



Long
Island
Power
Authority

Shoreham Nuclear Power Station
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MAY 20 1994

LSNRC-2170

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

ATTN: Mr. Robert Bernero, Director
Office of Nuclear Material
Safety and Safeguards

Request For Approval of
Decommissioning Plan Change: Spent
Fuel Storage Pool (SFSP) Decommissioning
Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322

- Ref:
- 1) NRC letter dated June 11, 1992 to L. M. Hill (Long Island Power Authority) from S. W. Brown; subject: Order Approving the Decommissioning of Shoreham Nuclear Power Station, Unit 1
 - 2) Long Island Power Authority (R. M. Kessel) letter dated December 29, 1990 to NRC; subject: Decommissioning Plan of the Long Island Power Authority for the Shoreham Nuclear Power Station

Ladies and Gentlemen:

In accordance with Condition 4 of the Shoreham Decommissioning Order (Reference 1), Long Island Power Authority (LIPA) hereby requests NRC approval of a proposed change to the Shoreham Decommissioning Plan (Reference 2). The requested change is for approval of additional remedial decontamination and/or removal methods to be employed in the decommissioning of the Shoreham SFSP beyond that originally specified in the Decommissioning Plan (2).

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DP Section 2.2.1.1 presently indicates that the SFSP decommissioning would involve the decontamination of the SFSP walls and floors using ultra high pressure water techniques. Although LIPA still intends to perform high pressure water hydrolazing of the SFSP to decontaminate it to the maximum extent possible after all fuel has been removed, it cannot be stated with certainty at this time that the hydrolazing alone will be fully effective in decontaminating the stainless steel SFSP liner surfaces below the radiological limits for facility release for unrestricted use. This uncertainty is compounded by the present inability to definitively establish the characteristics of potential liner contamination (i.e., radiation levels, fixed vs. loose, depth of penetration, etc.), because of the need to maintain SFSP water levels for the safe storage and handling of the remaining irradiated fuel.

LIPA is therefore preparing to take further remedial actions to decontaminate and/or remove all or portions of the SFSP liner, should it be necessary to meet the site release criteria, as described in the following sections.

SFSP Decommissioning Activities

The expected activities and sequence involved in the SFSP decommissioning process will be as described below; however variations may occur. For example, if hydrolazing proves to be sufficiently effective, no further decontamination or removal of the SFSP liner will be pursued. Conversely, if initial or subsequent survey results indicate that the depth of contamination would make further decontamination impractical, then LIPA would proceed directly with removal activities.

Following fuel removal, the SFSP water will be demineralized and filtered, recirculated, sampled, and drained (in accordance with Offsite Dose Calculation Manual (ODCM) requirements and approved station procedures), to the level just above where suction for the Temporary Spent Fuel Pool Cleanup System pump would be lost. This level would be several feet above the SFSP floor. At this point, residual water in the SFSP Cooling and Cleanup System (G41 system) piping will be drained into the SFSP, and the SFSP walls will be hydrolazed with demineralized water to remove surface contamination to the extent practical.

Radiological surveys will be performed during and after draindown by Health Physics personnel to monitor radiation levels in the area (none are expected), as well as contamination levels, prior to allowing personnel access within the pool cavity. Preparations for the removal of the empty spent fuel storage racks and control rod blade rack will be made, and hanging scaffolds will be installed to facilitate detailed surveying of the SFSP walls and additional manual decontamination (if necessary).

Should further decontamination be required for the SFSP walls, manual grinding or hand wiping will be employed. Rigging and removal of racks may be performed in parallel with the wall decontamination; however, safe distances between the rigging and decontamination operations will be maintained. SFSP wall decontamination and rack rigging will be performed by personnel in appropriate protective clothing, as prescribed in a Radiation Work Permit, under the direction of Radiological Controls Division personnel. Air sampling, contamination controls, ALARA measures, and other radiological controls will be employed during the decontamination as determined by Health Physics personnel. For example, measures under consideration for use during grinding include, but are not limited to, use of local HEPA-filtered ventilation and installation of screens near the top perimeter of the SFSP to prevent escape of grinding debris. As fuel racks and the control rod blade rack are removed from the pool, underwater vacuuming will be periodically used to remove materials that were beneath the racks on the SFSP floor.

Following the completion of rack removal from the SFSP, the Temporary Fuel Pool Cleanup System will be employed to demineralize and filter the remaining water inventory. A temporary pump will be placed in the SFSP sump and the remaining water will be recirculated, sampled and drained in accordance with ODCM requirements and approved station procedures. Any residual water left after draindown will be collected via a wet vacuum or other appropriate means, routed through the Temporary Fuel Pool Cleanup System demineralizer unit, and directed to the Reactor Building Salt Water Drain Tank (RBSWDT). This final batch in the RBSWDT will be recirculated, sampled, and discharged in accordance with ODCM requirements and approved station procedures.

Once all water has been removed, the SFSP cavity will again be surveyed before personnel are permitted to enter. Attachments to the SFSP floor will be mechanically removed, and the floor itself will be decontaminated by grinding and/or manual wiping, if required.

Following decontamination and clean-up, detailed surveys will be performed to verify the effectiveness of the decontamination. If it is determined that all or part of the liner cannot meet the facility release criteria, then the liner or portions thereof will be removed for offsite volume reduction and/or disposal. A number of mechanical techniques may be employed to separate the liner from the grouting and anchorages to which it is attached, depending on the extent of removal required and the details of the configuration. These methods and the associated equipment are the same as or similar to techniques and equipment which were previously approved for use during Shoreham's decommissioning. They include: diamond wire sawing, track sawing, linear milling machines, hydraulic tearing, and hydraulic nibblers. Other comparable mechanical methods which would not pose a risk for spread of contamination may also be employed as necessary. Ancillary activities such as core boring to provide pilot holes may also be required.

Accident Analysis Considerations

With the completion of fuel removal prior to conduct of the above activities and the avoidance of the use of thermal cutting techniques, there remain few significant concerns regarding potential radiological accidents as previously described in the DP. The only remaining applicable scenarios would be the waste container drop accident, the combustible waste fire accident, and the vacuum filter-bag rupture accident. The source terms developed for these accidents in the DP, however, would be conservative with respect to the SFSP decommissioning. Thus, the consequences as previously evaluated in the DP would be bounding.

The mechanical decontamination and removal techniques do not involve any potentially catastrophic or unique processes. Therefore, there would be no increase in the probabilities of the applicable accidents, nor would there be any new or different accidents or malfunctions of any concern that would be created.

In terms of industrial safety, standard safe rigging practices will be employed during the handling and removal of components from the SFSP, and workers performing decontamination on SFSP surfaces will use the appropriate safety equipment where necessary, e.g., lanyards on scaffolds, goggles and/or face shields during grinding, etc.

Environmental Impact Considerations

The levels of radioactive contamination on SFSP liner surfaces are expected to be extremely low, and the mechanical decontamination and cutting techniques that will be used are unlikely to generate any measurable airborne contamination. Appropriate contamination controls and other precautionary radiological controls will nevertheless be practiced as noted earlier. Further, the radiation levels in the SFSP after fuel removal are also expected to be low enough such that no measurable radiation exposure is anticipated. Based on the above, no radiological impacts to workers and the general public are expected, and the estimates of such impacts provided in the DP and in the Supplement to the Shoreham Environmental Report (Decommissioning) are unaffected.

The spent fuel storage racks and appurtenances were included in the original estimate of radioactive waste identified in DP Table 3.3-1. The SFSP liner was not included in this estimate; however, any stainless steel liner that may be removed will be sent to a vendor for volume reduction by smelting. The volume and curie content of any slag resulting from smelting that may ultimately require burial, will thus be minimal. With the effectiveness to date of other low level radwaste volume reduction achieved to date during decommissioning (but not assumed in the DP), the original estimate of radioactive waste provided in the DP will not be exceeded by the addition of such slag material.

The costs of performing the additional remedial decontamination and removal of the SFSP liner, if necessary, will not cause the original \$186 million project cost estimate to be exceeded.

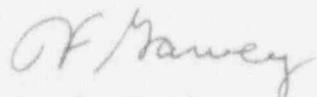
Finally, non-radiological environmental impacts such as air quality, land and water use, noise, and dust will not be increased beyond that described in the Supplement to the Environmental Report (Decommissioning) because of the confinement of the work within the Reactor Building.

Conclusion

Based on the above, LIPA has concluded that there are no unreviewed safety questions associated with the proposed DP change, and that there would be no environmental impacts different from or exceeding those set forth in the Environmental Report Supplement. This proposed DP change has been reviewed and approved by LIPA's Site Review Committee (SRC), and the SRC supports this conclusion. LIPA therefore respectfully requests that the NRC review and approve the proposed change as expeditiously as possible.

Should you have any questions or require any additional information, please do not hesitate to contact my office.

Very truly yours,



for A. J. Bortz
Resident Manager

cc: L. Bell (NRC/NMSS)
C. L. Pittiglio (NRC/NMSS)
J. Austin (NRC/NMSS)
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