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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 48

FACILITY OPERATING LICENSE NO. DPR-3

YANKEE ATOMIC ELECTRIC COMPANY

YANKEE NUCLEAR POWER STATION (YANKEE-ROWE)

DOCKET NO. 50-29

Introduction

By applications dated November 14, 1977 (Proposed Change No. 156) and March 16, 1978 (Proposed Change No. 159) Yankee Atomic Electric Company (the licensee) requested an amendment to Facility Operating License No. DPR-3 for the Yankee Nuclear Power Station (Yankee-Rowe). The amendment would change the facility Technical Specifications to: (1) add surveillance requirements for the Emergency Core Cooling System (ECCS) High Pressure Safety Injection (HPSI) throttle valves, and (2) reduce the maximum allowable rate for pressurizer heatup from 200°F/hour to 100°F/hour.

Discussion and Evaluation

1. Proposed Change No. 156

The HPSI and Low Pressure Safety Injection (LPSI) subsystems at Yankee-Rowe utilize a common low pressure and a common high pressure header to feed several ECCS injection points. Maintenance of proper flow resistence and pressure drop in the piping system to each injection point is necessary to: (1) prevent total pump flow from exceeding runout conditions when the system is in its minimum resistance configuration; (2) provide a proper flow split between injection points in accordance with the assumptions used in the ECCS-LOCA analysis; and (3) provide an acceptable level of total ECCS flow to all injection points equal to or above that assumed in the ECCS-LOCA analysis for Yankee-Rowe.

To assure that the above objectives will continue to be met, we asked the licensee by letter dated July 18, 1977, to propose changes in the Technical Specifications to incorporate surveillance requirements for the throttle valves which are used in the Yankee-Rowe ECCS to obtain the required flow distribution in the HPSI and the LPSI subsystems. Similar requests were sent to licensees of other Pressurized Water Reactors (PWR).

The licensee responded by application dated November 14, 1977, proposing surveillance requirements for the HPSI throttle valves SI-671, 672, 673 and 674 which were installed as part of the ECCS piping modifications made during the last outage for refueling the current Core, Number 13. The modifications were made to improve flow distribution from the HPSI and the LPSI pumps in the event of a LOCA. The modifications to the ECCS piping and the related ECCS performance analysis are described in our safety evaluation issued with Amendment No. 43 which approved the modifications.

Upon completion of the ECCS piping modifications, the licensee had conducted tests to verify that the ECCS minimum flow and flow distributions assumed in the ECCS performance analyses were met. A permanent locking device was then welded on the valve handle and valve yoke to prevent inadvertent changes in the valve position. The proposed surveillance Technical Specifications for these valves would require that at least once per 18 months during refueling an inspection shall be made to insure that the valve locking device is in place and securely welded, and that a scribe mark on the valve body aligns with a scribe mark on the valve yoke.

In view of the permanent nature of the valve position maintained by the locking device, the surveillance of correct position as proposed by the licensee would increase the confidence that ECCS-flow distribution will be at or above that assumed in the ECCS-LOCA analysis. We, therefore, have concluded that the licensee's proposal is acceptable.

Proposed Change No. 159

Presently, the facility Technical Specifications include requirements to limit the heatup and cooldown rates for the pressurizer in the reactor cooling system. These requirements provide assurance that the maximum allowable heatup and cooldown rates are consistent with the design assumptions and satisfy the stress limits for cyclic operation.

It had come to our attention that the pressurizer limiting heatup rate of 200°F presently stated in facility Technical Specifications of Westinghouse designed reactors including Yankee-Rowe was in error and should be changed to 100°F/hour. Discussions with Westinghouse indicated that this reduced limit applies only to the pressurizer heatup rate and that the present limit on the pressurizer cooldown rate of 200°F is acceptable.

We asked the licensee in a letter dated January 13, 1978, to request an amendment of the facility Technical Specifications to provide a limit of 100°F/hour on the rate of pressurizer heatup. In addition, we requested the licensee to examine the operating records and to advise us of any instances where the pressurizer heatup rate exceeded 100°F/hour. Similar letters were sent to licensees of other Westinghouse designed reactors.

The licensee responded by application dated March 16, 1978, proposing a change of Specification 3.4.8.2 to limit the maximum heatup rate for the pressurizer to 100°F/hour. Further, the licensee reported that recent testing performed at Yankee-Rowe during a refueling outage indicated that with all of the pressurizer heaters energized, the maximum heatup rate which could be achieved was less than 50°F/hour. Based on the test results, the licensee concluded that the pressurizer heatup rate has always been significantly below the reduced rate of 100°F/hour.

We have concluded that the licensee's proposal to reduce the maximum allowable pressurizer heatup rate from 200°F/hour to 100°F/hour is responsive to our request and is acceptable. Since the licensee has shown that the pressurizer heatup rate has always been below 100°F/hour, we conclude that the pressurizer has always been operated well below the design stress limits for cyclic operation. Therefore, no further action in this matter is warranted.

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, and (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: May 23, 1978