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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 229 TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 244 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 204 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3

DOCKET NOS. 50-259, 50-260, AND 50-296

1.0 INTRODUCTION

By letter dated April 14, 1996, the Tennessee Valley Authority (the licensee) submitted proposed changes to the technical specifications (TS) for the Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3. The changes clarify operability requirements for reactor vessel water level instrumentation in TS Table 3.2.B to clearly permit surveillance testing of instrument line excess flow check valves required by TS 4.7.D.1.d.

This amendment was submitted under the emergency provisions of 10 CFR 50.91(a)(5). The licensee states that failure to act in a timely way would prevent resumption of power operations of Browns Ferry Unit 2. The NRC staff evaluation of this request is given below.

2.0 DESCRIPTION OF PROPOSED TECHNICAL SPECIFICATIONS CHANGES

TS Table 3.2.B currently requires a minimum of two operable channels per trip system for reactor water level instrumentation. These instruments provide signals which actuate engineered safety features required to mitigate accidents. Testing of instrument line excess flow check valves pursuant to TS 4.7.D.1.d disables one instrument in each of the two trip systems. Therefore, the licensee is unable to comply with the minimum instrumentation requirements while performing other testing required by TS.

The licensee proposes to add a note to TS Table 3.2.B to resolve this problem. The proposed note reads as follows:

> Only one trip system will be required to be OPERABLE during testing of the reactor coolant system instrument line flow check valves in accordance with TS section 4.7.D.1.d, provided the reactor is in COLD SHUTDOWN. Manual and automatic initiating

capability of CSS [core spray system] and LPCI [low pressure coolant injection] will be available, but with a reduced number of instrument channels.

3.0 EVALUATION

The reactor vessel water level instrumentation affected by the proposed change consists of four instruments: LIS-3-58A, LIS-3-58B, LIS-3-58C, and LIS-3-58D. The actuation logic is a one-out-of-two-taken-twice scheme. The "A" and "C" instruments input to one trip system; the "B" and "D" instruments input to the other. Testing of the excess flow check valves pursuant to TS 4.7.D.1.d affects one reactor vessel water level instrument variable leg at a time. One variable leg is used by the "A" and "B," or the "C" and "D" instruments simultaneously. The other variable leg remains functional during testing on the other leg.

TS Table 3.2.B requires a minimum of two instruments operable per trip system. Disabling the "A" and "B," or "C" and "D" instruments for the excess flow check valve testing violates this requirement. Therefore, a contradiction is created where the surveillance testing requirements cannot be fulfilled without violating the minimum equipment configuration requirements. The licensee states that the variable leg not being tested would be expected to function as designed, but points out that this configuration does not meet single failure criteria.

The licensee states the following factors provide reasonable assurance of safe operation:

1. The automatic initiating capability of the remaining reactor vessel instrumentation.

2. The low primary system temperature. The proposed change states the excess flow check valve testing is permissible when the reactor is in a cold shutdown condition, with primary system temperature less than 212°F.

3. The low probability of an event that would result in the drain down of the reactor vessel. Piping failures are extremely improbable for these conditions, given the low temperature and margin inherent in the reactor system piping design.

4. The other reactor level instrumentation and equipment that is available for manual operator intervention in the event of a plant transient or accident. There is independent water level instrumentation which would provide adequate indication of reactor vessel inventory for operators to take action as directed by emergency procedures.

The staff agrees that the probability of a loss of coolant requiring automatic CSS and LPCI initiation is very remote during the time that the excess flow check valve test is being performed. If a loss of coolant does occur, the instrumentation unaffected by the testing would be expected to function as designed. If automatic initiation fails, operators have sufficient

independent instrumentation to manually initiate equipment required to mitigate loss of inventory. Therefore, the proposed change is acceptable.

4.0 EMERGENCY CIRCUMSTANCES

BFN Unit 2 is currently in a refueling outage. Testing of the excess flow check valves pursuant to TS 4.7.D.1.d will be performed prior to resuming power operations, and is currently scheduled for April 18, 1996. The licensee initially identified the conflict between TS Table 3.2.B and TS 4.7.D.1.d on April 13, 1996. The Manager of Site Licensing briefed the NRR Project Manager on the problem that afternoon. The licensee submitted a license amendment request to resolve the problem on April 14, 1996.

Since failure to issue the amendment in a timely way would prevent resumption of operation, the staff finds that an emergency situation exists. The staff also finds that the licensee acted promptly upon identification of the conflicting requirements, promptly notified the staff of the problem, and promptly proposed an amendment to remedy the situation. The staff concludes that the licensee has not abused the emergency provisions by failure to make a timely application for the amendment. Thus, conditions needed to satisfy 10 CFR 50.91(a)(5) exist, and this amendment is being processed on an emergency basis.

5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92(c) state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the proposed change would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or,

2. Create the possibility of a new or different kind of accident from any previously evaluated; or,

3. Involve a significant reduction in a margin of safety.

The staff finds that the proposed changes do not involve a significant hazards consideration, because operation of the Browns Ferry Nuclear Plant, Units 1, 2, and 3 in accordance with the proposed change would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed change in the applicability of the minimum number of reactor low level instrument channels required to be operable does not increase the frequency of precursors to design basis events or operational transients analyzed in the BFN Final Safety Analysis Report. Therefore, the probability of an accident previously evaluated is not significantly increased.

If a loss of coolant inventory occurs during excess flow check valve testing, the remaining reactor vessel water level instrumentation would be in service, and would be capable of initiating required safety functions. In addition, other independent instrumentation will remain in service which provide reactor operators with sufficient information to manually initiate required equipment in the event of a single failure of the variable leg not being tested. Therefore, the proposed change does not significantly increase the consequences of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any previously evaluated.

   The change resolves a conflict between existing technical specification requirements, clarifying circumstances where testing which reduces instrumentation capability is permissible. The change does not modify the existing plant configuration, and does not create a new pathway for radioactive materials to reach the environment. Therefore, the possibility of a new or different kind of accident is not created.

3. Involve a significant reduction in a margin of safety.

   The proposed change does not change licensing or design basis limits for initiation of protective actions. The probability of a significant loss of inventory during the excess flow check valve testing is low. If a single failure prevents remaining instrumentation from performing its intended function, operator action based on independent instrumentation will ensure initiation of the core spray and LPCI systems, if required. Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

6.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Alabama State official (Kirk Whatley) was notified of the proposed issuance of the amendment. The State official had no comments.

7.0 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. the NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant changes in the types, of any effluent that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22.(c)(9). The Commission has made a final no significant hazards finding with respect to this amendment. 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.

8.0 CONCLUSION

The Commission has concluded, based upon the considerations discussed above, that: (1) the amendment does not (a) significantly increase the probability or consequences of an accident previously evaluated, (b) create the possibility of a new or different kind of accident from any previously evaluated, or (c) significantly reduce a margin of safety, and therefore, the amendment 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; (3) such activities will be conducted in compliance with the Commission's regulations; and (4) issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Dated: April 16, 1996

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