February 21, 2002

Mr. Stephen A. Byrne
Senior Vice President, Nuclear Operations
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
Post Office Box 88
Jenkinsville, South Carolina 29065

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1 - MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINTS WITH INOPERABLE MAIN STEAM LINE SAFETY VALVES (TAC NO. MB2237)

Dear Mr. Byrne:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 155 to Facility Operating License No. NPF-12 for the Virgil C. Summer Nuclear Station, Unit No. 1. The amendment changes the Technical Specifications in response to your application dated June 19, 2001.

This amendment revises Technical Specifications (TS) Table 3.7-1 by lowering the maximum allowable power range neutron flux high setpoints when one or more main steam line safety valves are inoperable. The Bases for TS 3/4.7.1.1 is also revised to include the algorithm used for determining the new allowable values.

A copy of the related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's Bi-weekly Federal Register notice. This completes the staff's efforts on TAC No. MB2237.

Sincerely,

/RA by G.Edison Acting for/

Ramin Assa, Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-395

Enclosures:
1. Amendment No.155 to NPF-12
2. Safety Evaluation

cc w/encls: See next page

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SOUTH CAROLINA ELECTRIC & GAS COMPANY

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

DOCKET NO. 50-395

VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 155
License No. NPF-12

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by South Carolina Electric & Gas Company (the licensee), dated June 19, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. NPF-12 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 155, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. South Carolina Electric & Gas Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Richard J. Laufer, Acting Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 21, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 155

TO FACILITY OPERATING LICENSE NO. NPF-12

DOCKET NO. 50-395

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
3/4 7-2	3/4 7-2
B 3/4 7-1	B 3/4 7-1

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 155 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 June 19, 2001, South Carolina Electric and Gas Company proposed a license amendment to change the Technical Specifications (TS) for Virgil C. Summer Nuclear Station. The proposed changes would revise TS Table 3.7-1 by lowering the maximum allowable range neutron flux high setpoint values when one or more main steam line safety valves (MSSVs) are inoperable. The proposed changes would also revise the Bases for TS 3/4.7.1.1 to include the algorithm used for determining the new allowable values.

2.0 BACKGROUND

The MSSVs ensure that the secondary system pressure will not exceed 110% of its design pressure during the most severe anticipated operational transient. Table 3.7-1 provides the maximum allowable power range neutron flux high setpoint values, as a percentage of Rated Thermal Power, when one or more MSSVs are inoperable. There are five MSSVs in each main steam line.

Westinghouse has determined that the maximum allowable power level given in the current Table 3.7-1 may not be low enough to prevent a secondary side over pressurization during a loss of load/turbine trip transient. In its Nuclear Safety Advisory Letter (NSAL) 94-001 dated January 20, 1994, Westinghouse reported their determination that the maximum allowable initial power level is not a linear function of available MSSV relief capacity. It was further determined that the current TS provisions for reduced reactor power levels with inoperable MSSVs may not preclude the secondary side pressure from exceeding 110 percent of its design value during a loss of main feedwater transient, particularly at lower power levels. NSAL 94-001 also provided the licensee with an algorithm for determining revised maximum allowable power level with inoperable MSSVs. NRC Information Notice 94-60, Potential Over pressurization of Main Steam System, was issued on August 22, 1994, to address this concern.

3.0 EVALUATION

The licensee has calculated new maximum allowable power level values based on the algorithm contained in Westinghouse's NSAL 94-001. The maximum allowable power range neutron flux

high setpoints were determined by considering the results of the above calculation with 9 percent uncertainty for the high flux trip channel. This process resulted in the maximum allowable power range neutron flux high setpoint values of 100 percent, 58 percent, 41 percent, and 24 percent of rated thermal power for a minimum of five, four, three, and two operable MSSVs, respectively, on any operating steam generator. The proposed new values are lower than the values in the current TS.

Maximum Number of Inoperable MSSVs on Each Operating Steam Generator	**Current TS** Maximum Allowable Power Range Neutron Flux High Setpoint	**New Proposed TS** Maximum Allowable Power Range Neutron Flux High Setpoint
1	87	58
2	65	41
3	43	24

The licensee also proposed to include a footnote to TS Table 3.7-1 to allow plant operation with a maximum allowable power range neutron flux high setpoint of 81 percent when there is one inoperable MSSV in only one steam line, provided the predicted moderator temperature coefficient is negative (i.e., <0 pcm/F) at hot zero power assuming all rods out and no xenon. This provision is supported by the results of a plant-specific analysis under these plant conditions performed by Westinghouse.

The staff has found that the licensee's revised algorithm ensures that the maximum power level allowed for operation with inoperable MSSVs is below the heat-removing capability of the operable MSSVs. This ensures that the secondary system pressure will not exceed 110 percent of its design value. In addition, the proposed new maximum allowable power range neutron flux high setpoint values are more conservative than the values specified in the current TS. Additionally, the proposed exception specified in a note to TS Table 3.7-1 is supported by a plant-specific analysis under the plant conditions restricted by the note. Based on the analysis described above and conservatively derived values, the staff finds that the proposed changes to TS Table 3.7-1 and Bases 3/4.7.1.1 are acceptable.

4.0 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.

5.0 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 (66 FR 57125). 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.

6.0 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.

Principal Contributors: C. Liang
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Date: February 21, 2002

cc:

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