LILCO
LONG ISLAND LIGHTING

LONG ISLAND LIGHTING COMPANY
SHOREHAM NUCLEAR POWER STATION
P.O. BOX 618, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

Direct Dial Number

November 4, 1982 SNRC-788

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SER Item II.F.2 - Inadequate Core Cooling
Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322

Reference: (1) SNRC-781 dated 10/28/82

Dear Mr. Denton:

In the reference (1) letter LILCO transmitted and justified their position that the current requirement for incore thermocouples, as contained on page 22-71 of Supplement 1 to the Safety Evaluation Report, should be deleted. This position was based on a Shoreham specific study done by S. Levy, Inc., entitled "Review of Shoreham Water Level Measurement System", report number SLI 8221, which determined that the existing plant design did not pose an unacceptable risk due to possible water level measurement failures. LILCO further committed to conform to the applicable recommendations resulting from the BWR Owners' Group (BWROG) generic study on "Inadequate Core Cooling Detection in BWR's".

In addition to the justification provided in the reference 1 letter, LILCO has evaluated, on a plant specific basis, the recommendations contained in Section 8 of the generic BWROG report, "Review of BWR Reactor Vessel Water Level Measurement Systems" (SLI-8211 dated July 1982 and errata dated August 26, 1982). This section lists three general areas of potential improvement in water level measurement, which are discussed below.

B001

The first recommendation relates to reducing susceptibility to high drywell temperature by 1) preventing overheating or reducing vertical drop of reference legs, and 2) moving instrument line orifice plates to the drywell penetrations. In the Shoreham report ("Review of Shoreham Water Level Measurement System" SLI-8221, September 1982 forwarded via reference 1), page 4-35, second paragraph, it is explicitly stated that "...the Shoreham level measurement system has short vertical line drops...and its susceptibility to flashing and temperature errors is limited." On page 4-22, last paragraph, the orifice location is described as "...very close to the drywell wall"; and "...the pressure drop across the orifice is negligible". The second and third "key results" listed on page 7-2 summarize the fact that the Shoreham reference and variable leg design is fully acceptable.

The second recommendation in the generic report is that serious consideration be given to modifications that enhance the trend away from needing operator action to recover from events involving an instrument line break and an additional instrument failure. This generic report deliberately did not address the methodology for quantifying or judging the acceptability of a design with regard to this failure mode. This part of the evaluation was left to the second generic study by the BWROG. To date, the only published report addressing this issue is the Shoreham water level report. In both the Shoreham report and the draft BWROG report, PRA is used to judge the acceptability of the water level measurement system design. As explained on page 6-21 and Table 6-1 of the Shoreham report, the core melt frequency contribution associated with instrument line break is calculated to be 7% (actually 6.8%) of the original total plant core melt frequency. In addition, 90% of the accident sequences associated with instrument line failure are in accident Class 1, and since the consequences of Class 1 accidents tend to be the lowest of all accident classes the risk contribution from this 7% increase in core melt frequency will be much less than 7%. In our judgment, this is adequately low to justify operation of Shoreham prior to the generic resolution of the ICC issue, without performing further studies or plant modifications.

The third recommendation relates to the use of an Analog Trip System (ATS) to improve level measurement reliability. As stated on page 3-6, second paragraph and illustrated in Figure 3-3, the Shoreham level instrumentation is totally ATS based for performance of the various initiation and interlock functions. Shoreham, therefore, fully conforms with this recommendation.

In summary, the Shoreham plant is the only plant at this time to explicitly address the ICC detection issue in detail on a plant-specific basis. Our plant level instrumentation has little susceptibility to high drywell temperature concerns, it has a fully ATS-based level measurement system and it has been analyzed, in great detail, deterministically and probabilistically to assure that there is no significant risk associated with the level measurement system.

In spite of this very supportive Shoreham specific report, LILCO is continuing to investigate the second recommendation contained in the BWROG generic study entitled "Review of BWR Reactor Vessel Water Level Measurement Systems". No commitment to a date for system design or procedural changes can be made at this time. If any hardware modifications are deemed appropriate, the earliest date for implementation would be during a future refueling outage or outage of sufficient duration.

It is LILCO's judgement that sufficient information has been forwarded to the staff to support LILCO's position regarding deletion of the current requirement for incore thermocouples.

Should you have any questions, please contact this office.

Very truly yours,

J. L. Smith

J. L. Smith
Manager, Special Projects
Shoreham Nuclear Power Station

RWG:mp

cc: J. Higgins
All parties