



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 36 TO FACILITY OPERATING LICENSE DPR-77  
AND AMENDMENT NO. 28 TO FACILITY OPERATING LICENSE DPR-79  
TENNESSEE VALLEY AUTHORITY

INTRODUCTION

These amendments address four Technical Specification changes that were requested by the licensee for Sequoyah Units 1 and 2 which are as follows:

- (1) On July 21, 1983, the licensee requested changes for Units 1 and 2 to reflect the modifications to the operational limits on the pressurizer spray nozzle and deletion of the requirements to check auxiliary spray differential temperature every 12 hours. The licensee proposes to increase the operational differential temperature limit between spray water and the pressurizer vapor from 320°F to 560°F. Any auxiliary spray system operations above 320°F differential temperature but less than 560°F will be considered as a cycle, and the operational conditions will be recorded.
- (2) Interim relief had been granted for Sequoyah Unit 1, Amendment No. 20, to conduct a visual inspection of certain protective fuses instead of destructive testing of fuses until the next refueling of Unit 1. At a later date, Unit 2 was granted the same relief, Amendment No. 21. The licensee on December 29, 1983, requested an extension of the visual inspection requirements for both units until the NRC completes a review of this matter on a generic basis. Amendment No. 34 was issued for Unit 1 on April 12, 1984. This safety evaluation addresses Unit 2.
- (3) On April 20, 1984, the licensee proposed changes to the Technical Specifications of Units 1 and 2 to conform with the revised reporting requirements specified in 10 CFR 50.73.
- (4) On March 29, 1984, Amendment 25 to the Unit 2 license changed the containment Technical Specification on air temperatures as requested by the licensee. The maximum air temperature limit for the containment lower compartment was raised from 120°F to 125°F while lowering the maximum air temperature limit for the upper compartment from 110°F to 105°F. This evaluation addresses Unit 1.

EVALUATION

- (1) The pressurizer spray nozzle stress and fatigue analyses were performed in accordance with ASME Code, Section III (NP 3200) requirements. Detailed fatigue analyses for the pressurizer spray nozzle include normal operation, upset and test condition transients. In addition, 12 cycles with a differential temperature of 560°F were considered in the fatigue analyses. The calculated cumulative usage factor considering all transients is about

0.85 which is below the ASME Code allowable limit of 1.0. The plant normal heatup and cooldown cycles contribute the maximum usage factor for the spray nozzle.

To reduce thermal shock to the spray nozzle during spray cycles, a small continuous spray flow is provided through a manual bypass valve around the power operated spray valves providing some mixing of the pressurizer liquid with the coolant.

This operational limit modification will permit operation of the auxiliary spray system during emergency conditions with an upper limit on spray differential temperature of 560°F. The licensee is permitted to use only 12 auxiliary spray cycles above 320°F differential temperature but less than 560°F. The licensee will record auxiliary spray initiation differential temperatures to evaluate the actual spray nozzle fatigue usage factor upon completion of 12 cycles to determine the remaining auxiliary spray cycles without violating the ASME Code fatigue limit.

Based on the fatigue analysis results, we conclude that the operational limits changes will not affect the structural integrity of the pressurizer spray nozzle.

- (2) The staff agrees that the interim relief granted for surveillance testing of the protective fuses should remain in effect for both units until the generic issues on this matter are resolved. The licensee's justification is adequate for continued relief pending the results of the NRC study.
- (3) The changes requested by the licensee are in conformance with the requirements under 10 CFR 50.73 which specifies certain changes for Licensee Event Reports. These changes are administrative and have no effect on plant safety.
- (4) The Safety Evaluation Report provided for the temperature changes is applicable to Units 1 and 2, as stated in the report; however, the appropriate Technical Specification page changes were inadvertently omitted from Amendment 33 of Unit 1.

This amendment provides the necessary Technical Specification changes to permit Unit 1 to operate with temperature limitations consistent with Unit 2.

### III. ENVIRONMENTAL CONSIDERATION

These amendments involve changes in the installation of facility components located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously

issued a proposed finding that these amendments involve no significant hazards consideration, and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

IV. CONCLUSION

The Commission made proposed determinations that the amendments involve no significant hazards consideration which were published in the Federal Register on January 26, 1984 (49 FR 3357) and September 28, 1984 (49 FR 38410) and consulted with the state of Tennessee. No public comments were received, and the state of Tennessee did not have any comments.

We have concluded, based on the considerations discussed above, that:  
(1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and  
(2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: Carl R. Stahle, Licensing Branch No. 4, DL  
Kulin D. Desai, Reactor Systems Branch, DSI

Dated: November 23, 1984

November 23, 1984

AMENDMENT NO. 36 TO FACILITY OPERATING LICENSE NO. DPR-77 - Sequoyah Nuclear Plant  
AMENDMENT NO. 28 TO FACILITY OPERATING LICENSE NO. DPR-79 - Sequoyah Nuclear Plant

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