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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 65 TO FACILITY OPERATING LICENSE NO. NPF-47

GULF STATES UTILITIES COMPANY

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

1.0 INTRODUCTION

The automatic depressurization system (ADS) is a safety related system used to depressurize the primary system in the event of a small loss-of-coolant accident (LOCA) combined with the failure of the high pressure core spray system. Depressurization of the primary system by opening 7 of the 16 safety relief valves (SRVs) permits injection by either the low pressure core spray system or the low pressure coolant injection system.

Each SRV is a spring loaded valve capable of being operated by either an externally attached pneumatic operating cylinder or by direct steam pressure in opposition to spring compression. The normal air supply for the SRVs is from the non-safety main steam system air compressors. These compressors supply air at approximately 17 SCFM at 175 psig. In addition, the seven SRVs that provide the ADS function have a safety related accumulator and check valve to ensure the ability to hold the valve open if the air compressors are lost. Following a LOCA, it is assumed that off-site power will be unavailable which would result in the loss of the air compressors to the SRVs. Long-term operation of the SRVs will rely on the safety-related penetration valve leakage control system (PVLCS). However, the PVLCS is manually loaded on the diesel generators and availability, as discussed in the staff's Safety Evaluation Report (NUREG-0989), is not assumed until 25 minutes after the LOCA. Therefore, short-term pneumatic operation of the ADS SRVs is dependent on the SRV accumulators.

On January 31, 1991, an enforcement conference was held in the Region IV Office regarding the reported inoperability of the ADS which was caused by the inoperability of the normal supply air compressors. Specifically, on January 4, 1991 with the facility operating in Mode 1, the licensee declared the ADS inoperable because of the indeterminate status of the capability of the ADS SRVs to meet their design basis functions due to apparent inadequate air pressure in the SRV accumulators. The apparent inoperability existed for approximately 27 hours, which exceeded the technical specification limit of 12 hours. However, based on further analysis, it was determined that sufficient air pressure remained in the SRV accumulators such that the ADS remained operable and would have been capable of performing its intended function. During the enforcement conference, the licensee committed to submit a technical specification change to define the operability requirements of the ADS SRVs.

In fulfilling the above commitment, the licensee's letter of February 5, 1992 requested an amendment to Facility Operating License No. NPF 47. The proposed amendment would add a surveillance requirement to Technical specification 3/4.5.1, "Emergency Core Cooling Systems - Operating," to verify a minimum SRV accumulator pressure of 131 psig once every 12 hours.

2.0 EVALUATION

The Standard Review Plan (NUREG-0800) does not recommend specific requirements for the ADS SRV accumulator size or pressure. General Electric design specifications list the minimum operating pressure for the ADS SRV air supply as 150 psig. In addition, these design specifications state that for the ADS function, 50 gallons of accumulator volume for each ADS valve is required to provide two actuations with the drywell at 70 percent of drywell design pressure. While only one actuation of the ADS would be sufficient to perform its intended function, two actuations provide for additional margin.

In the River Bend Final Safety Analysis Report, the licensee stated that the accumulators were 60-gallon capacity and designed to provide two actuations of the ADS at 70 percent of drywell design pressure, which is equivalent to four to five actuations at atmospheric pressure. The staff accepted these values and included them in the Safety Evaluation Report. Therefore, this has become the regulatory basis for sizing the SRV accumulators.

The River Bend accumulators provide an actual pressurized volume of 66 gallons (including the piping volume between the accumulator and the air valve on the SRV actuator). With a larger volume than that specified by General Electric, accumulator pressure could be less than 150 psig and still be capable of meeting the FSAR commitments. Engineering calculations performed by the licensee determined that a minimum accumulator pressure of 126.3 psig would be necessary to provide for two actuations at 70 percent drywell design pressure. Similarly, a minimum accumulator pressure of 130.4 psig would be necessary to provide for four actuations with the drywell at atmospheric pressure. Based on this information, the licensee determined that verification of a minimum SRV accumulator pressure of 131 psig would be sufficient to demonstrate operability. Pressure indication and low pressure alarm channels are provided in the Main Control Room for both ADS SRV accumulator air supply headers.

The staff has reviewed the licensee's submittal and has concluded that a minimum SRV accumulator pressure of 131 psig will satisfy the licensing requirements for safe operation. Control Room indication and alarms are available to alert plant operators if pressure falls to unacceptable levels. Based on our review, we conclude that the proposed change to require periodic verification of the SRV accumulator pressure is acceptable and that the licensee has met the commitment made in the January 31, 1991 enforcement conference previously discussed.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (57 FR 9474). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). 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.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: October 2, 1992