UNITED STATES
NUCLEAR REGULATORY COMMISSION
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Mark II Lead Plant Program

MEMORANDUM FOR: T. M. Su, Task Manager of A-39
Containment Systems Branch, DSS

FROM: S. N. Hou
Mechanical Engineering Branch, DSS

SUBJECT: REVIEW OF MARK II SRV LOAD DEFINITION

Reference:
1. "Justification of Mark II Lead Plant SRV Load Definition", March 30, 1979. LILCO
2. Additional Information, May 30, 1979, LILCO

The Mechanical Engineering Branch, Division of Systems Safety has reviewed the referenced submittals by the Long Island Lighting Company for the Shoreham Nuclear Plant Unit 1. The intent of the submittals is to demonstrate that the ramshead load originally defined for plant structural design will remain conservative for the lead Mark-II plants employing the T-quencher SRV discharge device with no change in plant design.

The areas of MEB review are concentrated on the effects of the newly defined interim T-quencher loads to piping systems, mechanical and electrical equipment, and their supports. Since the response spectra of the ramshead load, as indicated in the submittals, do not envelop the response spectra of the T-quencher load at the low frequency (<15Hz) region, we are concerned that the response level for piping systems having low frequency modes has been adequately considered. In addition, the cyclic effect of SRV actuations for the design life of the plant on safety related electrical and mechanical equipment requires consideration for the qualification process. R. Boyd 2/23/79 letter to lead Mark II plants established the requirement for a reevaluation/requalification program of all safety related equipment affected by dynamic seismic and hydrodynamic(LOCA or SRV)loads.

Information to meet the needs of such a program has not been provided in the submittals.

In conclusion, our review of the submittals leads to the following MEB positions:

A. The referenced submittals are adequate and acceptable for verifying piping and support design for SRV effects in Shoreham plant Unit 1.

B. Since piping systems may have different layout and design, for Mark II plants other than Shoreham Unit 1, effects of T-quencher load for piping systems having natural modes with frequencies lower than 15 Hz will be reviewed on a plant by plant basis.

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C. A reconcillation of spectra used in the qualification of equipment with that finally agreed upon is required. Information to determine an upper bound number of SRV actuation in 40 year plant life span and to define magnitude and frequency content (i.e., in forms of response spectrum) of the SRV induced vibrations at the equipment mounting locations shall be provided for the staff reviews of lead Mark-II plants including Shoreham Unit 1.

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