



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 18 TO FACILITY OPERATING LICENSE NO. DPR-64
POWER AUTHORITY OF THE STATE OF NEW YORK
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3
DOCKET NO. 50-286

Introduction

By letter dated November 2, 1977, Consolidated Edison Company of New York, Inc., acting as the agent for the Power Authority of the State of New York (the licensee) requested amendment of the Technical Specifications appended to Facility Operating License No. DPR-64 for the Indian Point Nuclear Generating Unit No. 3 (IP-3). The amendment would introduce several changes to the Technical Specifications. The proposed changes included a reduction in the maximum pressurizer heat-up rate, a change in the definition of Quadrant Power Tilt Ratio, the deletion of Section 1.8 and a renumbering of the subsequent sections, clarification of the operability requirements of the boric acid storage system, and a change in the submission of reports concerning steam generator tube inservice inspections.

Background

In August 1977, Mitsubishi Heavy Industries, Ltd. of Japan, noted an inconsistency in the pressurizer heatup rate stated in their Technical Specifications. Specification 3.4.9 required a heatup rate of 200°F/hr; Specification 5.7.1, however, required a heatup rate of 100°F/hr. This discrepancy was reported to the Westinghouse Electric Corporation (Westinghouse), who then reviewed their analysis of the pressurizer heatup rate and determined that the correct heatup rate is 100°F/hr, and that the correct cooldown rate is 200°F/hr; the Technical Specifications for Indian Point 3 stated that pressurizer heatup and cooldown rates were 200°F/hr. Westinghouse then notified the Nuclear Regulatory Commission (the Commission) and the licensee of this problem. The requested amendment would correct the error in the pressurizer heatup rate limit.

7811210209 P

Evaluation

In designing the pressurizer, Westinghouse performed a thermal stress analysis which analyzed the fatigue resulting from a heatup rate of 100°F/hr and a cooldown rate of 200°F/hr. This analysis meets the standards of the ASME Code, Section III, which requires that the analysis be based on a usage factor. The usage factor represents the fraction of the fatigue life (the total amount of stress that a particular component is designed to handle), with a usage factor of zero implying that no stress has been exerted on the component, and a usage factor of one implying that the stress exerted on the component is equal to the amount of stress that the component is designed to handle. For any piece of equipment, certain components receive more stress than others. For the pressurizer, this component is the surge nozzle, which has a usage factor of 0.9 for the design numbers listed above. This usage factor is such that if the heatup and cooldown rates used in the analysis were exceeded more than a few times, the actual usage factor for the surge nozzle would exceed 1.0, which is not allowable under the ASME Code. Thus, we conclude that reducing the heatup rate limit from 200°F/hr to 100°F/hr is necessary to maintain thermal stresses in the pressurizer to allowable levels. For the same reasons, we further conclude that the cooldown rate limit presently listed in the Technical Specifications is adequate.

Because the current Technical Specification provision authorized higher rates of pressurizer heatup than the correct limit, the question arose as to whether the correct limit of 100°F per hour had been exceeded in the past. Discussions with Westinghouse indicate that this is unlikely. This is because system capabilities and Technical Specification limits on the rate of reactor coolant system heatup and pressurization effectively preclude pressurizer heatup rates in excess of 50°F to 75°F per hour. Nevertheless, to confirm that this has been the experience of IP-3, we requested that PASNY review all applicable operating records to determine if the limiting heatup rate of 100°F per hour had ever been exceeded. By letters dated August 11, 1977 and August 24, 1977, PASNY reported that there were no instances when the rate of 100°F per hour had been exceeded. Accordingly, we conclude that the only action required for IP-3 is modification of the Technical Specifications to reduce the limiting pressurizer heatup rate from 200°F per hour to 100°F per hour.

We have talked with Westinghouse and Westinghouse is performing a review of the stress analyses for components of the reactor coolant pressure boundary to assure that no similar inadvertent error appears in any other portion of the applicable Technical Specifications. This action will be confirmed by Westinghouse.

Technical Specification 1.12 implies that the raw detector currents are used for calculating the quadrant power tilt ratio. In actuality, the detector currents are calibrated before the ratio is calculated. Therefore, the proposed change in the definition of quadrant power tilt ratio is acceptable. This proposed definition is consistent with the Standard Technical Specifications for Westinghouse plants. (With the proposed deletion of Technical Specification 1.11, the definition of quadrant power tilt ratio becomes Specification 1.11.)

The deletion of Specification 1.11 is acceptable since its subject, "Reportable Occurrence", is adequately addressed in Specification 6.9.1.7.

Technical Specification 3.2 could be interpreted to require that each boric tank shall contain at least 44,000 gallons of solution. However, to reach cold shutdown conditions, either 44,000 gallons of boric acid in the boric acid tanks (both tanks added together) or the boric acid in the refueling water storage tank is sufficient. The proposed changes in Technical Specification 3.2 clarify these requirements.

Technical Specification 4.9.C states that the results of steam generator tube inservice inspections be included in the Annual Operating Report. However, a previous amendment deleted the requirement for the Annual Operating Report. The proposed change in reporting the results of steam generator tube inservice inspections is consistent with the Standard Technical Specifications for Westinghouse plants, and is acceptable.

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: November 6, 1978