



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

ENCLOSURE 3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO CONFORMANCE TO STANDARD REVIEW PLAN 6.2.4 REVISION 1
AND BRANCH TECHNICAL POSITION CSB 6-4 REVISION 1 AND

TMI ACTION ITEM II.E.4.2.5

ALABAMA POWER COMPANY

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NO. 1

DOCKET NO. 50-348

Introduction

During our licensing review of the purge system for Unit No. 2, the licensee proposed installing a three-inch vent line in addition to the eighteen and forty-eight inch purge lines. The purpose of the three-inch line would be to reduce the use of the large purge lines by venting pressure buildup inside containment through the three-inch line. The licensee also proposed installing three isolation valves in series in the vent line, instead of the normal two valves, to improve the reliability of vent line isolation. The three-inch vent valves would be designed to satisfy the operability criteria set forth in Branch Technical Position (BTP) CSB 6-4.

The licensee committed to install the three-inch vent line during the next refueling outage (about March 1982). In the interim, the licensee will use the eighteen-inch purge system for both containment purging and venting when at reactor coolant temperatures above 200°F. The eighteen-inch purge system valves have been blocked to open no greater than 50 degrees on an interim basis until the long-term review was completed. We confirmed this licensee commitment by our letter of July 16, 1980. This interim position allows the eighteen-inch system to be open continuously prior to installation of the three-inch vent line. Also, the licensee has now satisfied the operability criteria set forth in BTP CSB 6-4 for the eighteen-inch purge valve (See separate SER). They have also verified that the estimated amount of radioactivity released during the time required to close the eighteen-inch purge valves following a LOCA does not cause the total offsite dose to exceed the 10 CFR Part 100 guideline values.

The containment isolation actuation signal for containment pressure was evaluated during the Unit No. 2 licensing review.

Discussion and Evaluation

After installation of the three-inch vent line, the use of eighteen-inch purge lines would be reduced to a goal of about 2,000 hours per year. The three-inch vent line would be open continuously. We consider that such reduced purging time with the eighteen-inch lines and the continuous venting through the three-inch line would be acceptable. However, it is necessary that the three-inch vent valves satisfy the operability criteria set forth in BTP CSB 6-4.

The licensee is also studying an alternative design involving the installation of an eight-inch purge system having three isolation valves in series in each line. The eight-inch purge system would be used in lieu of the three-inch vent line. With continuous operation of the eight-inch purge system, the need for the eighteen-inch purge system would be drastically reduced, and possibly eliminated. Continuous operation of the eight-inch purge system would also allow immediate personnel entry into the containment for safety related maintenance or surveillance activities. The licensee estimates that a thirty-hour delay in containment entry would be associated with the use of the eighteen-inch purge system and three-inch vent line combination. The thirty hours of purging with the eighteen-inch system would be necessary to reduce radioactivity levels for personnel access to the containment. We will evaluate the licensee's proposed system design when submitted on Unit No. 2. The results of our evaluation will be discussed in a future Safety Evaluation Report.

The licensee has demonstrated that the containment purge system design assures that blockage of the purge isolation valves will not occur. The purge supply and exhaust duct openings inside containment are covered with a screen to prevent debris from entering the ducts and possibly blocking isolation valve closure. The screen has 1/2-inch square openings and is fabricated from 0.049-inch diameter wire. The screen is attached to the purge duct by welding.

High activity conditions inside containment would be detected prior to opening the purge valves by means of the containment atmosphere particulate radioactivity monitor (R-11) and the containment atmosphere gaseous radioactivity monitor (R-12). The output from each detector is transmitted to the Radiation Monitoring System cabinets (located in the control room) where the radiation level is indicated by a meter and continuously recorded. Prescribed high radiation levels are visually indicated at the Radiation Monitoring System cabinets with audible annunciation provided at the main control board in the control room.

TMI Action Plan Item II.E.4.2.5 - Containment Pressure Setpoint

The containment isolation actuation signal setpoint for containment pressure considered by the licensee to be the minimum level compatible with normal operation is 5.0 psig. The channel accuracy assumed in the safety analysis is ± 1.8 psi. With a 2.6 psi margin, the normal operating containment pressure can be as high as 0.6 psig. This value is inconsistent with pressure margins observed at other facilities with similar containment designs. We consider the minimum setpoint for containment isolation signal to be 4.0 psig. This pressure setpoint is consistent with setpoint pressures at other facilities with similar containment designs. We included a setpoint of 4.0 psig in the Technical Specification issued during Unit No. 2 licensing. Therefore, with the upgrading of Unit No. 1 Technical Specifications to be similar to Unit No. 2, we consider this review as completed.

Conclusion

Based on our review, we conclude that the purge/vent system meets the requirements of SRP 6.2.4 and is acceptable. We also conclude that the revised containment pressure setpoint similar to that of Unit 2 is acceptable for Unit No. 1, the identical plant design.