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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 61 TO FACILITY OPERATING LICENSE NO. DPR-3

YANKEE ATOMIC ELECTRIC COMPANY

YANKEE NUCLEAR POWER STATION (YANKEE-ROWE)

DOCKET NO. 50-29

Introduction

In response to NRC staff letter dated July 23, 1979, Yankee Atomic Electric Company (the licensee) submitted, by letter dated September 24, 1979, a proposed license condition requiring implementation of a secondary side water chemistry monitoring and control program, and requested the present Technical Specifications on secondary water chemistry, and the related surveillance requirements associated with those Technical Specifications, be deleted.

Discussion and Evaluation

Secondary Water Chemistry - Addition of a Licensing Condition in Place of Existing Technical Specifications

The NRC staff recognizes that different utilities use different secondary water treatment methods to limit steam generator tube corrosion. Moreover, we recognize that a licensee's choice of a particular water treatment method, including specific values of operating limits for chemistry parameters, is governed by plant and site characteristics that are unique to each facility. In addition, we do not believe at this time that sufficient service experience exists to conclude that any particular method is superior to another for controlling impurities that may be introduced into the secondary coolant. Such experience would be necessary before prescriptive Technical Specifications on secondary water chemistry could, with assurance, minimize tube degradation.

Restricting the amount of chemical additions to control the water chemistry parameters would not ensure the desired steam generator operating conditions. Realizing that meeting the secondary coolant water quality criteria would not be possible during all periods of operation, it is necessary that the most effective procedure for reestablishing out-of-specification chemistry parameters be available without unduly restricting plant operations. This can be accomplished most rapidly by continuing to operate the unit so that chemical additives to the secondary water can be made to achieve a balanced chemistry.

In particular, we have concluded that the Technical Specifications on secondary water chemistry does not provide adequate flexibility to allow desired water conditions to be achieved gradually or ensure long-term tube integrity. In addition, these specifications may not limit specific types of severe tube degradation, particularly "denting." Furthermore, the possible adverse effects of any secondary water parameters limits on the steam purity that could lead to potential failure of rotating turbine components must also be considered before specific limits are required.

We believe that other methods for reducing the impurity concentration in the steam generator such as periodic chemical cleaning for long-term solution, fluxing or free surface boiling for an intermediate term solution, or the use of chelating agents for the control of secondary water purity are more practical. These methods are likely to be more effective in limiting corrosion than specific Technical Specifications that may lack the flexibility needed for proper control of secondary water chemistry. The NSSS vendors are now considering these alternate methods in lieu of restrictive secondary water chemistry limits for assuring steam generator tube integrity. We proposed that the licensee implement a secondary water chemistry monitoring program to inhibit steam generator tube degradation. By letter dated September 24, 1979, the licensee agreed to the program and applied for a license amendment to so condition the license.

Based on the above, we conclude that a license condition requiring a secondary water chemistry monitoring program is an acceptable replacement for the existing Technical Specifications and Bases 3/4.7.1.6 (pages 3/4 7-10, 3/4 7-11, 3/4 7-12, and B 3/4 7-3).

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 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 do 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: July 21, 1980