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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 26 TO FACILITY OPERATING LICENSE NPF-12

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

VIRGIL C. SUMMER NUCLEAR STATION, UNIT 1

I. INTRODUCTION

By letter dated October 21, 1983, South Carolina Electric and Gas Company (the licensee) requested a change to Technical Specification 3.4.9.3, "Overpressure Protection Systems." The amendment would change Technical Specification 3.4.9.3 from a power operated relief valve (PORV) system to a residual heat removal (RHR) relief valve system. The associated Technical Specification bases and surveillance requirements would also be changed to reflect the RHR relief valve system. Additional information relating to this request was submitted by letter dated February 2, 1984.

II. EVALUATION

The proposed cold overpressure protection system (COPS) consists of two spring loaded relief valves, one in each train of the RHR system. The licensee states that these valves were designed in accordance with ASME, Section III, Class 2 requirements. Each of these valves has a relief area of 2.853 square inches when full open. The opening pressure is set at 450 psig. This passive system will be on line whenever the RHR system is on line.

The licensee's analyses show that one of these valves will prevent the reactor coolant system (RCS) pressure from exceeding the Appendix G limits with one charging/safety injection pump inadvertently operating at full flow or in the event of a reactor coolant pump start with the steam generator secondary temperature no more than 50°F higher than the RCS temperature.

The proposed Technical Specifications would require COPS to be operable in Mode 4 when the temperature of any RCS cold leg is less than or equal to 300°F, Mode 5, and Mode 6 with the reactor vessel head on. Also, the Technical Specifications require all but one charging/safety injection pump to be made inoperable by the removal of power. By procedure, a reactor coolant pump is not to be started when its steam generator secondary temperature is more than 50°F higher than the RCS temperature.

The NRC requires that the suction side of the RHR system have at least two power operated valves in series to isolate the RHR system from the RCS and that these valves have independent, diverse interlocks to prevent overpressurizing the RHR system to the point where RCS water would

be pumped outside of containment. In the proposed system with no failures, the RHR suction isolation valves will automatically close when the RCS pressure goes above 700 psig. With a single failure, at least one RHR suction isolation valve will close in each line and isolate the line. In addition, for the independence and diversity required there will be an alarm to alert the operator if any one of the four isolation valves does not completely close as the RCS pressure is increased. This alarm is by monitor light panel indication, which indicates even when power is locked out to the RHR suction isolation valves. There will also be a control board alarm to show the operator that any one of the four isolation valves is not completely open when the RCS pressure is decreased to the point where the RHR system is brought on line. This meets the staff positions of RSB 5-1 and RSB 5-2. Therefore, we find this acceptable.

From the above, the staff finds that the proposed system has adequate relief flow capacity for cold overpressure protection and that the RHR suction isolation valve interlock system, Technical Specification, and operator surveillance of the isolation valves meet RSB 5-1 and RSB 5-2 and are acceptable. Therefore, the staff concludes that the proposed cold overpressure protection system is acceptable.

III. ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant changes 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 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 this amendment.

IV. CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (49 FR 10742) on March 22, 1984, and consulted with the state of South Carolina. No public comments were received, and the state of South Carolina did not have any comments.

We have 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, and

(2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Jon B. Hopkins, Licensing Branch No. 4, DL
Edward Lantz, Reactor Systems Branch, DSI
Narinder K. Trehan, Instrumentation & Control Systems Branch, DSI

Dated: September 24, 1984

September 24, 1984

AMENDMENT NO. 26 TO FACILITY OPERATING LICENSE NO. NPF-12 - Virgil C. Summer Unit 1

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