UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

SAFETY EVALUATION BY THE
DIRECTORATE OF LICENSING
SUPPORTING AMENDMENT NO. 2
TO LICENSE NO. DPR-50
(Change No. 2 to Appendix A
of Technical Specifications)

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER AND LIGHT COMPANY
PENNSYLVANIA ELECTRIC COMPANY

THREE MILE ISLAND NUCLEAR STATION - UNIT 1
DOCKET NO. 50-289

Introduction

By letter dated June 3, 1974, Metropolitan Edison Company (MetEd) requested a change to the Technical Specifications appended to Facility Operating License No. DPR-50 for the Three Mile Island Nuclear Station - Unit 1 (TMI-1). The proposed change would temporarily permit plant warmup and low power (less than 5% of rated power) operation while any one of the emergency feedwater (EFW) pumps is out of commission. The Technical Specifications, Appendix A, Section 3.4, presently require at least one of the motor-driven EFW pumps and the turbine-driven EFW pump to be in service before the plant is heated to more than 250°F.

Discussion

The EFW System in TMI-1 is designed to provide cooling water to the steam generators for the removal of reactor decay heat in the event the main feedwater system fails, and in spite of potential single active failures of components in the EFW and related systems. The EFW system design is based on a decay heat load equal to about 5% of rated reactor power, using one, full-capacity (920 gpm), turbine-driven pump and two, half-capacity (460 gpm), electric motor-driven pumps. The turbine-driven pump is served by control power from both emergency busses; the motor-driven pumps are normally aligned one on each emergency bus. Thus, with the common feedwater header to the steam generators, any pair selected from these three pumps provides redundant emergency feedwater capability up to half of the design decay heat load. Beyond that all three pumps are needed since both half-size motor-driven pumps are needed to be redundant to the full-size turbine-driven pump.

The possible decay heat load in the plant is limited by the peak power at which the plant has operated. Thus, if the plant is never permitted to operate above 50% of rated power, the decay heat load will never be

greater than one-half of the design value, which is conservatively based on the assumption that the plant is shut down after continuous operation at full power. Therefore, if the plant power level has never been allowed to exceed even 5% of rated power, the decay heat load can never be beyond the delivery capacity of any one EFW pump, and any two of these pumps provide a fully redundant emergency feedwater supply.

This reduced power aspect of the EFW System was considered in the original licensing review of TMI-1 and was addressed explicitly in Amendment No. 1 to this license which was issued on May 10, 1974. In that Amendment, consideration was given only to unavailability of one of the motor-driven pumps; it would have been valid there to include the turbine-driven pump.

Conclusion

The staff concludes that the Technical Specification change proposed by MetEd in their June 3, 1974 letter does not:

(1) involve a safety consideration of a type or magnitude not considered by any previous staff safety review of this facility,

(2) potentially involve a substantial increase in the probability or consequences of an accident considered in any previous staff safety review, or

(3) potentially decrease the margin of safety during normal plant operation, anticipated operational occurrences or postulated accidents considered in any previous staff safety review.

Based on the foregoing analysis, the staff finds that there is reasonable assurance that the health and safety of the public will not be endangered by approval of the change to Technical Specification 3.4.7 as proposed by MetEd.

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Date of Issuance: JUN 4 1974