



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 215 TO FACILITY OPERATING LICENSE NO. DPR-77
AND AMENDMENT NO. 205 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 application dated August 7, 1995, the Tennessee Valley Authority (the licensee) proposed an amendment to the Technical Specifications (TS) for Sequoyah Nuclear Plant (SQN) Units 1 and 2. The requested changes would address operation with a rod urgent failure condition, including limited operation with one control or shutdown bank inserted up to 18 steps below its insertion point. In addition, the surveillance interval for rod movement verifications would be increased from 31 to 92 days.

2.0 EVALUATION

The TS require periodic testing of each control and shutdown control rod assembly bank during power operation to ensure the control rod assemblies are trippable. This testing requires partial movement of each control rod assembly not fully inserted into the core. The current TS can be interpreted such that rods immovable as a result of a rod urgent failure are declared inoperable. Inoperable rods require a plant shutdown (under certain conditions).

The proposed TS 3.1.3.1 modifies the wording to clearly define a control rod assembly as operable if it is trippable. Specifically, the licensee is proposing to delete all references to "inoperable" control rods and instead rely on the more explicit terms "untrippable" and "misaligned." The licensee's reference to "untrippable" and "misaligned" rods is consistent with the wording of NUREG-1431, Revision 1, "Standard Technical Specifications Westinghouse Plants." Therefore, the licensee's proposed TS clarification is acceptable.

Also, the licensee is proposing to delete the words "within one hour" from Unit 1's TS 3.1.3.1.c.2. This phrase is not in the corresponding Unit 2 TS. This is an editorial change since the one hour requirement is stated in TS 3.1.3.1.c. Therefore, the deletion of the redundant and potentially misleading phrase is acceptable.

ENCLOSURE

The proposed TS Surveillance Requirement (SR) 4.1.3.1.2 clarifies the requirements relative to rod trippability and extends the surveillance interval to 92 days. The licensee's proposal is consistent with the corresponding wording of NUREG-1431, and Generic Letter (GL) 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation." As requested in GL 93-05, the licensee stated that the surveillance interval extension was consistent with plant operating experience. Therefore, the licensee's proposed TS change is acceptable.

The proposed TS 3.1.3.5 and TS 3.1.3.6 define limits of both time and insertion if a bank is immovable due to failures external to the control rod drive mechanism. A maximum of one control or shutdown bank may be inserted no more than 18 steps below its insertion limit for up to 72 hours during diagnosis and repair of the rod control system provided the bank is trippable and the shutdown margin requirements are satisfied once per 12 hours. The provision for continued power operation does not apply to the controlling bank(s), which is normally Control Bank D, because insertion of this bank below the insertion limit is not required for rod surveillance testing. Concurrent control rod misalignment (misalignment of individual control rod assemblies from their group step counter demand position by more than ± 12 steps) is not allowed.

Because of the misalignment constraints and the 18 step limit, the impact on core reactivity and power distribution is very small. In addition, the shutdown margin is specifically reconfirmed every 12 hours and, as the licensee stated in its submittal, explicit analytical checks on the radial power distribution are performed as part of the reload safety evaluation process. The reload safety calculations for SQN are performed by the vendor using NRC approved methodology. Furthermore, if the affected bank is not restored to above the insertion limit within the allowed 72 hours, the unit must be placed in hot shutdown within the next 6 hours. This change will allow sufficient time for diagnosis and repairs while maintaining the safety function of the control rods since the affected rods are still trippable.

The proposed changes to TS 3.1.3.5 and TS 3.1.3.6 are acceptable because:

- 1) all control and shutdown rod assemblies are trippable,
- 2) all immovable rod assemblies exceed insertion limits by no more than 18 steps,
- 3) all immovable rod assemblies are aligned,
- 4) shutdown margin is specifically reconfirmed every 12 hours,
- 5) no reactor coolant system boron concentration dilution activities or power level increases are allowed, and
- 6) if rod assemblies are not restored to within insertion limits within 72 hours, the unit must be placed in hot shutdown within the next 6 hours.

Based on the above discussion, the staff finds all of the proposed TS changes to be acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Tennessee State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (60 FR 45186). Accordingly, the amendment meets 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 or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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