



State of New Jersey

Christine Todd Whitman
Governor

Department of Environmental Protection

Robert C. Shinn, Jr.
Commissioner

Bo Bowman
Westinghouse Electric Corporation
11 Stanwix Street
Pittsburgh, PA 15222-1384

AUG 21 1996

Re: Westinghouse Electric Corporation
Bloomfield Twp., Essex County
Building 7, Courtyard Trench Closure Package, January 1996, Revision 0
Building 7, First Floor Area Closure Package, February 1996, Revision 0
Building 7/8 Trench Closure Package, January 1996, Revision 0
Building 8/9 Trench Closure Package, January 1996, Revision 0
Building 9/10A Trench Closure Package, January 1996, Revision 0
Dose Assessment Report, February 1996, Revision 2
ISRA Case #86070

Dear Mr. Bowman:

The New Jersey Department of Environmental Protection (Department) has reviewed the above referenced submittal. The Department's comments are noted below.

I Radiological Conditions

Westinghouse is following the procedures and data analysis outlined in NUREG/CR-5849 Manual for Conducting Radiological Surveys in Support of License Termination. The criteria for building surfaces was taken from NRC Material License Termination Guidelines and the criteria for soil was taken from the Federal Register [Vol. 46, No. 205]. The soil criteria are 35 pCi/g for total Uranium and 10 pCi/g total Thorium. The Department's soil criteria for total Uranium and Thorium depend on the vertical extent of the remaining contamination and the amount of clean cover, which was not specified by Westinghouse. Therefore, before the Department can concur on the cleanup standard, the vertical extent of the remaining contaminated material and the depth of clean cover that will be placed over the remediated areas shall be submitted.

The analysis of the data indicates that the locations specified can be released for unrestricted use. There are three instances where Westinghouse chose not to remove contaminated materials and/or soil that were above the release criteria because of cost. In these cases, a dose assessment was performed and it was demonstrated that even if these materials were brought to the surface, the dose to an individual would still be below the 15 mrem per year dose criteria. This is the same criteria the Department uses for alternate cleanup standards.

The models used for determining dose were Microshield and RESRAD. Approximately 10,000 cubic feet of contaminated soil and bedrock exists beneath the basement of Building 7 and Westinghouse intends to leave it there. The mean activity concentration of the samples is 154 pCi/g of uranium, with concentrations as high

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as 779 pCi/g of uranium. The dose calculation assumes that the contamination will remain at 10 feet below grade. Using the Microshield code, the resulting exposure rate would be $9E-9$ mR/yr.

A calculation was also performed assuming that the material was brought to the surface as a thin disk, one foot thick with a diameter of 240 feet. They did not include the water ingestion pathway, but assumed that all drinking water would be from the municipal water system. What was not clear in the text was that this material was mixed with clean soil in a ratio of 4:1. Given the fact that the material is ten feet below grade, this is a valid and conservative assumption. According to the Department's calculations, with ten feet of clean cover, and including the water pathway, the resultant dose would be 14 mrem/yr, just below the allowed 15 mrem annual dose. Using RESRAD, without the water pathway, the resultant dose is 0.44 mrem/yr.

In addition to the 10,000 cubic feet of contaminated soil and bedrock, Westinghouse intends to leave two contaminated drain pipes in place. The dose calculations for leaving the drain pipes in place were reviewed and found to be valid. The dose from leaving drain pipe B in place was < 0.1 mrem/yr. If it were brought to the surface and an individual spent 1,000 hours, 100 feet from the source, the dose to that individual would be 0.44 mrem/yr. Leaving drain pipe A in place resulted in a dose of 0.1 mrem/yr. If the pipe was brought to the surface the resulting dose would be 2 mrem/yr. These calculations were performed using the computer model Microshield. The Department performed some calculations and came up with similar results.

In addition, they performed a calculation for the unlikely scenario that all the contamination was brought to the surface and consolidated. This scenario yielded a dose of 12 mrem/yr, still below the allowed 15 mrem/yr criteria.

Specific Comments: 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?

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 amount of clean cover that is to be placed over the remediation portions of the property. The dose calculations performed by Westinghouse for leaving some contaminated material in place are reasonable. The Department concurs that the material specified may be left in place and the 15 mrem/yr criteria can still be met.

Also, please note that the Department is currently reviewing the Final Survey Report Building 7, 8, 9 and 10A (Volumes I through X) July 1996, Revision 0 submitted by Westinghouse with their July 31, 1996 letter.

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If you have any questions, please contact the Case Manager, Stephen Myers, at
(609) 633-1392.

Sincerely,

A handwritten signature in cursive script, appearing to read "Stephen Maybury", followed by a horizontal flourish.

Stephen Maybury, Acting Chief
Bureau of Environmental Evaluation
and Cleanup Responsibility Assessment

c: Mark Roberts, U.S. Nuclear Regulatory Commission Region I
Richard Proctor, Bloomfield Twp. Board of Health
David Hall, Westinghouse Electric Corporation
Ken Bird, Cummings/Riter
Frank Camera, BEERA 4th floor
George Blyskun, BGWPA 4th floor
Jennifer Moon Goodman, BER