SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

OF THE PROPOSED TECHNICAL SPECIFICATION CHANGES FOR THE

BROWNS FERRY NUCLEAR PLANT

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

INTRODUCTION

As a result of recent structural analyses performed in conjunction with a generic review of pool dynamic loads for Mark I pressure - suppression containments, the NRC staff determined that the consideration of pool dynamic loads resulting from a postulated loss-of-coolant accident had reduced the margin of safety in the containment design for the Browns Ferry Nuclear Plant. Subsequently, the licensee agreed to institute a "differential pressure control" to mitigate the pool dynamic loads and thereby restore the margin of safety in the containment design. The differential pressure control approach establishes a positive pressure between the drywell and torus regions of the containment which reduces the height of the water leg in the downcomers and subsequently reduces the hydrodynamic loads.

The differential pressure control procedure establishes approximately a 1.3 psig pressure in the drywell. The licensee indicated that the proximity of this pressure to the 2.0 psig high drywell pressure trip setpoint may result in inadvertent initiation of scram and core spray injection signals. Accordingly, in a letter dated August 27, 1979, the Tennessee Valley Authority requested a Technical Specification change for the high drywell pressure setpoint from 2.0 psig to 2.5 psig.

EVALUATION

The high drywell pressure trip signal is used to initiate primary containment isolation and serves as a backup or conjunctive signal to initiate the ECCS systems. While it is proposed to raise the trip signal setpoint value from 2.0 psig to 2.5 psig, the differential pressure between drywell ambient and the trip setting remain approximately the same (i.e., about 1.0 psi).

We have reviewed the proposed change with respect to the time to achieve containment isolation, the performance of the ECCS systems, and the containment response to a postulated loss-of-coolant accident (LOCA). The higher initial containment pressure will slightly improve the ECCS performance due to an increase in the net positive pump suction head. In addition, the change in the containment isolation time and the containment pressure response will be small since they are primarily a function of the differential pressure between drywell ambient and the trip setting. The margin between the containment design and the calculated results for a spectrum of breaks is sufficiently large to accommodate the small changes associated with the higher setpoint.

CONCLUSION

Based on our review, we find the licensee's proposed change to increase the high drywell pressure setpoint from 2.0 psig to 2.5 psig acceptable. The proposed change does not involve an increase in effluents, it will not increase the probability of occurrence of, nor will it result in unacceptable consequences for, a postulated accident.