

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 24 TO FACILITY OPERATING LICENSE DPR-77

TENNESSEE VALLEY AUTHORITY

INTRODUCTION

The operating license of Sequoyah Unit 1 contains a condition requiring that prior to startup, following the first refueling outage, the Commission must confirm that an adequate hydrogen control system for the plant is installed and will perform its intended function in a manner that provides adequate safety margins. The Commission met on December 15, 1982, and affirmed that the system now being installed in Unit 1 meets the license condition, subject to the satisfactory resolution of two items as proposed by the staff. These two items are the subject of this amendment. Also, TVA proposed in their letter of September 17, 1982, a Technical Specification revision for the hydrogen system being installed in Unit 1. Further revisions were provided in a TVA letter of December 23, 1982.

DISCUSSION

Supplement No. 6 to the SER provides the basis for the staff's conclusion and the Commission affirming that the TVA Permanent Hydrogen Mitigation System now being installed in Unit 1 is adequate, subject to meeting two new license conditions.

Specifically, these conditions concern the capability of the Tayco igniter to maintain (1) a surface temperature sufficient to initiate combustion in a spray environment and (2) the density of the igniters in the upper containment to ensure favorable consequences of the hydrogen burns in the upper compartment. Recent tests conducted by TVA indicate that the igniters will function as intended. However, the temperature margin provided by the igniters as shown in the TVA tests, appears to be small under spray conditions. The staff initially proposed a set of tests directed toward assuring adequate surface temperature under spray conditions. However, on subsequent consideration the staff proposed that such tests not be limited to igniter temperature but should demonstrate capability to initiate combustion under spray conditions. The staff will require that TVA complete certain additional ignition tests to verify that the Tayco igniter will function properly in a spray environment such as that expected in the upper compartment of the ice condenser containment. Also, the staff is requiring the installation of four additional igniters in the upper compartment at locations satisfactory to the staff. The installation of additional igniters in the upper compartment will provide a greater margin of safety.

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Also, TVA proposed some changes to the Technical Specifications to reflect the changes associated with the new hydrogen mitigation system. The new system is composed of 32 igniters in each of two trains. At a later date each train will be increased by 2 igniters. Surveillance requirement 4.6.4.3(a) is acceptable to the staff, since the procedures require energizing the igniters once per 92 days. A train is inoperable if more than one igniter fails to energize. Surveillance requirement 4.6.4.3(b), however, was not acceptable as proposed by TVA, since verifying that the igniter were clean every 18-months would not ensure operability. In discussions with the licensee, the staff indicated its belief that at least one per 18 months the temperature of each igniter should be verified to be at a minimum of 1700^oF. TVA letter of December 23, 1982, accepted the staff's position until each time as the additional igniter tests results may change the operational temperature. The Technical Specification was modified to reflect the staff's position and the agreement of the licensee.

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, does not create the possibility of an accident of a type different from any evaluated previously, and 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: December 29, 1982

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