

Docket No. 50-322  
 Mr. L. M. Hill, Resident Manager  
 Long Island Power Authority  
 Shoreham Nuclear Power Station  
 P.O. Box 628  
 North Country Road  
 Wading River, NY 11792

DEC 16 1992

Dear Mr. Hill:

SUBJECT: REVIEW AND COMMENTS ON TERMINATION SURVEY PLAN

The Nuclear Regulatory Commission staff has completed its review of the Shoreham Decommissioning Project Termination Survey Plan (Survey Plan), Revision 0, submitted with your December 2, 1992, letter, LSNRC-2014. Please respond to the enclosed comments before implementing the Survey Plan.

There are three issues identified in the comments that are of particular concern. First, NRC needs additional information to complete its review of your proposal to exclude Fe-55 from consideration when determining compliance with the surface contamination limits. Second, the Survey Plan proposes to use only exposure rate measurements to demonstrate that residual soil contamination is below acceptable levels. However, NRC soil contamination limits include both exposure rate in uR/hr, and soil concentration in pCi/g. The current NRC unrestricted release criterion for Co-60 contamination in soil is 8 pCi/g. The Survey Plan should address the 8 pCi/g Co-60 limit. Third, the "75% of limit" criteria for reclassifying an area from unaffected to affected is high relative to NUREG/CR-5849, which recommends a threshold level of 25% of the limit for investigation and reclassification. LIPA should adopt the threshold level recommended in NUREG/CR-5849 or provide a justification for an alternative.

David N. Fauver has responsibility for the review of the Shoreham Termination Survey Program. If you have any questions regarding our comments, please contact Mr. Fauver at 301-504-2554.

/s/  
 Clayton L. Pittiglio, Project Manager  
 Facilities Section  
 Decommissioning and Regulatory Issues Branch  
 Division of Low-Level Waste Management  
 and Decommissioning  
 Office of Nuclear Materials Safety  
 and Safeguards

Enclosure: As stated

cc: Attached list

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COMMENTS ON SHOREHAM DECOMMISSIONING PROJECT TERMINATION SURVEY PLAN,  
REVISION 0

- Page 3-1, Table 3.2            The Termination Survey Plan indicates that the calculated Fe-55/Co-60 ratio in activated components is about 2.5 while the piping system analysis indicates a ratio of 0.2. What is the most representative Fe-55/Co-60 ratio for contamination at SNPS? Provide the basis for your estimate of the representative ratio.
- Page 4-5, Equation 4.1        The MDA equation does not match the statement that the MDA is calculated at approximately the 98% confidence level (assuming Type 1 and Type 2 errors to be equal). Please clarify.
- Page 4-7, Section 4.3.6      Scanning surveys should be capable of detecting 75% of the average surface contamination limit, and are intended to identify contamination in excess of the average limit, not areas exceeding 3 times the average limit. Please acknowledge that scan surveys will be used to identify contamination in excess of the average limit, and that appropriate followup measurements and investigations will be conducted when contamination in excess of the average limit is identified.
- Page 4-8, Section 4.4        Equation 8-22 in NUREG/CR-5849 should be used to ensure that the variability of background measurements is acceptable.
- Provide the method for calculating the background value to be used in the termination survey.
- How will you ensure that the selected background values are not too high? One possible approach is to select a value from the background distribution that has a reasonable probability of being conservative, i.e., low. For example, the background value selected could be the average background minus 1 standard deviation.
- Page 5-2, Footnote 2        Clarify whether the confidence "interval" will be calculated using a one-tailed or two-tailed test.
- Page 5-2, Section 5.2.1      The acceptance criteria for biased measurements should be based on the same statistical tests as the systematic measurements. The biased sample results can either comprise their own population or be included in the survey unit population.

Enclosure

Page 5-3, Section 5.2.2

Over what building surface area will exposure rate measurements be averaged? Per NUREG/CR-5849, the weighted average exposure rate over any 10 m<sup>2</sup> building surface area should not exceed 5 uR/hr, above background, at 1 meter from the surface.

Page 5-3, Section 7.2

The current NRC criterion for Co-60 contamination in soil is 8 pCi/g. Soil samples should be collected at each of the 30 random locations, in addition to exposure rate measurements. Also, any soil sample containing measurable concentrations of Co-60 (> MDA), or other non-naturally occurring radioisotopes, should be investigated to determine the source of the contamination, as well as the areal extent and depth of the contamination.

Page 6-1, Section 6-1

The Final report should include, as an appendix, copies of QA audits and QC results. Also, copies of the release records should be submitted with the report.

The report should also include a section describing all areas that required remediation and/or reclassification, the investigation and actions taken, and the followup survey results.

Page A-5, Section 4.3.1

The criterion for reclassification of a survey unit, i.e., 75% of the limit, is high relative to NUREG/CR-5849, which recommends a reclassification/investigation threshold of 25% of the limit. It is not necessary to reclassify the entire survey unit if an individual sample or limited area exceeds 25% of the average limit. However, an investigation is needed to determine the source of the contamination and the need to reclassify a part of the survey unit as an affected subunit. This also applies to the "not suspect" designation. LIPA should adopt the 25% of limit threshold recommended in NUREG/CR-5849, or provide justification for an alternative.

Page A-12, Section 7.2.4

Provide additional information to justify not sampling above 2 meters from the ground on building exteriors, and not sampling the roofs of non-power block buildings. The information should be sufficient to demonstrate that the probability of contamination existing in the areas LIPA proposes to exclude from the survey is very low.

Shoreham Nuclear Power Station  
Long Island Power Authority  
Docket No. 50-322

Letter dated: \_\_\_\_\_

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