

AUG 31 1981

Docket No. 50-322



Mr. M. S. Pollock  
Vice President - Nuclear  
Long Island Lighting Company  
175 East Old Country Road  
Hicksville, New York 11801

Dear Mr. Pollock:

SUBJECT: STAFF POSITIONS - SHOREHAM NUCLEAR POWER STATION

During our review of LILCO's application for an operating license for the Shoreham Nuclear Power Station, we developed staff positions on several issues. These issues must be resolved prior to issuance of an operating license. A discussion of our positions are presented below.

The first issue is item II.B.3 from NUREG-0737, "Clarification of TMI Action Plan Requirements." We reviewed LILCO's letters of May 15, July 23, and July 31, 1981, which describe your proposal to meet the requirements of II.B.3. We found that these submittals did not provide sufficient information to demonstrate that the reactor coolant and suppression chamber samples are representative, to provide a procedure for relating radionuclide concentrations to fuel damage, and to provide operational capability of the post-accident sampling system with loss of off-site power. Our specific concerns in these areas are as follows:

1. That the reactor coolant liquid sample which is taken from the jet pump diffuser will be diluted to an uncertain degree by the reactor coolant system makeup water source. This condition occurs when low volumes of steam are being generated which significantly reduces the amount of moisture which leaves the core and is subsequently returned to the downcomer via the moisture separators. This condition can result in the samples being analyzed at lower concentrations of soluble species (chloride, boron, iodine, etc.) than are actually present in the core area, and thus provide an imprecise estimate of the core damage.
2. That the suppression chamber samples, due to the location of the sample points relative to reactor coolant system safety valve discharge points, will either be excessively diluted or virtually undiluted resulting in erroneous estimates of core damage. We require the applicant to provide information to demonstrate to our satisfaction that these sample points are located such that adequate mixing will occur and the samples are representative of the mixture rather than only the discharged fluid.

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3. That an acceptable procedure be provided to relate specific radionuclide concentrations to the estimated extent of core damage.
4. That all electrically powered components associated with post-accident sampling are capable of being supplied with power and operated within thirty minutes of an accident in which there is core degradation, or supplied with power at some time greater than thirty minutes after an accident so that a sample can be taken and analyzed within three hours of an accident, assuming loss of offsite power.

The next issue involves our review of the Remote Shutdown System at Shoreham. In the event of loss of habitability of the control room for reasons other than fire, we are concerned that random single failures in the instruments and controls of systems controlled from the remote panel or in the systems themselves may prevent attaining cold or hot shutdown from the remote shutdown panel.

It is our position that you demonstrate a capability to attain and maintain hot shutdown and subsequently cold shutdown from outside the control room, assuming a single failure in the systems required for affecting safe shutdown. Offsite power should be assumed to be unavailable.

Your response to this issue should address the following specific requirements. These requirements must be met in order to demonstrate compliance with 10 CFR Part 50, Appendix A (GDC-19), Appendix K, and Appendix R.

- 1) The design should provide redundant safety grade capability to achieve and maintain hot shutdown from a location(s) remote from the control room, assuming no fire damage to any required systems and equipment and assuming no accident has occurred. Credit may be taken for manual actuation (exclusive of continuous control) or systems from locations that are reasonably accessible from the Remote Shutdown Panel. Credit may not be taken for manual actions involving jumpering, rewiring or disconnecting circuits.
- 2) The design should provide redundant safety grade capability for attaining subsequent cold shutdown through the use of suitable procedures.
- 3) The design should be such that the manual transfer of control to the remote location(s) should not disable any automatic actuation of ESF functions while the plant is attaining or maintained in hot shutdown, other than where ESF features are manually placed in service to achieve or maintain hot shutdown. It is permissible to disable automatic LPCI actuation in this manner only when necessary in order to enable control of the RHR system from the remote location and while operating this system to effect cold shutdown from hot shutdown.

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- 4) The design should provide, as a minimum, non-redundant safety grade systems necessary to achieve and maintain hot shutdown from either the control room or from a remote location(s) assuming a postulated fire in any fire area, including the control room or the Remote Shutdown Panel. Credit may be taken for manual actuation (exclusive of continuous control) of systems from locations that are reasonably accessible from the control room or the Remote Shutdown Panel, as applicable. Credit may not be taken for manual actions involving jumpering, rewiring or disconnecting circuits.
- 5) The design should provide, as a minimum, non-redundant safety grade systems necessary to achieve and maintain cold shutdown from either the control room or from a remote location(s). The design should be such that in the event of fire damage in any fire area, systems could be repaired or made operable within 72 hours if required for cold shutdown.

The last issue involves the minimum separation criteria for electrical cables and raceways at Shoreham. LILCO was originally notified of this problem in Inspection Report 50-322/79-07 dated August 21, 1979. You committed to separation criteria for electrical equipment in Section 3.12 of the Shoreham Final Safety Analysis Report. These criteria were found acceptable by the NRC Staff during our current review of Shoreham. The Office of Inspection and Enforcement identified several instances where the electrical cables and raceways did not meet the separation criteria. This failure to meet your minimum separation criteria at Shoreham has been a continuing violation as stated in 79-07 and subsequent reports from the Office of Inspection and Enforcement.

In LILCO's letter to Report T. Carlson of the Region I Office of Inspection and Enforcement dated April 16, 1980 (SNRC-471), you stated that a separation analysis was being developed to justify your policy of not correcting the separation deficiencies at Shoreham. In a meeting held on February 10, 1981, your representatives presented the Shoreham separation analysis to members of the NRC staff. Shortly after this meeting, our Shoreham project manager notified your representatives that the separation analysis was an unacceptable justification for not meeting your own minimum separation criteria at Shoreham.

It is our position that each deficiency in separation for electrical cables and raceways meet one of the following options:

1. Correct the deficiency to meet the electrical equipment separation criteria set forth in Section 3.12 of the Shoreham Final Safety Analysis Report.

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2. Correct the deficiency to meet Regulatory Guide 1.75, "Physical Independence of Electric Systems," Revision 2 dated September, 1978.
3. Correct the deficiency by installing an acceptable barrier.
4. Justify the deficiency by performing a specific analysis for each cable or raceway where the minimum separation is not met to demonstrate that a failure will not propagate because of the insufficient separation.

I encourage you to give your personal attention to each of these matters so that they may be resolved expeditiously.

Sincerely,

Original signed by:

Robert L. Tedesco, Assistant Director  
for Licensing  
Division of Licensing

cc: See next page

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