



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

SAFETY EVALUATION BY THE OFFICE OF SPECIAL PROJECTS

SUPPORTING AMENDMENT NO. 69 TO FACILITY OPERATING LICENSE NO. DPR-77

AND AMENDMENT NO. 61 TO FACILITY OPERATING LICENSE NO. DPR-79

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

1.0 INTRODUCTION

By letter dated April 8, 1987, Tennessee Valley Authority (TVA), submitted a proposed change to the Technical Specifications (TS) for Sequoyah, Units 1 and 2. The proposed change to Section 3/4.6.2 would specifically require the operability of residual heat removal (RHR) spray and clearly specify the surveillance requirements for both the RHR and containment spray trains. The applicability statement would be revised to exempt the operability requirements for RHR spray in Mode 4 (hot shutdown). In addition, two minor typographical errors in the Unit 1 TS would be corrected.

2.0 DISCUSSION

The spray system at each unit of Sequoyah has four headers; two of these are used for containment spray (each with a dedicated pump and heat exchanger) which is automatically initiated on high-high containment pressure. The other two headers are for the RHR spray system; this system is initiated by manual valve manipulations. The RHR system is an emergency core cooling system (ECCS) and is also used for shutdown decay heat removal in Modes 4 and 5. As discussed in the Final Safety Analysis Report (FSAR), one train of RHR spray is needed to mitigate a loss-of-coolant accident (LOCA) if only one train of containment spray is available. TS 3.5.2 requires operability of both trains of RHR (as an ECCS) during Modes 1, 2 and 3. TS also address RHR requirements for decay heat removal in Modes 4, 5 and 6. Operability of the containment spray system is required for Modes 1 through 4 by TS 3.6.2.1. However, specific requirements on the RHR spray are not identified in the TS. TVA proposes to subdivide TS 3.6.2.1 to address containment spray and RHR spray explicitly.

3.0 EVALUATION

The revised limiting condition for operation for TS 3.6.2.1 would require two independent trains of both containment spray and RHR spray and defines what a train consists of. In particular, a train comprises an OPERABLE pump, an OPERABLE heat exchanger and an OPEPABLE flow path. The containment spray flow path must be capable of suction from the refueling water storage tank and then from the sump; the RHR spray path is from the sump only. These requirements are consistent with necessary functions of these system as discussed in the safety analysis. The action statement for an inoperable RHR spray train or a

containment spray train would remain as presently in the TS. A surveillance requirement for RHR spray train is added. The type and frequency of testing of the RHR spray is consistent with that required for other RHR (ECCS) and containment spray trains. Therefore, the staff finds these TS changes acceptable.

TVA also proposes that operability of the RHR spray trains not be required for Mode 4. The basis for this is discussed below.

General Operating Instruction (GOI)-3, "Plant Shutdown from Minimum Load to Cold Shutdown," stipulates a cooldown rate of 50°F per hour. Thus, it would take four hours to get from a shutdown from normal temperature (Mode 1) to Mode 4. The Function Restoration Guidelines, which establish the basis for emergency operating instructions, prohibit the use of RHR spray for at least one hour after initiation of a LOCA.

Thus, the earliest time that RHR spray could be called upon following plant shutdown for a LOCA in Mode 4 would be 5 hours. At that time, the decay heat rate is only 61% of the decay heat rate at 1 hour. Since a containment spray train alone has 70% of the capacity of the combined flow of one containment spray train and one RHR spray train, the RHR spray train would not be needed. Further, the blowdown energy released to containment for a LOCA in Mode 4 would be significantly less than for a design basis LOCA from full power and temperature. Therefore, the staff concludes that operability of RHR spray is not required in Mode 4 and that the proposed TS are acceptable.

In the course of our review of this proposed change, the staff reviewed the emergency operating procedure (FR-Z.1) associated with operation of RHR spray. The procedures do not clearly address the situation when only one RHR pump is operable and providing flow to both the safety injection pump suction and to the RHR spray header. The staff believes that as part of your implementation of this TS change, TVA should clarify the procedures regarding verification of proper flow balance.

4.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. 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 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of these amendments.

5.0 CONCLUSION

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 the amendments will not be inimical to the common defense and security nor to the health and safety of the public.

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Dated: April 4, 1988