



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

SUPPLEMENTAL SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

CONFORMANCE TO REGULATORY GUIDE 1.97

GULF STATES UTILITIES COMPANY

RIVER BEND STATION UNIT NO. 1

DOCKET NO. 50-458

1.0 INTRODUCTION

The NRC staff completed their review of the licensee's conformance to Regulatory Guide (RG) 1.97, Revision 3, and provided the safety evaluation to the licensee on June 30, 1986. We found the licensee's design acceptable with respect to conformance to RG 1.97, except for the instrumentation associated with neutron flux monitoring.

Region IV conducted a RG 1.97 inspection, as reported by a letter dated July 30, 1990. By letters dated August 30, 1990, October 11, 1990, and March 28, 1991, the licensee requested us to reevaluate the issues concerning the instrumentation that monitors drywell hydrogen concentration and suppression pool water level.

2.0 EVALUATION

The staff has reviewed the licensee's submittals and concluded that the licensee either conforms to, or has adequately justified deviations from, the guidance of RG 1.97 for the instrumentation that monitors: (a) drywell hydrogen concentration, and (b) suppression pool water level.

- (a) RG 1.97 recommends Category 1 drywell hydrogen concentration instrumentation with a range from 0 to 30 percent. The licensee has instrumentation that has dual ranges from 0 to 10 and 0 to 30 percent. The instrumentation is normally in the standby configuration with the range set at 0 to 10 percent. The licensee states that this is adequate since they do not use an inerted containment and have alarms at 3.5 percent concentration. The licensee has also described the hydrogen mixing system and hydrogen recombiners that will maintain the hydrogen concentration below 9 percent. Therefore, we find the use of the 0 to 10 percent drywell hydrogen concentration instrumentation acceptable.
- (b) RG 1.97 recommends Category 1 suppression pool water level instrumentation with a range from the bottom of the emergency core cooling system (ECCS) suction line to the top of the weir wall. The licensee previously documented instrumentation with a range from the safety relief valve discharge to the top of the liner. This instrumentation was from -18 feet to +4 feet. The staff accepted this range in the June 30, 1986 safety evaluation, based on the licensee's

statements that at suppression pool levels below -18 feet the residual heat removal (RHR) pumps have inadequate net positive suction head (NPSH) and exhibit vortex formation. The only action below this lower bound is to add water to the suppression pool.

The instrumentation that was actually installed has a range of -14.75 feet to +4 feet. This range is conservative from a NPSH point of view for ECCS pump operation and thus acceptable.

3.0 CONCLUSION

Based on our review of the licensee's submittals, we find that the River Bend Station Unit No. 1 design for drywell hydrogen concentration and suppression pool water level is acceptable with respect to conformance to RG 1.97, Revision 3.

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