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LONG ISLAND LIGHTING

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January 11, 1982

SNRC-659

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

Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322

Dear Mr. Denton:

In response to Generic Letter 81-35, "Safety Concerns Associated with Pipe Breaks in the BWR Scram System", the enclosed information is hereby transmitted for your review. This information addresses NUREG 0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping", as well as open item number 61 of Supplement No. 1 to the Shoreham SER.

Should you have any questions, please do not hesitate to contact this office.

Very truly yours,

J. L. Smith

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

RWG:mp

Enclosure

cc: J. Higgins

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FC-8935

SER OPEN ITEM 61

RESPONSE TO NUREG 0803 - GENERIC SAFETY EVALUATION REPORT REGARDING INTEGRITY OF BWR SCRAM SYSTEM PIPING

The following is provided in response to SER open item 61 and NUREG 0803. The Shoreham design meets the intent of NUREG 0803 concerning postulated cracks in the scram discharge volumes (SDV) even though the event is beyond the design basis for high (or moderate) energy line failures outlined in the Shoreham FSAR and MEB 3-1 and APCSB 3-1. The latter document requires that failures be postulated only during normal reactor conditions of startup, operation at power, hot standby, or reactor cooldown to cold shutdown conditions.

In response to item A, page 6-17 of the SER supplement, the SDV piping is fabricated to ASME III Code Class 2 requirements per the 1971 Codes through Winter of '73 addendum. The SDV totals approximately 200 feet of piping of which only 20' is 10-inch diameter and the remainder is 8", both sections Schedule 80. The piping has been stress analyzed in accordance with all applicable codes. Installation per applicable design drawings will also be verified as part of the Shoreham as-built program. Inspection of the piping will be in accordance with the requirements of ASME XI as applicable to ASME III Code Class 2 piping.

Concerning item B of the SER item, the development of Emergency Procedures is currently being evaluated by the BWR owners' group. LILCO is a member of that group and will develop Emergency Procedures for this event after the owners' group effort is complete. These procedures will specify the appropriate operator action to be taken to accomodate an SDV failure.

Based upon preliminary evaluations, at least 10 minutes is available for operator response prior to initiating scram reset or, if required, an RPV depressurization. Action during this time frame would ensure that equipment qualification temperatures are not impacted by an SDV failure.

Depressurizing the RPV greatly reduces the leakage flow but does not terminate it. Therefore, an additional 4-hour period is assumed for a "search team" to locate, identify and isolate the now reduced leakage via the manual isolation valves. At the end of 4-hour period, the temperature at the location of the valves (el 78-7) is calculated to be no higher than 135 F; in addition, all of the valves are located in close proximity to the Hydraulic Control Units (HCUs).

LILCO is continuing to evaluate hardware and instrumentation aspects which could have a favorable impact upon operator reaction time. If required, system modifications or additional instrumentation, although not feasible at this time, could be implemented at the first refueling outage.

Concerning item C(2), the plant would be depressurized and brought to cold shutdown conditions via Shutdown (method) III as outlined in Appendix C of the FSAR, Section 3C.3.4.3.2. Note that this method does not require HPCI or RCIC to be available and takes no credit for their use.

An analysis of the SDV crack effects has been performed which takes credit for only safety related ventilation and cooling systems for certain areas of the reactor building. The SDV crack becomes the limiting pipe failure for peak area

temperatures. For other factors, the SDV crack effects are less severe than those from previously analyzed pipe failures. The SDV crack is limiting for certain temperature zones on elevations 40 and 63.

All equipment required to support a plant shutdown via Method III which is located on these elevations will be qualified for the crack temperature effects. Pressure and humidity effects are not applicable since these conditions are bounded by other events.

Since the SDV crack occurs on el 78-7, water will flow via various paths to the basement, el 8. A review of the various leakage paths showed that sufficient ECCS equipment for safe shutdown would be unaffected by spraying or flooding effects from the crack and the cascading water. The actual flood depth on el 8 would be less severe than that from a moderate (or high) energy line failure as described in Appendix 3C.4 and 3C.5. The el 8 area is capable of storing approximately 90,000 gal of water prior to impacting any safety related equipment. The accumulated water in the first 4 hours prior to isolation of the crack is estimated to be less than 36,000 gallons. In addition, as outlined in Appendix 3C, redundant safety grade level detection equipment exists on el 8 which alarms when the water level exceeds 1/2".

The offsite doses associated with this event are expected to be below the 10CFR part 100 guideline since Shoreham is committed to using the Standard Technical Specification limits for primary coolant activity.