UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. NPF-12

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-395

1.0 INTRODUCTION

By letter dated November 21, 1995, South Carolina Electric & Gas Company (the licensee), submitted a request for a change to the Virgil C. Summer Nuclear Station, Unit No. 1, (Summer Station) Technical Specifications (TS). The proposed change will allow a one time extension of the allowable outage time specified in TS 3/4.5.2 for each residual heat removal (RHR) train from 72 hours to 7 days. The following footnote will be added to TS 3.5.2: "The allowable outage time for each RHR train may be extended to 7 days for the purpose of maintenance and modification. This exception may only be used one time per RHR train and is not valid after December 31, 1997."

2.0 EVALUATION

The licensee plans to perform maintenance on the RHR heat exchangers and modification of the RHR pump suction header valves. The maintenance involves the replacement of the RHR heat exchanger head gasket and is necessary to eliminate minor leakage from the RHR heat exchangers. The modification is to be performed on the suction header valve to each RHR pump and involves drilling a hole in the valve disk to provide additional assurance against pressure locking. The modification is being implemented to address NRC Information Notice 95-14, "Susceptibility of Containment Sump Recirculation Valves to Pressure Locking."

The large break loss of coolant accident (LBLOCA) is a design basis accident that is not considered likely to occur during the lifetime of plant operation. It is used as a design basis to assure conservatism. The safety function of the RHR pumps is to provide a low pressure, high volume water source for reflooding the core following a large break that results in a rapid depressurization. Following a small break LOCA, the RHR pumps may be required to provide suction pressure to the safety injection system during sump recirculation and for long term decay heat removal. The LOCA analyses only takes credit for one train of RHR. TS require that both trains of RHR be operable in Mode 1. One train is allowed to be inoperable for a period of 72 hours. The proposed change will provide for a one time extension of the

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allowable outage time from 72 hours to 7 days, which will allow maintenance and a modification to be completed at power. The alternative is to perform maintenance and modification during plant shutdown. However, that is during the time of peak radiation exposure rates from the RHR system due to its use during plant shutdown. A dose savings between 20 to 40 person-rem on both trains of RHR is expected by performing the maintenance and modification at power rather than after a plant shutdown.

During the time each train is made inoperable for the maintenance and modification, the redundant train will remain operable and be available to perform the safety function assumed by the safety analysis. The effect of having one RHR train out of service for 7 days was evaluated. The evaluation used the core damage frequency (CDF) from the Probabilistic Risk Assessment (PRA) model based on the Summer Individual Plant Examination model with equipment history updates and incorporation of plant modifications performed through Cycle 7. The CDF calculated by the PRA model is 1.006E-4 per reactor year. Use of the current allowable outage time of 72 hours for each RHR train results in a CDF of 1.024E-4 per reactor year. Use of a 7 day allowable outage time raises the CDF to 1.050E-4 per reactor year. The change results in a one time total increase in CDF of 2.6E-6 per reactor year. Additionally, the incremental conditional core damage probability (ICCDP) and large early release frequency (LERF) are not of significant magnitude. Therefore, the licensee has concluded that increase in RHR system availability and the 20 to 40 person-rem savings in exposure, justifies the increase in CDF by performing the maintenance and modification during Mode 1.

The safety function of the RHR will continue to be provided by the redundant train and, since the possibility of a design basis LBLOCA is small, an allowable outage time of 7 consecutive days does not result in a significant increase in the CDF compared to the current allowable outage time of 72 hours. Thus, allowing a one-time extension of the allowable outage time for each RHR train will not cause undue risk to the public health and safety. Further, in Mode 1, the RHR pumps are in standby; however, at least one pump is required to be in operation when the plant is shut down. Therefore, performing the maintenance and modification in Mode 1 will allow both trains to be available for decay heat removal while the plant is shut down. For these reasons, the staff finds the proposed change acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 (60 FR 65684). 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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