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

February 14, 2002

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1 - INCREASED ALLOWABLE OPERATIONAL LEAKAGE RATE FOR REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES (TAC NO. MB2238)

Dear Mr. Byrne:

The Nuclear Regulatory Commission has issued the enclosed Amendment No.154 to Facility Operating License No. NPF-12 for the Virgil C. Summer Nuclear Station, Unit No. 1. The amendment changes the Technical Specifications (TS) in response to your application dated June 19, 2001.

This amendment revises V. C. Summer TS 3.4.6.2f by increasing the allowable operational leakage rate for 23 of the 35 reactor coolant system pressure isolation valves listed in TS Table 3.4-1. This change implements a size-dependent allowable leakage rate of 0.5 gallon per minute per nominal inch of valve diameter, up to a maximum of 5 gallons per minute per valve.

Additionally, the word “above” from ACTION “c.” of Limiting Condition for Operation (LCO) 3.4.6.2 is removed. This is an editorial change necessitated by the shifting of the specific pressure isolation valve allowable leakage limits from LCO 3.4.6.2.f to Table 3.4-1, which is on a separate page.

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. MB2238.

Sincerely,

/RA/
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. 154 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. 154
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. 154, 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 14, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 154

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 4-19	3/4 4-19
3/4 4-21	3/4 4-21
B 3/4 4-4	B 3/4 4-4
B 3/4 4-5	B 3/4 4-5
B 3/4 4-6	B 3/4 4-6

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 154TO 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

In a submittal dated June 19, 2001, South Carolina Electric & Gas Company (the licensee) proposed changes to the technical specifications (TS) for the Virgil C. Summer Nuclear Station, Unit 1 (Summer). The licensee's proposal would increase the allowable operational leakage rate for 23 of the 35 Reactor Coolant System (RCS) pressure isolation valves (PIVs) listed in TS Table 3.4-1. Currently, the allowable leakage rate for PIVs of all sizes is 1 gallon per minute (gpm). The proposed TS changes would implement a size-dependent allowable leakage rate of 0.5 gpm per nominal inch of valve diameter, up to a maximum of 5 gpm per valve.

2.0 BACKGROUND

PIVs are those valves in the primary RCS that isolate the boundary between the high pressure primary coolant system and connected low pressure piping systems. Leakage rate limits for PIVs were originally implemented by the NRC in response to concerns regarding the inter-system loss-of-coolant accident (LOCA), which was identified in the Reactor Safety Study of 1975, WASH-1400. An intersystem LOCA event involves the failure of two in-series PIVs, which would subject a low pressure system outside of containment to full primary coolant system pressure. The low pressure system would consequently rupture, resulting in a LOCA that would bypass containment, thereby jeopardizing the ability for long-term reactor core cooling.

The Summer TS 3.4.6.2 provides requirements for the maximum allowable leakage for PIVs, including the limiting condition for operation, action requirements and surveillance requirements. TS 3.4.6.2.f limits leakage to 1 gpm for all PIVs in Table 3.4.1. In early 1980, NRC revised the PIV leakage requirement from a single amount of 1 gpm to 0.5 gpm per nominal inch of valve size to a maximum of 5 gpm at an RCS pressure. This change tightened the leakage requirement for smaller valves and relaxed it for larger ones. This revised leakage requirement was incorporated into NUREG-1431, "Standard Technical Specifications for Westinghouse Plants," in September of 1992, and is also consistent with leakage limits specified in the 1995 edition of ASME Code, Section XI, which is the latest edition incorporated by reference in Paragraph (b) of 10 CFR 50.55a.

2.1 Description of Proposed TS Changes

The licensee has proposed to modify Limiting Condition for Operation (LCO) 3.4.6.2.f and Table 3.4-1 of the Summer TS to reflect the proposed allowable leakage rate of 0.5 gpm per inch of valve diameter (up to a maximum of 5 gpm per valve) rather than the current 1 gpm allowable leakage rate for all valve sizes. There are 35 PIVs listed in Table 3.4-1; implementation of this proposed TS change would cause 12 PIVs to remain at the current 1 gpm allowable leakage rate, 11 PIVs to be allowed a leakage rate of 3 gpm, and 12 PIVs to be allowed a leakage rate of 5 gpm. Both current and proposed requirements prescribe that PIV leakage rate testing shall be performed at an RCS pressure within a 40 psi band centered upon the nominal RCS operating pressure of 2235 psig.

Additionally, the licensee has proposed to delete the word “above” from ACTION “c.” of LCO 3.4.6.2. This is an editorial change necessitated by the shifting of the specific PIV allowable leakage limits from LCO 3.4.6.2.f to Table 3.4-1, which is on a separate page.

3.0 EVALUATION

The basis for PIV leakage rate testing is to provide assurance that excessive valve degradation has not occurred and that a potential PIV failure is not imminent. As explained above, the use of a 1 gpm acceptance criterion for the testing of PIVs of all sizes is no longer regarded as the recommended method for providing such assurance. For instance, a single allowable leakage rate for all valve sizes does not recognize that a 1 gpm leakage rate provides a more significant indication of degradation for a 2-inch valve than for a 10-inch valve. Thus, the current 1 gpm leakage rate limit for all PIVs may result in an increased frequency of maintenance on larger PIVs.

A potential concern related to increasing PIV allowable leakage rates is that the low pressure systems isolated by the PIVs may not have sufficient pressure relief capacity to cope with the increased leakage. Inleakage exceeding the pressure relief capacity of a low pressure system would lead to its overpressurization and rupture. The licensee has stated in its submittal that the low pressure systems affected by the proposed TS changes have pressure relief capacities that are greater than their proposed allowed inleakage rates. Though increased allowable leakage rates are being proposed for PIVs of larger sizes, those piping lines with larger PIVs have also been designed with an increased pressure relief capacity. Therefore, the staff finds that the proposed increase in PIV allowable leakage rates will not challenge the pressure relief capacities of the connected low pressure systems.

The staff also reviewed the proposed TS changes against the recommendations contained in NUREG-1431 and inservice testing requirements of ASME Code Section XI regarding PIVs, and finds that the changes are consistent with standard TS for Westinghouse plants and the leakage requirements specified in ASME Code, Section XI.

Based upon the above evaluation, the NRC staff has concluded that the licensee’s proposed TS changes: (1) would satisfy the basis for PIV allowable leakage requirements; (2) would not challenge the pressure relief capacities of connected low pressure systems; and (3) are consistent with standard TS for Westinghouse Plants, NUREG-1431, and the leakage requirements specified in ASME Code Section XI. Therefore, the staff finds the proposed changes to be 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 41626). 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: Y. Huang
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Date: February 14, 2002

cc:

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