Westinghouse
Electric Corporation

11 Stanwix Street
Pittsburgh Pennsylvania 15222-1384

September 12, 1996

Mr. Stephen R. Myers
New Jersey Department of Environmental Protection
Bureau of Industrial Site Evaluation
401 East State Street, CN028
Trenton, NJ 08625

RE: Response - Radiological Closure Document Submittal
Westinghouse Electric Corporation
Bloomfield, NJ Facility, License #SMB-1527
ISRA Case #86070

Dear Mr. Myers:

This response letter is written to provide clarification to the NJDEP comments in your letter dated August 21, 1996 after review of the radiological closure packages which were submitted for our Bloomfield, New Jersey facility.

NJ Specific Comment: In the document addressing the Building 9/10A Trenches no explanation is provided as to why the data are grouped to determine average Guideline Values (GLVs). What is the rationale for grouping the data this way? For example why is G5 combined with 51-60A?

RESPONSE: Our remediation contractor, Scientific Ecology Group, was consulted to assist with this response to your comments. In this trench closure package there are only two individual sample grid locations (F-3 Elevated & G-5 Elevated) which actually exceed the soil criteria. The results for these two grid locations were presented in Attachment 5.3 (a) of the Building 9/10A Trench Closure Package. For any location which exceeds the Specified Guideline Value, the NRC guideline (NUREG/CR-5849) permits the use of a Soil Averaging Calculation to verify that the criteria has been met. This averaging approach was utilized for these two particular sample grid locations. The rationale for the specific grouping was based on the selection of actual samples from the surrounding area of each elevated sample. This approach is in accordance with the NUREG/CR-5849 guidelines.

The Soil Activity Averaging Calculation for elevated sample "F-3 Elevated" utilizes the surrounding samples 61 through 70A to achieve the release criteria. This calculation is presented on Page 15 of the Building 9/10A Trench Closure Plan.

The Soil Activity Averaging Calculation for elevated sample "G-5 Elevated" utilizes the nearby samples 51 through 60A to achieve the release criteria. This calculation is presented on Page 14 of the Building 9/10A Trench Closure Plan.

NJ Conclusion: The Department cannot concur on the cleanup standards of 35 pCi/g of total Uranium and 10 pCi/g of total Thorium until Westinghouse informs the Department of the vertical extent of contamination and the amount of clean cover that is to be placed over the remediation portions of the property. The dose assessment calculations performed are reasonable and the Department concurs that the specified material may be left in place and the 15 mrem/yr criteria can still be met.

RESPONSE: In 1989, the NRC established the following soil cleanup standards for our site: 35 pCi/g of total Uranium and 10 pCi/g of total Thorium. This criteria was reconfirmed in the Bloomfield Lamp Plant Safety Evaluation Report dated May 24, 1993 prepared by Mr. Mark C. Roberts, CHP, Senior Health Physicist for the NRC, Region I and this information was previously provided to the NJDEP. An appropriate excerpt is attached.

Westinghouse does not understand the Department's comment regarding the depth of cover as it relates to the soil cleanup criteria. We can only assume that this comment is related to the approach/criteria found in the non-promulgated DRAFT Generic Cleanup Standards for Radioactive Materials (January 1996) which the Department distributed for comment. After reviewing these standards, Westinghouse has interpreted that they do not apply to the Bloomfield Site since the radioactive materials involved are under the jurisdiction of a federal agency (NRC) as described in Section 1.2 (Scope) of that document. Ms. Jennifer Moon Goodman of the NJ BER concurred with this interpretation during a telephone conference on March 19, 1996 with Mr. B. M. Bowman of Westinghouse.

However, in an attempt to address your questions regarding the depth of the samples and the vertical extent of impacted soil, the following information is provided:

- After excavation, the Building 7/8 Trench was between 8.0 - 12.0 feet deep depending on the depth of the impacted piping. The soil criteria was achieved in this entire trench.

- The impacted soil that will remain in place is located under a small portion of the Building 7 Basement floor slab. Soil within the pipe trenches was removed down to bedrock which is located approximately 2.5 - 3.0 feet below the basement floor elevation. Delineation samples that were collected indicate that the impacted soil extends approximately 3.0 - 6.0 feet laterally from each trench and no deeper than 1.5 feet into bedrock (at a few locations).

- After excavation, the depth of the Building 7 First Floor trench ranged from 0.0 - 8.0 feet, as was required to achieve the cleanup criteria.

- After excavation, the depth of the other three pipe trenches ranged from 0.0 - 3.0 feet, as was required to achieve the cleanup criteria. These three trenches were: Building 7 Courtyard, Building 8/9, Building 9/10A.

We hope that this information clarifies the soil cleanup criteria for the site and that the NJDEP concurs with both Westinghouse and the NRC. Thank you for your expeditious review of the prior submittals and continued cooperation as we progress towards the completion of this project. If you have any questions regarding this submittal, please contact the undersigned at (412) 642-3287

Respectfully submitted,

David R. Hall
Sr. Project Engineer

B. M. Bowman
Director, Special Projects

cc: Wayne Bickerstaff, Westinghouse
Mark Roberts, U.S. NRC
Richard Proctor, Bloomfield Health Dept.
Ken Bird, Cummings/Riter
Jennifer Moon Goodman, NJ BER
Frank Camera, NJ BEERA

attachment

Docket No. 040-08976 License No. SMB-1527

SAFETY EVALUATION REPORT
RELEASE FOR UNRESTRICTED USE
BLOOMFIELD LAMP PLANT
BUILDINGS 1 - 6 AND THE GARAGE
WESTINGHOUSE ELECTRIC COMPANY
BLOOMFIELD, NEW JERSEY

1. Site History:

The Westinghouse Electric Company (Westinghouse) Bloomfield Lamp Plant is comprised of eleven principal buildings (identified as Buildings 1 through 11) and several lesser structures, including a garage, on a 5.7 hectare (14 acre) site in Bloomfield, New Jersey. The site is bounded by MacArthur Avenue to the north, railroad tracks to the west and south, and by commercial properties along Bloomfield Avenue to the east. The site is divided into two parcels by Arlington Avenue which runs generally southwest to northeast. The garage lies on the opposite side of MacArthur Avenue across from Building 1. Most of the principal buildings have multiple floor levels. The buildings, constructed between 1907 and 1930, contain approximately 93,000 square meters (1,000,000 square feet) of floor space and cover approximately half of the area of the site. Most of the area between the buildings is paved with asphalt or concrete. The primary unpaved areas on the site are a small reservoir for fire protection water behind Building 2, a large incinerator also behind Building 2, and the areas adjacent to the railroad tracks. Operations at this facility were primarily devoted to engineering, research and development and production of electric lamps. In connection with this work, radioactive materials, primarily thorium, were used for the manufacture of metallic wire and components for lamp filaments. During World War II, the facility was contracted to produce uranium in support of the Manhattan Project. Uranium was also used in projects after this period.

Both the U. S. Nuclear Regulatory Commission (NRC) and Westinghouse's records are incomplete concerning the extent and timing of early activities at the site. Initial activities with uranium were conducted before licensing was required. Activities for the Manhattan Project also did not require the authorization of a license. However, records do indicate that in November 1964 the Atomic Energy Commission (AEC) issued AEC License No. SMB-353 to Westinghouse to conduct research and development with thorium and uranium and to manufacture thorium-tungsten wire (for lighting applications) and welding rods containing thorium at the Bloomfield facility. A second license for the facility, AEC License No. STB-467, was also issued to Westinghouse for use of thorium in the manufacture of mercury vapor lamps. The two licensed activities were consolidated under License No. SMB-353 and License No. STB-467 was subsequently terminated in November 1967.

In 1976 the Energy Research and Development Administration (ERDA) began a review of the radiological status of the facilities involved in supporting the Manhattan Project.

An October 1976 survey by ERDA staff identified contamination in the basement of Building 7 in floor drains, along the base of the walls and support columns where they joined the floor and around support columns of a loading dock at the rear of the building. This survey was limited to Building 7 since it was the only portion of the facility where Manhattan Project work was performed. Westinghouse used the services of an outside contractor to clean contaminated areas. Although some contamination remained above the then current criteria for release for unrestricted use, ERDA did not recommend further remediation, but suggested that the residual contamination be licensed by NRC as a means of further control. In February 1978, Westinghouse requested that the NRC amend their license to include this residual contamination.

In May 1979 the NRC informed Westinghouse that the NRC would not amend the license and that they believed that the Building 7 basement should be decontaminated. In November 1979 a Westinghouse contractor performed remediation in the contaminated areas identified. Additional remediation was conducted in April 1980 following the discovery of several contaminated areas during a February 1980 NRC survey. Following a January 1981 survey, the NRC indicated in a letter to Westinghouse that the Building 7 basement had been satisfactorily decontaminated .

In February 1983, Westinghouse sold the lamp manufacturing business to North American Philips Company. As part of this sale, North American Philips operated the Bloomfield Lamp Plant facilities, but only leased the plant from Westinghouse. The NRC issued License No. SMB-1423 to North American Philips Electric Company and terminated License No. SMB-353 issued to Westinghouse. The license issued to North American Philips only authorized manufacturing of products containing thorium. In 1984 North American Philips stopped thorium wire production and ceased all manufacturing operations at the site in 1985. North American Philips moved from the Bloomfield facility by November 1986. In May 1988, Region I amended the North American Philips license to authorize only storage of the licensed radioactive material then at the facility. Since North American Philips had only leased the Bloomfield facility, Westinghouse then took control of the facility.

In November 1988, Westinghouse submitted an application for a license to authorize decommissioning of the facility. Included in the license request was a decommissioning plan and the results of radiological surveys conducted in 1986 and 1988 that characterized the quantity and extent of radioactive contamination at the Bloomfield facility. Westinghouse also requested that the North American Philips Company license be terminated with the issue of a new license to Westinghouse. In February 1989, NRC issued License No. SMB-1527 to Westinghouse for decommissioning the Bloomfield facility and terminated License No. SMB-1423.

2. Decommissioning Plan

The facility decommissioning plan, submitted by Westinghouse with the November 4, 1988 license application and approved when the license was issued, discussed only the generic tasks associated with the decommissioning of the Bloomfield facility. Detailed information and procedures were not provided since Westinghouse indicated that the remediation work would be performed by experienced contractor personnel. The decommissioning plan included remediation of the contaminated areas identified in surveys performed by RMC/Canberra, Westinghouse's radiological contractor, in 1986 and 1988. A final site survey was to be performed after completion of the remediation work. The report of the final survey would be transmitted to the NRC to support release of the facility for unrestricted use and termination of the license. The remediation contractor, methodologies and procedures were not specifically identified. The procedures were to consist of a variety of methods to include removal of contaminated material and/or appropriate cleaning. The supervisor of the decommissioning activities was required to have two years of experience in similar type projects. Wastes were to be controlled and packaged for eventual disposal.

3. Applicable Limits

The decommissioning plan submitted by Westinghouse in their license application specified the criteria in the NRC's May 1987 "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material" as the criteria to be utilized for acceptable residual surface contamination. The criteria specified for acceptable residual soil contamination are those found in Option 1 of the Branch Technical Position for "Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations", 46 FR 52061-52063.

The Branch Technical Position does not specify criteria for processed uranium, i.e. uranium neither enriched or depleted in the U-235 isotope, but which does not include the radioactive daughter products of U-234. Residual radioactive material of this type was present at the Bloomfield facility. The NRC concluded that the criteria for depleted uranium are appropriate for processed uranium due to their radiological similarity.

Westinghouse's decommissioning plan does not specify criteria for the exposure rate from residual licensed radioactive material. Pending NRC rulemaking on generic radiological criteria for decommissioning, the NRC will use existing guidance published in the "NRC Action Plan to Ensure Timely Cleanup of SDMP (Site Decommissioning Management Plan) Sites" (57 FR 13389-13392). Although the Bloomfield site is not on the SDMP list, this guidance is applicable and appropriate for release of this facility for unrestricted use. Therefore, contaminated concrete, components and structures should be removed so that the indoor exposure rate is less than 5 microroentgens per hour above