



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 88 TO FACILITY OPERATING LICENSE NO. DPR-39  
AND AMENDMENT NO. 78 TO FACILITY OPERATING LICENSE NO. DPR-48  
COMMONWEALTH EDISON COMPANY  
ZION NUCLEAR POWER STATION, UNITS 1 AND 2  
DOCKET NOS. 50-295 AND 50-304

INTRODUCTION

By letter dated August 5, 1982, Commonwealth Edison Company proposed an amendment to Appendix A of Operating Licenses No. DPR-39 and DPR-48. The subject change involved Section 3.2.3 of the Zion Technical Specifications. The licensee had proposed to delete the existing requirement that the Unit be shut down if more than one rod is inoperable due to a rod urgent failure alarm condition. In a Safety Evaluation Report dated June 20, 1983, the NRC found the proposed Technical Specification unacceptable, stating that indefinite operation with control banks C and D locked-up could result in unnecessary safety system challenges if intentional or accidental secondary side power changes occurred. The licensee resubmitted the proposed Technical Specification by a letter dated February 5, 1985. This submittal proposed that if more than one control rod is inoperable due to a rod urgent failure, reactor operations may continue for the succeeding 24 hours, or the Unit must be placed in Mode 3 in the next four hours.

EVALUATION

A rod urgent failure condition indicates that a malfunction has occurred in the electronics of the rod sequencing and control system. In response to the malfunction, the applicable bank (or in some cases, all banks) are "locked up" by sealing in power to both the stationary and moveable gripper coils, thus preventing manual or automatic rod motion. This is done to ensure that the malfunction does not result in dropped rods, or improper rod sequencing, all of which could produce unacceptable flux peaking. An urgent failure condition in no way reflects on the ability of the rod to be scrammed. The rod control system is not a safety system and no credit is taken for it in accident analysis.

Existing Technical Specifications require that the reactor be shut down within four hours if an urgent rod failure condition cannot be corrected within two hours. Since the presence of an urgent failure condition does not indicate that the affected rods are untrippable, the requirements to shut down are not warranted for those rods that are fully withdrawn when the reactor is critical (all shut down banks and control banks A and E). In this case no safety or control functions are compromised and a forced shutdown would be an unnecessary plant transient. However, the malfunction should be corrected as soon as practicable.

If the urgent failure condition results in lock-up of control banks C or D, these banks would not be able to perform their normal function of adjusting reactor power to match changes in secondary side power. Although no safety functions are lost, operation in this condition should be limited in duration. Intentional or accidental secondary side power changes could result in a primary/secondary power mismatch causing unnecessary safety system challenges. During steady state operation, however, the boron addition/dilution capabilities of the plant are more than adequate to compensate for minor reactivity changes.

Allowing operation for 24 hours at steady state would provide the licensee sufficient time to identify the cause of the rod urgent failure and to take corrective actions. This change will reduce the number of plant shutdowns and startups and the associated plant transients. Operation in this condition does not pose an undue risk since this only applies to electrical failures (as indicated by the rod urgent failure alarm) and the affected control rods would not be mechanically stuck. After 24 hours, the unit would then be placed in Mode 3 and maintenance efforts could continue.

We find the licensee's proposed Technical Specification change to extend reactor operation from 2 to 24 hours with more than one rod inoperable due to a rod urgent failure to be acceptable.

#### ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation or use of the facilities components located within the restricted areas as defined in 10 CFR 20. The staff has determined that these amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

#### CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: May 13, 1985

#### PRINCIPAL CONTRIBUTOR:

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