



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

November 4, 1994

Mr. Arthur J. Bortz, Resident Manager  
Long Island Power Authority  
Shoreham Nuclear Power Station  
P.O. Box 628  
North Country Road  
Wading River, NY 11792

SUBJECT: APPLICATION OF SOIL RELEASE CRITERIA TO OTHER BULK MATERIALS AT THE  
SHOREHAM NUCLEAR POWER STATION, UNIT 1

Dear Mr. Bortz:

In your letter dated September 1, 1994, LSNRC-2179, and supplemental letter dated October 4, 1994, LSNRC-2185, Long Island Power Authority (LIPA) submitted an evaluation of their proposed use of the release criterion for soil, 8 pCi/g, for the concrete rubble, sewage sludge, contaminated charcoal, and the silt and biological material (bulk materials) that will remain at the Shoreham site upon completion of decommissioning. LIPA's analysis concluded that the combined dose of 9.3 mrem/yr from the bulk materials was less than the 15 mrem/yr limit in the Nuclear Regulatory Commission Proposed Rule on Radiological Criteria for Decommissioning.

LIPA evaluated potential doses from the bulk materials using the residential scenario in NUREG/CR-5512, "Residual Radioactive Contamination From Decommissioning." The resulting estimated doses were 7.85 mrem/yr Total Effective Dose Equivalent (TEDE) maximum (using the highest individual sample result) and 2.60 mrem/yr TEDE average (using the average of the sample results). The staff considers these doses to be conservative estimates.

LIPA also evaluated the potential dose to the public from the hypothetical reconcentration of the radioactivity in the bulk materials due to incineration of sewage sludge, silt, and charcoal. LIPA estimated that the incineration of the bulk material would reduce the volume by 95 percent, resulting in ash with concentrations 20 times greater than the bulk material. However, assuming that the ash would be disposed of in a local municipal landfill, and using the assumptions in the NRC staff's "Generic Dose Assessment For Disposal of Incinerator Ash in a Landfill," LIPA concludes that the ash would be diluted by a factor of 50 as a result of mixing the ash with the waste and soil in the landfill. Therefore, the effective concentration of radionuclides in the landfill, after incineration, would be a factor of 2.5 less than the concentration in the existing bulk material, and the corresponding dose would be a factor of 2.5 less than the estimated dose for the existing bulk material. The staff's generic ash assessment assumed that 500 cubic meters of incinerator ash would be sent to the landfill. Since the total volume of bulk material at Shoreham is estimated to be only 4 cubic meters after incineration, the estimated dose would be further reduced.

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Shoreham Nuclear Power Station  
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Docket No. 50-322  
License No. NPF-82

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Letter dated: November 4, 1994

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Based on the staff's review of LIPA's analyses and dose estimates, the staff concludes that the use of 8 pCi/g limit for Co-60 in soil is appropriate for the other bulk materials at Shoreham. The staff's approval is limited to the bulk material described in LIPA's October 4, 1994, submittal. Approval of unrestricted release criteria for other bulk materials that may be identified at the Shoreham site, or at any other sites will be examined on a case specific basis.

If you have any questions, I can be reached on (301) 415-6702.

Sincerely,



Clayton L. Pittiglio, Jr., Project Manager  
Low-Level Waste and Decommissioning  
Projects Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 50-322  
License No. NPF-82

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generic ash assessment assumed that 500 cubic meters of incinerator ash would be sent to the landfill. Since the total volume of bulk material at Shoreham is 82 cubic meters, before incineration, the effective concentration in the landfill would be further reduced.

Based on the review of LIPA's analysis and dose estimates, the staff concludes that the 8 pCi/g limit for Co-60 in soil is appropriate for the other bulk materials at Shoreham.

If you have any questions, I can be reached on (301) 415-6702.

Sincerely,  
 [Original signed by]  
 Clayton L. Pittiglio, Jr., Project Manager  
 Low-Level Waste and Decommissioning  
 Projects Branch  
 Division of Waste Management  
 Office of Nuclear Material Safety  
 and Safeguards

cc: See attached list

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