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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 12 TO FACILITY LICENSE NO. DPR-38
CHANGE NO. 22 TO TECHNICAL SPECIFICATIONS;

SUPPORTING AMENDMENT NO. 12 TO FACILITY LICENSE NO. DPR-47
CHANGE NO. 17 TO TECHNICAL SPECIFICATIONS;

SUPPORTING AMENDMENT NO. 9 TO FACILITY LICENSE NO. DPR-55
CHANGE NO. 9 TO TECHNICAL SPECIFICATIONS;

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNITS 1, 2 AND 3

DOCKET NOS. 50-269, 50-270 AND 50-287

Introduction

By letter dated June 10, 1975, Duke Power Company (the licensee) requested a change in the Technical Specifications of Licenses DPR-38, DPR-47 and DPR-55, for the Oconee Nuclear Station, Units 1, 2 and 3. The proposed amendments would (1) allow the non-preferential use of either the in-core or out-of-core nuclear detector systems to determine quadrant power tilt and (2) make reference to explanatory figures as a substitution for deleted portions of the text.

Discussion

The present Technical Specifications require that quadrant power tilt be monitored on a minimum frequency of once every two hours during power operation above 15 percent of rated power. Should quadrant power tilt exceed 4 percent, except for physics tests, the quadrant tilt must be reduced to less than 4 precent within two hours or appropriate action, as discussed in Section 3.5.2.4 of the Technical Specifications, must be taken. The limits established, in conjunction with the control rod position limits, ensure that design peak heat rate criteria are not exceeded.

Quadrant power tilt is defined by the following equation, expressed in percent:

$$100\left(\frac{\text{Power in any core quadrant}}{\text{Average power in all quadrants}} - 1\right)$$

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The power in a quadrant can be determined from the power range channel of the out-of-core system displayed on the console for that quadrant. The average power would be determined from an average of the outputs of the power range channels.

During normal plant operation, quadrant power tilt monitoring is performed, on demand, in the plant process computer. The two hour frequency requirement is met by using the manual calculation method when the computer is out of service. Due to the fact that there are only four power range channels, one for each quadrant of the core, the Technical Specifications provide for the use of the in-core detector system in the event one of the power range channels is out of service,

The plant process computer performs the quadrant power tilt calculations for both the power range channels and the in-core system as a source of data.

The licensee is requesting that in view of the fact that the in-core system is now authorized for use in determining power tilt when one power range channel is out of service, additional flexibility would be gained by allowing the selection of either system on a non-preferential basis for this purpose.

The licensee has also proposed changes to Section 3.5.4 of the Technical Specifications which would delete explanatory words regarding the minimum number of in-core detectors which must be used in the determination of axial imbalance and quadrant power tilt measurements. As a substitution for these deleted portions, reference would be made to Figures 3.5.4-1, 3.5.4-2 and 3.5.4-3 for satisfactory in-core detector arrangements.

Evaluation

The in-core detector system consists of 52 flux detector assemblies with 7 detectors per assembly. The system data is read out on the plant process computer and a backup readout system is provided for selected detectors. The in-core system is used to periodically calibrate the power range channels of the out-of-core detector system and, as discussed above, for the determination of quadrant power tilt in the event one power range channel is out of service. We conclude that by authorizing the use of either the in-core or out-of-core nuclear detector systems to determine quadrant power tilt on a non-preferential basis, there would be no relaxation in the requirements nor reduction in the accuracy of the calculations. Accordingly, we agree with the proposed amendment and have included the changes requested.

The proposed deletions in Section 3.5.4, Incore Instrumentation, involve explanatory words regarding the minimum number of incore detectors needed to perform axial and quadrant power tilt measurements. By making reference to Figures 3.5.4-1, 3.5.4-2 and 3.5.4-3, for the satisfactory incore detector arrangements, as proposed by the licensee, the equivalent is accomplished. We agree with this proposal and have therefore included the changes reflecting this.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) 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.

Date: August 29, 1975