

HAZARDS ANALYSIS BY THE RESEARCH AND POWER REACTOR SAFETY BRANCH

DIVISION OF LICENSING AND REGULATION

IN THE MATTER OF

YANKEE ATOMIC ELECTRIC COMPANY

PROPOSED CHANGE NO. 13

DOCKET NO. 50-29

Introduction

Pursuant to the provisions of paragraph 3.A. of License No. DPR-3, as amended, Yankee Atomic Electric Company in Proposed Change No. 13 dated January 5, 1962 requested authorization to replace the control rod absorber sections originally installed in the reactor with new sections of a somewhat different design. Some uncertainty exists as to the physical condition of the original control rod absorber sections and as to the need for their replacement during the first reactor refueling. It is Yankee's intention to examine the control rod blades during the first reloading in order to determine whether replacement is required at that time. If replacement is found to be necessary, the new type absorber sections will be installed. If it is not required, replacement will be effected during a subsequent refueling operation.

Discussion

The presently installed control rod absorber sections are fabricated of a Ag-In-Cd alloy clad with a diffusion bonded nickel plate for corrosion resistance. Wear and abrasion of the nickel plated surfaces of these sections could expose the base metal to undesirable corrosion effects. In order to prevent this possibility, Yankee has proposed to use a new type absorber section. This type section would be similar to the original design in all respects, except for the addition of longitudinal, segmented, stainless steel rubbing straps on each of the eight vane surfaces of each rod. These rubbing straps would bear against the core plate guide blocks and the fuel assembly rubbing straps thereby preventing wear and abrasion of the nickel plated surfaces.

The primary safety considerations involved in this change are whether the rubbing straps would significantly decrease the reactivity worth of the rods and whether their use would interfere with the free movement of the rods. Yankee has indicated that calculations show installation of a complete set of control rods of the new design would reduce the total control rod reactivity worth a maximum of .003. They have indicated further that the actual shutdown margin will be checked experimentally during startup testing to insure that the core has a reactivity shutdown margin of .03 as required by the license. We believe that such a procedure is adequate to assure that the control rods have a sufficient

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reactivity worth. As to the possibility of the rubbing straps affecting the movement of the rods, the rubbing straps protrude such a small amount that they do not significantly decrease the clearance between control rod and adjacent fuel elements. Accordingly, we do not believe that they will interfere with the free movement of the control rods.

Conclusion

Based on our review of the Proposed Change, we have concluded that it does not present significant hazards considerations not described or implicit in the license application as amended. We have further concluded that there is reasonable assurance that the health and safety of the public would not be endangered by operation of the facility as proposed.

Original signed
by Robert H. Bryan

Robert H. Bryan, Chief
Research & Power Reactor Safety Branch
Division of Licensing and Regulation

Date:

APR 9 1962