O. NO.: 500101	APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	16 mg/kg J
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	3 mg/kg J
6	AHGS	Mercury, Total (Hg)	1	< 0.03 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	98.1 %
11	AASSA	Arsenic, Total (As)	1	0.6 mg/kg J
12	APBS	Lead, Total (Pb)	1	1.6 mg/kg

COMMENTS:  
 Results are reported on a wet weight basis.

**VALIDATED**  
 Reviewed By [Signature]  
 Date 7/19/96



TEL: (412) 747-2500  
FAX: (412) 747-2559  
July 31, 1996

Report No.: 00032286  
Section A Page 25

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
ADDRESS: P.O. BOX 2078  
CARLSBAD, NM 88221-2078  
ATTENTION: MS. PATTY LOUGHMILLER

NUS CLIENT NO: 1783 0003  
WORK ORDER NO: 55830  
VENDOR NO: 01830727

SAMPLE ID: RA-96-175  
NUS SAMPLE NO: P0350319  
P.O. NO.: 500101

DATE SAMPLED: 11-JUL-96  
DATE RECEIVED: 13-JUL-96  
APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
8	OVTCS	TCL - VOLATILES		
		1,1,1-trichloroethane	1	< 5 ug/kg
		1,2-dichloroethane	1	< 5 ug/kg
		benzene	1	< 5 ug/kg
		chloroform	1	< 5 ug/kg
		ethylbenzene	1	< 5 ug/kg
		toluene	1	< 5 ug/kg
		vinyl chloride	1	< 10 ug/kg
		xylene (total)	1	< 5 ug/kg
10	I620S	Percent Solids at 103C	1	79.9 %

COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

Reviewed By [Signature]

Date 7/17/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032286  
 Section A Page 26

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-176  
 NUS SAMPLE NO: P0350320  
 P.O. NO.: 500101

 DATE SAMPLED: 11-JUL-96  
 DATE RECEIVED: 13-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
2	ABAS	Barium, Total (Ba)	1	39 mg/kg J
3	ACDS	Cadmium, Total (Cd)	1	< 0.5 mg/kg J
4	ACRS	Chromium, Total (Cr)	1	5 mg/kg J
6	AHGS	Mercury, Total (Hg)	1	0.04 mg/kg
7	ATLS	Thallium, Total (Tl)	1	< 20 mg/kg
10	I620S	Percent Solids at 103C	1	92.6 %
11	AASSA	Arsenic, Total (As)	1	0.9 mg/kg J
12	APBS	Lead, Total (Pb)	1	1.8 mg/kg

## COMMENTS:

Results are reported on a wet weight basis.

**VALIDATED**

 Reviewed By [Signature]

 Date 11/7/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996

 Report No.: 00032286  
 Section A Page 27

LABORATORY ANALYSIS REPORT

 CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO  
 ADDRESS: P.O. BOX 2078  
 CARLSBAD, NM 88221-2078  
 ATTENTION: MS. PATTY LOUGHMILLER

 NUS CLIENT NO: 1783 0003  
 WORK ORDER NO: 55830  
 VENDOR NO: 01830727

 SAMPLE ID: RA-96-177  
 NUS SAMPLE NO: P0350321  
 P.O. NO.: 500101

 DATE SAMPLED: 11-JUL-96  
 DATE RECEIVED: 13-JUL-96  
 APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003 mg/L
2	ABAW	Barium, Total (Ba)	1	< 0.005 mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005 mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02 mg/L <sup>J</sup>
5	APBA	Lead, Low Level (Pb)	1	< 0.002 mg/L
6	AHGW	Mercury, Total (Hg)	1	< 0.0001 mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2 mg/L

COMMENTS:

**VALIDATED**

 Reviewed By [Signature]

 Date 7/19/96

TEL: (412) 747-2500  
 FAX: (412) 747-2559  
 July 31, 1996  
 Report No.: 00032286  
 Section A Page 28

LABORATORY ANALYSIS REPORT

CLIENT NAME: WESTINGHOUSE ELECTRIC CORPORATIO	NUS CLIENT NO: 1783 0003
ADDRESS: P.O. BOX 2078	WORK ORDER NO: 55830
CARLSBAD, NM 88221-2078	VENDOR NO: 01830727
ATTENTION: MS. PATTY LOUGHMILLER	
SAMPLE ID: RA-96-178	DATE SAMPLED: 11-JUL-96
NUS SAMPLE NO: P0350322	DATE RECEIVED: 13-JUL-96
P.O. NO.: 500101	APPROVED BY: Simanic, Joanne

LN	TEST CODE	DETERMINATION	DILUTION FACTOR	RESULT UNITS
1	AASA	Arsenic, Total (As)	1	< 0.003 mg/L
2	ABAW	Barium, Total (Ba)	1	< 0.005 mg/L
3	ACDW	Cadmium, Total (Cd)	1	< 0.005 mg/L
4	ACRW	Chromium, Total (Cr)	1	< 0.02 mg/L <sup>J</sup>
5	APBA	Lead, Low Level (Pb)	1	< 0.002 mg/L
6	AHGW	Mercury, Total (Hg)	1	< 0.0001 mg/L
7	ATLW	Thallium, Total (Tl)	1	< 0.2 mg/L

COMMENTS:

**VALIDATED**

Reviewed By [Signature]

Date 7/19/96

**Final Validated Analytical Results**

**SWMU #004a, Portacamp**

**Comparison of Total Metals Results to Action Levels  
SWMU # 004a, Portacamp**

Metal Analyte	Background Concentration (mg/kg) <sup>(1)(2)(7)</sup>	Maximum SWMU Concentration (mg/kg) <sup>(1)(3)(7)</sup>	Subpart S Level (mg/kg) <sup>(4)</sup>
<b>12-24 inches bgs</b>			
Total Arsenic (As)	0.7 J	0.7 J	80
Total Barium (Ba)	14	59	4000
Total Cadmium (Cd)	0.5 U	0.5 U	40
Total Chromium (Cr)	2	140	400
Total Lead (Pb)	1.4	4.2	400 <sup>(5)</sup>
Total Mercury (Hg)	0.03 U	0.03 U	20
Total Nickel (Ni)	2 U	66	2000
Total Selenium (Se)	0.4 U	0.5 U	--- <sup>(6)</sup>
Total Silver (Ag)	1 U	1 U	200
Total Thallium (Tl)	30	20 U	--- <sup>(6)</sup>
<b>36-48 inches bgs</b>			
Total Arsenic (As)	0.7 J	1.1 J	80
Total Barium (Ba)	14	43	4000
Total Cadmium (Cd)	0.5 U	0.5 U	40
Total Chromium (Cr)	4	120	400
Total Lead (Pb)	1.5	4.8	400 <sup>(5)</sup>
Total Mercury (Hg)	0.03 U	0.03 U	20
Total Nickel (Ni)	2 U	54	2000
Total Selenium (Se)	0.4 U	0.4 U	--- <sup>(6)</sup>
Total Silver (Ag)	1 U	1 U	200
Total Thallium (Tl)	20 U	20 U	--- <sup>(6)</sup>

mg/kg Milligrams per kilogram  
bgs Below ground surface

- 1) Results are presented in mg/kg, wet weight.
- 2) Background upgradient soil concentrations as measured in Hole #5.
- 3) Maximum concentration measured in soil samples collected from within the Portacamp (Holes #1, #2, #3, and #4).
- 4) Action levels taken from Appendix D of proposed 40CFR 264.521(d), FR Vol.55, No. 145, VI(D), p. 30870.
- 5) No action levels are included in Subpart S for lead. The action level of 400 mg/kg included in the table is the residential soil cleanup level recommended by the EPA Office of Solid Waste.
- 6) No action levels are included in Subpart S for selenium and thallium.
- 7) The following data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994):

- J Result should be considered an estimated value
- U Analyte was not detected; value is the method reporting limit
- UJ Analyte was not detected; however the reporting limit presented should be considered an estimated value

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp**

<b>HOLE Number:</b>	<b>HOLE #1</b>	<b>HOLE #1</b>	<b>HOLE #2</b>	<b>HOLE #2</b>	<b>HOLE #3</b>	<b>HOLE #3</b>	<b>HOLE #4</b>	<b>HOLE #4</b>
<b>Depth (inches):</b>	12-24	36-48	12-24	36-48	12-24	36-48	12-24	36-48
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-210	RA-95-213	RA-95-216	RA-95-219	RA-95-222	RA-95-226	RA-95-231	RA-95-234
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-195	RA-96-198	RA-96-201	RA-96-204	RA-96-207	RA-96-210	RA-96-213	RA-96-216

### Analytes

#### Metals

TCLP Arsenic (As)	0.1 UB	0.1 UB	0.5 U	0.1 UB	0.1 UB	0.1 U	0.1 UB	0.1 U
<b>Total Arsenic (As)</b>	<b>0.6 J</b>	<b>0.5 J</b>	<b>0.7 J</b>	<b>0.4 J</b>	<b>0.6 J</b>	<b>0.6 J</b>	<b>0.7 J</b>	<b>1.1 J</b>
TCLP Barium (Ba)	0.72	0.75	1.7	0.48	0.61	0.35	0.85	0.73
<b>Total Barium (Ba)</b>	<b>48</b>	<b>35</b>	<b>59</b>	<b>14</b>	<b>16</b>	<b>27</b>	<b>29</b>	<b>43</b>
TCLP Cadmium (Cd)	0.01 U	0.01 U	0.02 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
<b>Total Cadmium (Cd)</b>	<b>0.5 U</b>							
TCLP Chromium (Cr)	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
<b>Total Chromium (Cr)</b>	<b>15</b>	<b>25</b>	<b>4</b>	<b>8</b>	<b>50</b>	<b>120</b>	<b>140</b>	<b>4</b>
TCLP Lead (Pb)	0.05 U	0.05 U	0.2 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Lead (Pb)</b>	<b>1.6</b>	<b>1.5</b>	<b>1.7</b>	<b>1.2</b>	<b>4.2</b>	<b>2.4</b>	<b>2.6</b>	<b>4.8</b>

#### Data qualifiers and abbreviations:

B Analyte was detected in an associated laboratory blank  
 J Result should be considered an estimated value  
 NA Not analyzed  
 R Result has been rejected and is considered unusable  
 U Analyte was not detected; value is the method reporting limit  
 UB Detected in the blank and qualified as not detected

EQ BLANK Equipment Rinse Blank  
 FD BLANK Field Blank

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>Depth (inches):</b>	12-24	36-48	12-24	36-48	12-24	36-48	12-24	36-48
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-210	RA-95-213	RA-95-216	RA-95-219	RA-95-222	RA-95-226	RA-95-231	RA-95-234
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-195	RA-96-198	RA-96-201	RA-96-204	RA-96-207	RA-96-210	RA-96-213	RA-96-216

**Analytes**

**Metals**

TCLP Mercury (Hg)	0.0001 U							
<b>Total Mercury (Hg)</b>	<b>0.03 U</b>							
TCLP Nickel (Ni)	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
<b>Total Nickel (Ni)</b>	<b>6</b>	<b>12</b>	<b>3</b>	<b>5</b>	<b>22</b>	<b>54</b>	<b>66</b>	<b>2 U</b>
TCLP Selenium (Se)	0.1 U	0.1 U	0.5 U	0.1 U				
<b>Total Selenium (Se)</b>	<b>0.4 U</b>	<b>0.4 U</b>	<b>0.5 U</b>	<b>0.4 U</b>				
TCLP Silver (Ag)	0.01 U	0.01 U	0.05 U	0.01 U				
<b>Total Silver (Ag)</b>	<b>1 U</b>							
TCLP Thallium (Tl)	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
<b>Total Thallium (Tl)</b>	<b>20 U</b>							

**Data qualifiers and abbreviations:**

B Analyte was detected in an associated laboratory blank	EQ BLANK Equipment Rinse Blank
J Result should be considered an estimated value	FD BLANK Field Blank
NA Not analyzed	
R Result has been rejected and is considered unusable	
U Analyte was not detected; value is the method reporting limit	
UB Detected in the blank and qualified as not detected	

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

HOLE Number:	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
Depth (inches):	12-24	36-48	12-24	36-48	12-24	36-48	12-24	36-48
TCLP Sample Date:	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95
TCLP Sample Numbers:	RA-95-208	RA-95-211	RA-95-214	RA-95-217	RA-95-220	RA-95-224	RA-95-229	RA-95-232
Total Sample Date:	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96
Total Sample Numbers:	RA-96-193	RA-96-196	RA-96-199	RA-96-202	RA-96-205	RA-96-208	RA-96-211	RA-96-214

**Analytes**

**Volatiles**

TCLP 1,1,1-Trichloroethane	0.05U	0.05 U						
<b>Total 1,1,1-Trichloroethane</b>	<b>0.005 U</b>							
TCLP 1,1,2,2-Tetrachloroethane	NA	0.05 U						
<b>Total 1,1,2,2-Tetrachloroethane</b>	<b>0.005 U</b>							
TCLP 1,1,2-Trichloro-1,2,2-trifluoroethane	NA	0.05 U						
<b>Total 1,1,2-Trichloro-1,2,2-trifluoroethane</b>	<b>0.01 U</b>							
TCLP 1,1,2-Trichloroethane	NA	0.05 U						
<b>Total 1,1,2-Trichloroethane</b>	<b>0.005 U</b>							
TCLP 1,1-Dichloroethane	NA	0.05 U						
<b>Total 1,1-Dichloroethane</b>	<b>0.005 U</b>							
TCLP 1,1-Dichloroethene	NA	0.05 U						
<b>Total 1,1-Dichloroethene</b>	<b>0.005 U</b>							
TCLP 1,2-Dichloroethane	0.05U	0.05 U						
<b>Total 1,2-Dichloroethane</b>	<b>0.005 U</b>							

**Data qualifiers and abbreviations:**

- |   |                                |
|---|--------------------------------|
| B Analyte was detected in an associated laboratory blank        | EQ BLANK Equipment Rinse Blank |
| J Result should be considered an estimated value                | FD BLANK Field Blank           |
| NA Not analyzed   |                                |
| R Result has been rejected and is considered unusable           |                                |
| U Analyte was not detected; value is the method reporting limit |                                |
| UB Detected in the blank and qualified as not detected          |                                |

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>Depth (inches):</b>	12-24	36-48	12-24	36-48	12-24	36-48	12-24	36-48
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-208	RA-95-211	RA-95-214	RA-95-217	RA-95-220	RA-95-224	RA-95-229	RA-95-232
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-193	RA-96-196	RA-96-199	RA-96-202	RA-96-205	RA-96-208	RA-96-211	RA-96-214

**Analytes**

**Volatiles**

TCLP 2-Butanone	NA	0.5 U						
<b>Total 2-Butanone</b>	<b>0.050 U</b>							
TCLP 4-Methyl-2-pentanone	NA	0.5 U	0.5 UJ	0.5 UJ				
<b>Total 4-Methyl-2-pentanone</b>	<b>0.050 U</b>							
TCLP Acetone	NA	0.5 U						
<b>Total Acetone</b>	<b>0.050 UJ</b>							
TCLP Benzene	0.05U	0.05 U						
<b>Total Benzene</b>	<b>0.005 U</b>							
TCLP Carbon tetrachloride	NA	0.05 U						
<b>Total Carbon tetrachloride</b>	<b>0.005 U</b>							
TCLP Chlorobenzene	NA	0.05 U						
<b>Total Chlorobenzene</b>	<b>0.005 U</b>							
TCLP Chloroform	0.05U	0.05 U						
<b>Total Chloroform</b>	<b>0.005 U</b>							

**Data qualifiers and abbreviations:**

- |   |                                |
|---|--------------------------------|
| B Analyte was detected in an associated laboratory blank        | EQ BLANK Equipment Rinse Blank |
| J Result should be considered an estimated value                | FD BLANK Field Blank           |
| NA Not analyzed   |                                |
| R Result has been rejected and is considered unusable           |                                |
| U Analyte was not detected; value is the method reporting limit |                                |
| UB Detected in the blank and qualified as not detected          |                                |

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 10, 1993, and in subsequent RPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>Depth (inches):</b>	12-24	36-48	12-24	36-48	12-24	36-48	12-24	36-48
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-208	RA-95-211	RA-95-214	RA-95-217	RA-95-220	RA-95-224	RA-95-229	RA-95-232
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-193	RA-96-196	RA-96-199	RA-96-202	RA-96-205	RA-96-208	RA-96-211	RA-96-214

**Analytes**

**Volatiles**

TCLP cis-1,2-Dichloroethene	NA	0.05 U						
<b>Total cis-1,2-Dichloroethene</b>	<b>0.005 U</b>							
TCLP Cyclohexane	NA	0.1 UJ						
<b>Total Cyclohexane</b>	<b>0.010 U</b>							
TCLP Cyclohexanone	NA	0.5 U						
<b>Total Cyclohexanone</b>	<b>0.010 U</b>							
TCLP Ethyl acetate	NA	0.1 U						
<b>Total Ethyl acetate</b>	<b>0.010 U</b>							
TCLP Ethyl benzene	0.05U	0.05 U						
<b>Total Ethyl benzene</b>	<b>0.005 U</b>							
TCLP Toluene	0.05U	0.05 U						
<b>Total Toluene</b>	<b>0.005 U</b>							

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed		
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

<b>HOLE Number:</b>	<b>HOLE #1</b>	<b>HOLE #1</b>	<b>HOLE #2</b>	<b>HOLE #2</b>	<b>HOLE #3</b>	<b>HOLE #3</b>	<b>HOLE #4</b>	<b>HOLE #4</b>
<b>Depth (inches):</b>	12-24	36-48	12-24	36-48	12-24	36-48	12-24	36-48
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-208	RA-95-211	RA-95-214	RA-95-217	RA-95-220	RA-95-224	RA-95-229	RA-95-232
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-193	RA-96-196	RA-96-199	RA-96-202	RA-96-205	RA-96-208	RA-96-211	RA-96-214

**Analytes**

**Volatiles**

TCLP Methylene chloride	NA	0.05 U						
<b>Total Methylene chloride</b>	<b>0.005 U</b>							
TCLP Tetrachloroethene	NA	0.05 U						
<b>Total Tetrachloroethene</b>	<b>0.005 U</b>							
TCLP Tribromomethane	NA	0.05 U	0.05 UJ	0.05 UJ				
<b>Total Tribromomethane</b>	<b>0.005 U</b>							
TCLP Trichloroethene	NA	0.05 U	0.05 UJ	0.05 UJ				
<b>Total Trichloroethene</b>	<b>0.005 U</b>							
TCLP Trichloroflouromethane	NA	0.1 UJ						
<b>Total Trichloroflouromethane</b>	<b>0.010 U</b>							
TCLP Vinyl chloride	0.010U	0.1 U						
<b>Total Vinyl chloride</b>	<b>0.010 U</b>							

**Data qualifiers and abbreviations:**

B	Analyte was detected in an associated laboratory blank	EQ BLANK	Equipment Rinse Blank
J	Result should be considered an estimated value	FD BLANK	Field Blank
NA	Not analyzed		
R	Result has been rejected and is considered unusable		
U	Analyte was not detected; value is the method reporting limit		
UB	Detected in the blank and qualified as not detected		

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
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**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>Depth (inches):</b>	12-24	36-48	12-24	36-48	12-24	36-48	12-24	36-48
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-208	RA-95-211	RA-95-214	RA-95-217	RA-95-220	RA-95-224	RA-95-229	RA-95-232
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-193	RA-96-196	RA-96-199	RA-96-202	RA-96-205	RA-96-208	RA-96-211	RA-96-214

**Analytes**

**Volatiles**

TCLP Xylenes, total	NA	0.05 U						
<b>Total Xylenes, total</b>	<b>0.005 U</b>							
TCLP 2-Ethoxyethanol	NA	50 U						
<b>Total 2-Ethoxyethanol</b>	<b>10 U</b>							
TCLP Isobutanol	NA	10 U						
<b>Total Isobutanol</b>	<b>2 U</b>							
TCLP Methanol	NA	10 U						
<b>Total Methanol</b>	<b>2 U</b>	<b>42</b>	<b>200</b>	<b>200</b>				
TCLP n-Butanol	NA	10 U						
<b>Total n-Butanol</b>	<b>2 U</b>							

**Data qualifiers and abbreviations:**

- |    |   |          |                       |
|----|---|----------|-----------------------|
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| J  | Result should be considered an estimated value                | FD BLANK | Field Blank           |
| NA | Not analyzed  |          |                       |
| R  | Result has been rejected and is considered unusable           |          |                       |
| U  | Analyte was not detected; value is the method reporting limit |          |                       |
| UB | Detected in the blank and qualified as not detected           |          |                       |

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
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**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>Depth (inches):</b>	12-24	36-48	12-24	36-48	12-24	36-48	12-24	36-48
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-209	RA-95-212	RA-95-215	RA-95-218	RA-95-221	RA-95-225	RA-95-230	RA-95-233
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-194	RA-96-197	RA-96-200	RA-96-203	RA-96-206	RA-96-209	RA-96-212	RA-96-215

**Analytes**

**Semivolatiles**

TCLP 1,2-Dichlorobenzene	0.1 U							
<b>Total 1,2-Dichlorobenzene</b>	<b>0.330 U</b>							
TCLP 1,4-Dichlorobenzene	0.1 U							
<b>Total 1,4-Dichlorobenzene</b>	<b>0.330 U</b>							
TCLP 2,4,5-Trichlorophenol	0.5 U							
<b>Total 2,4,5-Trichlorophenol</b>	<b>1.70 U</b>							
TCLP 2,4,6-Trichlorophenol	0.1 U							
<b>Total 2,4,6-Trichlorophenol</b>	<b>0.330 U</b>							
TCLP 2,4-Dinitrotoluene	0.1 U							
<b>Total 2,4-Dinitrotoluene</b>	<b>0.330 U</b>							
TCLP 2-Methylphenol	0.1 U							
<b>Total 2-Methylphenol</b>	<b>0.330 U</b>							
TCLP 3/4-Methylphenol	0.1 U							
<b>Total 3/4-Methylphenol</b>	<b>0.330 U</b>							

**Data qualifiers and abbreviations:**

- |   |                                |
|---|--------------------------------|
| B Analyte was detected in an associated laboratory blank        | EQ BLANK Equipment Rinse Blank |
| J Result should be considered an estimated value                | FD BLANK Field Blank           |
| NA Not analyzed   |                                |
| R Result has been rejected and is considered unusable           |                                |
| U Analyte was not detected; value is the method reporting limit |                                |
| UB Detected in the blank and qualified as not detected          |                                |

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
  - 3) NA denotes background soil samples and volatile organic compound (VOC) soil samples that were not analyzed. Background and VOC sampling was reduced as recommended by EPA in a letter to DOE dated December 19, 1995, and in subsequent EPA communications with DOE and WID.

**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>Depth (inches):</b>	12-24	36-48	12-24	36-48	12-24	36-48	12-24	36-48
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-209	RA-95-212	RA-95-215	RA-95-218	RA-95-221	RA-95-225	RA-95-230	RA-95-233
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-194	RA-96-197	RA-96-200	RA-96-203	RA-96-206	RA-96-209	RA-96-212	RA-96-215

**Analytes**

**Semivolatiles**

TCLP Hexachlorobenzene	0.1 U							
<b>Total Hexachlorobenzene</b>	<b>0.330 U</b>							
TCLP Hexachlorobutadiene	0.1 U							
<b>Total Hexachlorobutadiene</b>	<b>0.330 U</b>							
TCLP Hexachloroethane	0.1 U							
<b>Total Hexachloroethane</b>	<b>0.330 U</b>							
TCLP Nitrobenzene	0.1 U							
<b>Total Nitrobenzene</b>	<b>0.330 U</b>							
TCLP Pentachlorophenol	0.5 U							
<b>Total Pentachlorophenol</b>	<b>1.70 U</b>							
TCLP Pyridine	0.1 U							
<b>Total Pyridine</b>	<b>0.330 U</b>							

**Data qualifiers and abbreviations:**

- |   |                                |
|---|--------------------------------|
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| NA Not analyzed   |                                |
| R Result has been rejected and is considered unusable           |                                |
| U Analyte was not detected; value is the method reporting limit |                                |
| UB Detected in the blank and qualified as not detected          |                                |

- Notes:**
- 1) Soil TCLP results, EQ BLANK results, and FD BLANK results are presented in mg/L. Soil total results are presented in mg/kg, wet weight.
  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA 1994).
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**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

<b>HOLE Number:</b>	HOLE #1	HOLE #1	HOLE #2	HOLE #2	HOLE #3	HOLE #3	HOLE #4	HOLE #4
<b>Depth (inches):</b>	12-24	36-48	12-24	36-48	12-24	36-48	12-24	36-48
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-209	RA-95-212	RA-95-215	RA-95-218	RA-95-221	RA-95-225	RA-95-230	RA-95-233
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-194	RA-96-197	RA-96-200	RA-96-203	RA-96-206	RA-96-209	RA-96-212	RA-96-215

**Analytes**

**PCBs**

TCLP PCB-1221	0.5 UJ							
<b>Total PCB-1221</b>	<b>100 U</b>							
TCLP PCB-1232	0.5 UJ							
<b>Total PCB-1232</b>	<b>100 U</b>							
TCLP PCB-1242/1016	0.5 UJ							
<b>Total PCB-1242/1016</b>	<b>100 U</b>							
TCLP PCB-1248	0.5 UJ							
<b>Total PCB-1248</b>	<b>100 U</b>							
TCLP PCB-1254	0.5 UJ							
<b>Total PCB-1254</b>	<b>100 U</b>							
TCLP PCB-1260	0.5 U							
<b>Total PCB-1260</b>	<b>100 U</b>							

**Data qualifiers and abbreviations:**

- |   |                                |
|---|--------------------------------|
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| NA Not analyzed   |                                |
| R Result has been rejected and is considered unusable           |                                |
| U Analyte was not detected; value is the method reporting limit |                                |
| UB Detected in the blank and qualified as not detected          |                                |

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  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
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**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

<b>HOLE Number:</b>	HOLE #5	HOLE #5	EQ BLANK	FD BLANK
<b>Depth (inches):</b>	12-24	36-48		
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-235	RA-95-236	RA-95-228	RA-95-239
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-217	RA-96-218	RA-96-219	RA-96-220

**Analytes**

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**Metals**

TCLP Arsenic (As)	0.1 UB	0.1 U	0.1 U	0.1 U
<b>Total Arsenic (As)</b>	<b>0.7 J</b>	<b>0.7 J</b>	<b>0.003 U</b>	<b>0.003 U</b>
TCLP Barium (Ba)	0.43	0.43	0.036	0.037
<b>Total Barium (Ba)</b>	<b>14</b>	<b>14</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Cadmium (Cd)	0.005 U	0.005 U	0.005 U	0.005 U
<b>Total Cadmium (Cd)</b>	<b>0.5 U</b>	<b>0.5 U</b>	<b>0.005 U</b>	<b>0.005 U</b>
TCLP Chromium (Cr)	0.02 U	0.02 U	0.02 U	0.02 U
<b>Total Chromium (Cr)</b>	<b>2</b>	<b>4</b>	<b>0.02 UJ</b>	<b>0.02 UJ</b>
TCLP Lead (Pb)	0.05 U	0.05 U	0.05 U	0.05 U
<b>Total Lead (Pb)</b>	<b>1.4</b>	<b>1.5</b>	<b>0.002 U</b>	<b>0.002 U</b>

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**Data qualifiers and abbreviations:**

- |   |                                |
|---|--------------------------------|
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| J Result should be considered an estimated value                | FD BLANK Field Blank           |
| NA Not analyzed   |                                |
| R Result has been rejected and is considered unusable           |                                |
| U Analyte was not detected; value is the method reporting limit |                                |
| UB Detected in the blank and qualified as not detected          |                                |

- Notes:**
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  - 2) Data qualifiers are used as defined in the USEPA National Functional Guidelines for Organic and Inorganic Data Review (EPA, 1994).
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**Final Soil TCLP and Total Analytical Results  
Voluntary Release Assessment  
SWMU # 004a Portacamp (cont.)**

<b>HOLE Number:</b>	HOLE #5	HOLE #5	EQ BLANK	FD BLANK
<b>Depth (inches):</b>	12-24	36-48		
<b>TCLP Sample Date:</b>	11/6/95	11/6/95	11/6/95	11/6/95
<b>TCLP Sample Numbers:</b>	RA-95-235	RA-95-236	RA-95-223	RA-95-237
<b>Total Sample Date:</b>	7/12/96	7/12/96	7/12/96	7/12/96
<b>Total Sample Numbers:</b>	RA-96-217	RA-96-218	RA-96-219	RA-96-220

**Analytes**

**Metals**

TCLP Mercury (Hg)	0.0001 U	0.0001 U	0.0001 U	0.0001 U
<b>Total Mercury (Hg)</b>	<b>0.03 U</b>	<b>0.03 U</b>	<b>0.0001 U</b>	<b>0.0001 U</b>
TCLP Nickel (Ni)	0.02 U	0.02 U	0.02 U	0.02 U
<b>Total Nickel (Ni)</b>	<b>2 U</b>	<b>2 U</b>	<b>0.02 U</b>	<b>0.02 U</b>
TCLP Selenium (Se)	0.1 U	0.1 U	0.1 U	0.1 U
<b>Total Selenium (Se)</b>	<b>0.4 U</b>	<b>0.4 U</b>	<b>0.004 U</b>	<b>0.004 U</b>
TCLP Silver (Ag)	0.01 U	0.01 U	0.01 U	0.01 U
<b>Total Silver (Ag)</b>	<b>1 U</b>	<b>1 U</b>	<b>0.01 U</b>	<b>0.01 U</b>
TCLP Thallium (Tl)	0.2 U	0.2 U	0.2 U	0.2 U
<b>Total Thallium (Tl)</b>	<b>30</b>	<b>20 U</b>	<b>0.2</b>	<b>0.2 U</b>

**Data qualifiers and abbreviations:**

- |   |                                |
|---|--------------------------------|
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| J Result should be considered an estimated value                | FD BLANK Field Blank           |
| NA Not analyzed   |                                |
| R Result has been rejected and is considered unusable           |                                |
| U Analyte was not detected; value is the method reporting limit |                                |
| UB Detected in the blank and qualified as not detected          |                                |

- Notes:**
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