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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 39 TO FACILITY OPERATING LICENSE

CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT

DOCKET NO. 50-213

1.0 INTRODUCTION

By letter dated June 11, 1980, the Commission requested Connecticut Yankee Atomic Power Company (the licensee, CYAPCO) to amend the Technical Specifications for the Haddam Neck Plant with respect to reactor decay heat removal capability. The basis for the request was founded in a number of events that have occurred at operating PWR facilities where decay heat removal capability was degraded due to inadequate administrative controls utilized when the plants were in shutdown modes of operation. One of these events occurred at Davis Besse 1 on April 19, 1980 wherein decay heat removal capability was completely lost. In IE Bulletin 80-12 (dated May 9, 1980) we requested that CYAPCO immediately implement administrative controls which would ensure availability of proper means to provide redundant methods of decay heat removal. In the June 11, 1980 letter, we emphasized that it was considered necessary to amend the Operating License for Haddam Neck to provide for permanent long term assurance that redundancy in decay heat removal capability w ;l be maintained.

Also, by letter dated August 15, 1980, the Commission requested CYAPCO to propose amendments to the Technical Specifications for Haddam Neck to assure that sufficient water depth is maintained above the reactor pressure vessel flange during refueling.

2.0 DISCUSSION AND EVALUATION

The safety function of the affected systems is to remove energy from the core in operational modes 1 and 2 and to remove decay heat from the core in modes 3 through 6 (shutdown). During shutdown modes, the affected systems also prevent boron stratification and minimize the effects of a boron dilution incident.

The proposed additions/modifications to the technical specifications are based on the model technical specification (standard technical specifications for Westinghouse plants) enclosed with our letter referenced above

and are more conservative than the existing technical specifications in that they provide added redundancy in the operability of decay heat removal capability in modes 1 through 6. Surveillance requirements are also added to ensure operability of the subject coolant loops.

In modes 1 and 2, all four main coolant loops must be in operation if reactor power is above 65%; 3 loops must be in operation above 10%; and one loop must be in operation above 1%. This ensures that adequate capacity exists to remove the thermal energy generated in the core. In modes 3 and 4 two loops must be operable, but only one loop must actually be in operation, to remove core decay heat. In mode 5, decay heat can be removed by either the main coolant loops or the two Residual Heat Removal (RHR) loops. The latter two serve as redundant shutdown cooling loops and the requirement that at least two loops be operable ensures that adequate decay heat removal capacity will be available at all times.

This license amendment request also modifies the technical specifications requirement of decay heat removal capability in mode 6. Specifically, a new technical specification is being added to ensure operability of the two RHR loops in mode 6 when the water level above the top of the reactor pressure vessel flange is less than 23 feet.

As stated in the modified bases, the requirement to have two RHR loops operable when there is less than 23 feet of water above the flange ensures that a single failure of the operating RHR loop will not result in a complete loss of decay heat removal capability. With the reactor vessel head removed and more than 23 feet of water above the flange, a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time should be provided to initiate emergency procedures to cool the core. Additionally, the availability of this large volume of water ensures (1) that sufficient coolant circulation is maintained through the reactor core to minimize the effect of a boron dilution incident and to prevent boron stratification, and (2) that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly.

By making the above changes to the unit technical specifications, redundancy in the reactor decay removal capability will be enhanced to mitigate the consequences of a design basis accident requiring this capability. We, therefore, conclude that the technical specification changes proposed by this license amendment request are acceptable.

3.0 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.

4.0 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: June 22, 1981