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Southern Nuclear Operating Company

the southern electric system

Dave Morey  
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November 29, 1993

Mr. S. D. Ebner  
Regional Administrator, Region II  
U.S. Nuclear Regulatory Commission  
101 Marietta Street, NW., Suite 2900  
Atlanta, Georgia 30323

Joseph M. Farley - Unit 2  
Request for Enforcement Discretion

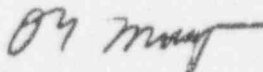
Dear Mr. Ebner:

It was recently determined that the Unit 2 B hydrogen recombiner was inoperable due to a failed component. Technical Specification 3.0.4 precludes changing modes unless the conditions of the Limiting Conditions for Operation are met without relying on the provisions contained in the action requirements. Technical Specification 3.6.4.2 requires that two hydrogen recombiners be operable. As a result, Farley Unit 2 is unable to enter Mode 2 without restoring the hydrogen recombiner to an operable status.

As discussed in the Attachment, it is requested that the NRC issue a Notice of Enforcement Discretion for Technical Specification 3.0.4 until both hydrogen recombiners are returned to service or for a period of 30 days. It is requested that the Notice of Enforcement Discretion be issued as soon as possible as entry into Mode 2 is anticipated today.

If there are any questions, please advise.

Respectfully submitted,

  
Dave Morey

Attachment

cc: Mr. B. L. Siegel  
Mr. T. M. Ross  
U.S. Nuclear Regulatory Commission Document Control Desk

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**Attachment 1**

**Request for Enforcement Discretion**

### Request for Enforcement Discretion

1. **The Technical Specification for which enforcement discretion is requested.**

Technical Specification 3.0.4 states, "Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the conditions of the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION requirements." Technical Specification 3.6.4.2 requires that two independent containment hydrogen recombiner systems shall be operable for Modes 1 and 2. Enforcement discretion is requested for Technical Specification 3.0.4.

2. **Circumstances requiring prompt action.**

Component failures in the 2B hydrogen recombiner discovered while in Mode 3 resulted in one of the two hydrogen recombiners becoming inoperable. Efforts to obtain parts to restore the recombiner have not been successful. As a result, Farley Unit 2 can not change modes in its efforts to startup following a refueling outage.

3. **Safety basis for the request for enforcement discretion.**

As stated in Farley Technical Specification Bases B 3/4.6.4, "Either recombiner unit (or the purge system) is capable of controlling the expected hydrogen generation associated with 1) zirconium-water reactions, 2) radiolytic decomposition of water, and 3) corrosion of metals within containment." Consequently, a single recombiner provides adequate hydrogen removal capability for Modes 1 or 2. Post-LOCA hydrogen concentration in the containment would not reach the lower flammability limit of 4.0 volume percent until about 30 days after the accident, assuming no recombiner in service and no venting of containment atmosphere.

As further evidence of the marginal safety benefit of the recombiners, the Farley Level II Probability Risk Analysis recently submitted to the NRC states that the peak containment pressure for the worst case hydrogen burn is less than the lower bound ultimate capacity of containment.

4. **Proposed compensatory measures.**

A single recombiner provides adequate hydrogen removal capability. If both hydrogen recombiners become inoperable, operation will be in accordance with Technical Specification 3.0.3.

5. Justification for duration of the request for enforcement discretion.

Enforcement discretion is requested for a 30 day duration, the same as the action statement. If the inoperable hydrogen recombiner were discovered in Mode 1, 30 days would be allowed for repair. Repair of the recombiner will be pursued on an expedited basis; however, repair parts are not immediately available.

6. Significant safety hazards consideration.

Following a design basis accident, hydrogen gas may be generated inside containment by reactions such as zirconium metal with water, corrosion of materials of construction, and radiolysis of aqueous solution in the core and sump. To ensure that the hydrogen concentration is maintained at a safe level, hydrogen recombiners are provided, along with a backup post accident venting system. Consequently, loss of a single hydrogen recombiner will not create the possibility of a new or different kind of accident previously evaluated.

A single hydrogen recombiner meets the design criterion of maintaining a safe hydrogen concentration with considerable margin. A second unit provides a redundant system of equal capability on a redundant power supply. Post-LOCA hydrogen concentration in the containment would not reach the lower flammability limit of 4.0 volume percent until about 30 days after the accident, assuming no recombiner in service and no venting of containment atmosphere. Thirty days allows adequate time for operator action to prevent hydrogen accumulation from exceeding the 4.0 volume percent flammability limit. Furthermore, the frequency of hydrogen producing accidents for Farley Nuclear Plant is on the order of  $6 \times 10^{-6}$ /year. As a result, operation with a single hydrogen recombiner will not result in a significant increase in the probability or consequences of an accident previously evaluated.

Since a hydrogen recombiner, the post accident venting system, and the post accident mixing system will be operable, there is not a significant reduction in a margin of safety.

In addition, the above position is consistent with NUREG-1431, Standard Technical Specifications - Westinghouse Plants, dated September 1992, Bases 3.6.8, concerning the operability of the hydrogen recombiners, "...the provisions of LCO 3.0.4 are not applicable. As a result, a MODE change is allowed when one recombiner is inoperable. This allowance is based on the availability of the other hydrogen recombiner, the small probability of a LOCA or SLB occurring (that would generate an amount of hydrogen that exceeds the flammability limit), and the amount of time available after a LOCA or SLB (should one occur) for operator action to prevent hydrogen accumulation from exceeding the flammability limit."

7. **Consequences to the environment.**

Changing modes with only one recombiner in service will not involve any significant change in the types of effluents that may be released offsite and no significant increase in the individual or cumulative occupational radiation exposure. Therefore, this request for enforcement discretion does not involve any irreversible environmental consequences.

8. **Review by Plant Operations Review Committee.**

This request for enforcement discretion has been reviewed and approval has been recommended by the organization tasked to advise the General Manager - Nuclear Plant on all matters related to nuclear safety at Farley Nuclear Plant, i.e., the Plant Operations Review Committee.