

UNITED STATES ATOMIC ENERGY COMMISSION

HAZARDS ANALYSIS BY THE RESEARCH AND POWER REACTOR SAFETY BRANCH

DIVISION OF REACTOR LICENSING

IN THE MATTER OF

YANKEE ATOMIC ELECTRIC COMPANY

PROPOSED CHANGE NO. 55

DOCKET NO. 50-29

Introduction

Pursuant to the provisions of Section 50.59 of the Commission's regulations, Yankee Atomic Electric Company in Proposed Change No. 55, dated May 19, 1964, requested authorization of a change in the Technical Specifications attached as Appendix A to License No. DPR-3. This Proposed Change would authorize replacement of the 24 control rod guide tubes now in use with 24 control rod guide tubes of an improved design.

Discussion

The 24 control rods in the Yankee reactor are enclosed by guide tubes when withdrawn from the core. The guide tubes are circular in cross section and contain a number of holes to permit cross flow of the moderator-coolant to the outlet nozzles in the upper portion of the reactor vessel. Additional flow area is also provided by the spacing between the guide tubes.

The cross flow in the presently installed guide tubes impinges on the control rods when they are withdrawn from the core and causes horizontal oscillations. Vibration of the control rods has caused some wear of rods in those areas where they contact the guide blocks located on the upper core support plate. Such wear could increase such that, eventually, proper control rod movement would be affected.

Yankee has proposed a modified guide tube design that it believes will greatly reduce the horizontal cross flow through the guide tubes and still provide adequate cross flow area for the primary water. Cross flow in the upper vessel will be maintained by increasing the clearance between the guide tubes. The modified guide tubes will be square and have a cross-sectional area that is smaller than the existing guide tubes. In our opinion, the modified guide tubes should improve the safety of operation by removing a cause of possible control rod malfunction.

Conclusion

We have concluded that the Proposed Change does not present significant hazards considerations not described or implicit in the hazards summary

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- 2 -

report, and that there is reasonable assurance that the health and safety of the public will not be endangered.

Original signed by:
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Date: JUL 24 1964