SAFETY EVALUATION REPORT BY THE

OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 1

TO FACILITY OPERATING LICENSE DPR-77

TENNESSEE VALLEY AUTHORITY

Introduction

On September 23, 1980, oral authorization was given to proceed with proposed changes to the Technical Specifications for Sequoyah, Unit 1 which allowed operation with exception to the leakage rates of certain valves and deletion of the requirement to leak test before entering Mode 4. Relief was granted for a 30 day period. The proposed changes are described in the TVA letter dated September 23, 1980. Additional information is provided in the TVA letter of September 24, 1980.

TVA is carrying out further efforts in this area to determine leakage rates that are reasonably attainable for the specified valves and other changes that would be appropriate in this area.

Evaluation

The technical specifications requires all pressure isolation valves to be leak tested prior to entering hot shutdown (Mode 4) on a periodic testing interval or each time the valve is disturbed. TVA requested the technical specifications change to permit leak testing prior to entering startup (Mode 2) for the pressure isolation valves located at the cold leg injection nozzle, the residual heat removal (RHR) return to the cold leg and the RHR suction line.

The basis for requesting this change is the following:

(1) So as to cause the pressure isolation valves to the cold leg injection nozzle to backseat properly, a pressure above that at Mode 5 is required.

(2) In order to perform comprehensive leak testing on the RHR discharge and suction isolation valves, the RHR system is required to be shut down. The RHR system is required to function in Mode 5 but is isolated in Mode 3.

We agree with this basis since meaningful leak testing can only be accomplished upon full seating of the valves required to be tested. We are of the opinion that leak testing at a higher pressure with a larger differential pressure across the valve produces a more accurate calculation of leak rate and more closely simulates actual operating conditions since extrapolation methods are not required.

TVA also requested that relief be given for 30 days from the 1.0 GPM maximum leak rate criteria in the technical specifications for the motor operated pressure isolation valves in the RHR supply line. The 30 day period will be used to correlate leak testing date discrepancies between integrated system leakage and extrapolated individual valve data and to investigate testing at higher pressures. Leak rates for these valves using existing test procedures was found to be above the 1.0 GPM technical specification limit when extrapolated to operating pressures.

The staff has determined that an allowable leak rate of 3.0 GPM for these valves is acceptable for the 30 day grace period provided that the resolution of test data discrepancies is accomplished, and a report that summarizes the findings is submitted for staff review. This determination is based on the following:

(1) The staff is presently reviewing leak rate criteria for all motor operated valves which perform a pressure isolation function and is considering raising the limit for these valves only.

(2) Quantitative leak rate measurements provide an indication of degradation of the valve over time. NUREG-0677 identified two failure modes for motor operated valves; rupture and inadvertant opening (operator error). Rupture was eliminated based upon the low probability of its occurrence; however, inadvertant opening was identified as a critical failure mode. In order to reduce the probability of failure in this mode, the RHR motor operated pressure isolation valves at Sequoyah are interlocked so that the operator cannot open two valves in series before the pressure is low enough for switchover.

Based upon the above considerations, the staff has concluded that the 3.0 GPM 30 day leak rate criteria will provide sufficient warning of valve degradation. Furthermore, the pressure isolation valve configuration, coupled with system interlocks, provides an additional level of assurance against intersystem LOCA's.

TVA's request for a 30 day waiver from surveillance requirement 4.4.6.2.2.d in the technical specifications is not required. The proposed new testing procedure will meet the technical specification requirement.

We conclude that reasonable assurance will be provided during the 30 day waiver period that the design pressure of low pressure systems which interface with the reactor coolant system will not be exceeded.

We have determined that the amendment does not authorize a change in effluent types of 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 Section 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.

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