



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 42

FACILITY OPERATING LICENSE NO. DPR-3

YANKEE ATOMIC ELECTRIC COMPANY

YANKEE NUCLEAR POWER STATION (YANKEE-ROWE)

DOCKET NO. 50-29

Introduction

By application dated August 2, 1977, Yankee Atomic Electric Company (YAEC) applied for an amendment to the operating license for the Yankee-Rowe Nuclear Power Plant DPR-3, to change the Technical Specifications relating to inservice inspection of piping. The changes primarily involve the incorporation of portions of Appendix III of the 1974 Edition of Section XI through the Summer 1976 Addenda in the ultrasonic examination procedures for Class 1 piping welds.

Discussion

The examination procedures required by the plant's Technical Specifications are those of Section XI, 1970 Edition and Addenda through the Winter 1970. The changes to the procedures are:

- a. Incorporation of Article III-2000 of Appendix III - ASME Section XI - Summer 1976 Addenda except that III-2410 shall be deleted, III-2430 shall be used except 50% reference level recording shall be performed. Ten percent (10%) overlap shall be retained.
- b. Incorporation of Article III-3000 in its entirety.
- c. Incorporation of Article III-4000 in its entirety.
- d. Use of Supplement 7 for austenitic welds.

The examination procedures required by the 1970 ASME Section XI Code are those of Appendix IX of the 1968 Edition of Section III and were developed for examination of newly fabricated welds. The procedures thus tends toward identification of defects such as porosity, slag, and lack of fusion or defects related to welding technology rather

than service induced flaws. These defects are representable as side-drilled holes in the calibration block.

Appendix III of Section XI is written with the intent of identifying service induced defects, such as cracks, which are better represented by notch reflectors in the calibration block. It also requires the calibration block to be the same nominal diameter and schedule as the pipe to be examined and the material to be the same or equivalent chemically and physically. This requirement further refines the calibration procedure in simulating more closely actual conditions in the material to be examined.

Evaluating indications at or above the 20% reference level places a great burden on Yankee-Rowe because numerous indications of the spot type, i.e., having no length, width or depth, would have to be recorded and evaluated in accordance with the rules of Section XI. Some welds could show in excess of fifty such indications. In some cases, these welds are located in high radiation fields, in excess of 1R on contact.

Evaluation

We find the changes incorporated in Yankee-Rowe's inservice inspection procedures acceptable for an interim period which ends at the beginning of the next forty-month period (March 1, 1978) on the bases stated below:

1. In changing from the 20% of reference level to 100% reference level evaluation criteria, the licensee has committed to evaluate, with respect to type, all indications between 20% and 50% of the reference level, to record as permanent history indications above 50% of the reference level, and to record and evaluate in accordance with the rules of Section XI, indications above 100% of the reference level. The 100% of reference level evaluation criteria has been sufficiently reliable in detecting flaws warranting evaluation in accordance with the rules of Section XI. Recording indications above the 50% of reference level and identifying indications as to type between the 20% and 50% of reference level provides added assurance that any defect in the welds will be either evaluated, retained on permanent record and reexamined later, or identified as being insignificant.
2. The evaluation criteria based on the 100% of reference level assures that service induced defects equal to the area/amplitude response of a 10% "T" notch will be evaluated.

3. Imposition of the 20% of reference level evaluation criteria would, in some instances, unnecessarily endanger the health of inspection and examination personnel because of the high radiation levels at the location of some welds and the amount of time required to evaluate the numerous spot-type flaws detected at that level.
4. The notched calibration block is more representative of service related flaws. Detection of this type flaw is the concern of inservice examination. The change of the calibration block design and material requirement refines this procedure for detection of service related defects.
5. These changes are interim measures incorporated in the ultrasonic examination procedures and will be reviewed upon submission of the mandatory updated inservice inspection program for Yankee-Rowe for the next forty-month period.
6. The NRC is presently reassessing the effectiveness of the code ultrasonic examination procedures and intends to issue a regulatory guide to further improve the reliability of the ultrasonic testing technique. This regulatory guide will be used to evaluate the future changes incorporated in the ultrasonic examination procedures.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment 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 amendment 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, (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: August 19, 1977