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September 30, 1980

Docket No. 50-364

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. A. Schwencer

JOSEPH M. FARLEY NUCLEAR PLANT - UNIT 2
CONTAINMENT PURGE VALVE OPERABILITY
REF: (1) Letter from Alabama Power Company (F. L. Clayton, Jr. to A. Schwencer) dated September 29, 1980

Gentlemen:

A conference call was held on September 19, 1980 with the NRC Staff and their consultant concerning the operability of the 18 inch containment purge valves. Enclosed are the responses to the questions identified by the NRC during the conference call. The responses to these questions confirm the operability of the 18 inch containment purge valves from the full-open position (i.e. 90°).

In Reference 1 the interim and long term systems for containment venting were described. Also included in the submittal was the proposed containment purge technical specification (Modes 1-4) for the period between issuance of the full power license and the first refueling outage. The proposed technical specification removes the restriction that requires the valves to be blocked from opening no more than 50°. After reviewing the enclosure and Reference 1, the NRC is requested to remove the 50° restriction from the technical specification prior to exceeding 5% power.

Yours very truly,

F. L. Clayton, Jr.

F. L. Clayton, Jr.

BDM:bs
ENCLOSURE
cc: Mr. R. A. Thomas
Mr. G. F. Trowbridge
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RESPONSE TO NRC QUESTIONS ON
CONTAINMENT PURGE VALVE OPERABILITY

1. QUESTION:

Are the dynamic torque coefficients of the valve affected by the containment purge piping configuration?

RESPONSE:

The valve operability analysis was conservatively calculated to maximize the dynamic closing effects on the valve. Any upstream or downstream piping effects, which would have decreased this conservatism, were disregarded. The valve manufacturer considers that upstream piping configurations have no significant effect on torque coefficients for compressible fluid flow conditions, similar to those considered in the valve closure analysis. Therefore, these effects were not considered in the closure analysis.

The valve manufacturer has also stated that the orientation of the valve shaft with respect to piping geometry has no effect on resultant torque or closure force for compressible flow. However, as requested by the NRC, Alabama Power Company will have the manufacturer review the system arrangement drawings showing valve configuration for acceptability.

2. QUESTION:

Is the operating torque rating of the operator exceeded during valve closure during a LOCA?

RESPONSE:

The containment mini-purge isolation valves are provided with Bettis operators. Bettis has performed a torque output test on a Model T312 operator similar to the Model T312 operator installed on the mini-purge valves.

The torque test results showed that the minimum torque output of the operator did not occur at the end of the stroke; rather, the minimum torque occurred within the stroke range. The test also showed that the ending torque output of the test unit exceeded the catalog ending torque rating by approximately 10 percent.

The test torque curve was reduced to bring the operator into conformance with catalog data, and that curve was compared to the calculated valve closing torque. It was found that the operator torque exceeded the calculated closing torque across the entire valve closing range from fully opened to fully closed under LOCA conditions.

3. QUESTION:

Provide the environmental qualification information for the ASCO solenoid valves.

RESPONSE:

The environmental qualification information associated with the ASCO solenoid valves is provided in the Alabama Power Company report entitled "Joseph M. Farley Nuclear Plant Unit 2 - Response to NRC NUREG-0588". This report was submitted to the NRC on September 12, 1980.

4. QUESTION:

Provide the environmental qualification information for the Bettis operator.

RESPONSE:

The Bettis operators, which are installed on the 18-inch purge isolation valves inside containment, are qualified for the expected environment inside containment following a design basis accident. Qualification includes radiation levels in excess of 1×10^8 rads, 100% relative humidity, exposure to containment spray, and a temperature in excess of 300° F. The qualification is based on a materials qualification program rather than testing of an assembled prototype operator.