January 5, 2001

Mr. Steve Byrne
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 RELIEF REQUEST NO. NRR 00-0259 FOR THE SECOND 10-YEAR INSERVICE INSPECTION INTERVAL (TAC NO. MB0389)

Dear Mr. Byrne:

By letter dated November 20, 2000, as supplemented by letter dated December 15, 2000, South Carolina Electric and Gas Company (the licensee) submitted a request to revise the relief request which had been authorized by letter dated April 11, 1996, for the Virgil C. Summer Nuclear Station (VCSNS). The April 11, 1996, letter and enclosed safety evaluation could be interpreted to apply to only those components listed in the licensee's letters dated December 20, 1995, and March 27, 1996. The revised relief request expands the applicability to all Class 1 and Class 2 insulated pressure retaining bolted connections inside containment which receive a VT-2 visual examination and are normally tested in a high temperature and elevated radiation environment.

The staff has completed its review of this relief request and the proposed alternative. As described in the enclosed safety evaluation, the staff has authorized the use of the proposed alternative pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i) for the remainder of the second 10-year inservice inspection interval at VCSNS.

The staff has no objection to the licensee's proposal to relocate the list of components identified as subject to the boric acid inspections. The licensee proposes to relocate this list to the VCSNS Boric Acid Leak Detection Program for ASME Code Class 1 and 2 bolted connections.

Sincerely,

/RA/
Richard L. Emch, Chief, Section 1
Project Directorate II
Division of Project Licensing Management
Office of Nuclear Reactor Regulation

Docket No: 50-395

Enclosure: As stated

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE SECOND INSERVICE INSPECTION INTERVAL

RELIEF REQUEST NO. NRR 00-0259

VIRGIL C. SUMMER NUCLEAR STATION

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

DOCKET NUMBER 50-395

1.0 INTRODUCTION

Inservice inspection of the ASME Code Class 1, 2 and 3 components shall be performed in accordance with Section XI of the ASME B&PV Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2 and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for the second 10-year inservice inspection (ISI) interval at VCSNS is the 1989 Edition.

By letter dated November 20, 2000, as supplemented by letter dated December 15, 2000, South Carolina Electric and Gas Company (the licensee) submitted a request for relief from certain examination requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI at the Virgil C. Summer Nuclear Station (VCSNS). This request for relief revises a relief request that had been authorized by letter dated April 11, 1996. The April 11, 1996, letter and enclosed safety evaluation could be interpreted to apply to only those components listed in the licensee's letters dated December 20, 1995, and March 27, 1996. The licensee's letter dated November 20, 2000, requested that the relief be expanded. The information provided by the licensee in support of

the request for relief from Code requirements has been evaluated pursuant to the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i). The basis for disposition is documented below.

2.0 LICENSEE'S RELIEF REQUEST

2.1 Code Requirement (as stated):

ASME Code, Section XI, IWA-5242(a) requires that, for systems borated for the purpose of controlling reactivity, insulation shall be removed from pressure retaining bolted connections for visual examination VT-2.

2.2 Licensee's Proposed Alternative (as stated):

It is proposed that insulated bolted connections inside containment on Class 1 systems that are borated for the purpose of controlling reactivity be examined each refueling outage at atmospheric or static pressure. The examination will be performed with insulation removed. Similarly, insulated bolted connections on Class 2 systems inside containment that are borated for the purpose of controlling reactivity will be examined once each examination period. In addition to the preceding, all of the piping and components associated with these Class 1 and 2 systems inside containment will be examined at their required frequencies and under the conditions specified in IWA-5000, IWB-5000 and IWC-5000, with the exception of the removal of insulation from the bolted connections. These examinations will be performed utilizing a four hour hold time.

2.3 Licensee's Basis for Relief (as stated):

Inside containment, the referenced systems are tested in an environment that is hazardous to personnel. Ambient temperature is between 100 and 120 degrees Fahrenheit. Personnel must manipulate undesirable work platforms such as ladders against components that could be in excess of 500 degrees Fahrenheit. Removing and reinstalling insulation under these conditions is difficult to perform and is not considered to be consistent with the ALARA (as low as reasonably achievable) concept when compared to the proposed alternative requirements.

The following supports this position:

1. The ASME issued Code Case N-533 to provide an alternative to the removal of insulation at bolted connections for Class 1 systems.

2. Surry Power Station was granted relief from the referenced Code Section in NRC letter #95-404 dated 07/19/95.

3. Pre-existing boric acid leaks will be detected at atmospheric or static pressures due to residue deposits.

4. A four hour hold time will ensure that boric acid leaks that may develop during the outage will be identified during the VT-2 examination performed prior to startup.

5. The alternative examination will not be applied to post repair/replacement activities on bolted connections.

Therefore, SCE&G believes that the implementation of this relief request, as proposed, provides equivalent quality and safety to that currently approved.

3.0 STAFF EVALUATION

The Code requires the removal of all insulation from pressure-retaining bolted connections in systems borated for the purpose of controlling reactivity when performing VT-2 visual examinations during system pressure tests. The Code requires this examination each refueling outage for Class 1 systems, while Class 2 systems are required to receive this examination each inspection period. As an alternative to the Code, the licensee has proposed an alternative analogous to Code Case N-533-1, *Alternative Requirements for VT-2 Visual Examination of Class 1, 2 and 3 Insulated Pressure Retaining Bolted Connections, Section XI, Division 1,* for borated Class 1 and 2 systems at VCSNS. This code case was originally written for Class 1 systems (Code Case N-533).

For borated Class 1 and 2 systems inside containment, the staff finds that the licensee's alternative provides an acceptable approach to ensuring the leak-tight integrity of systems borated for the purpose of controlling reactivity. The approach includes a system pressure test and a VT-2 visual examination that will be performed each period for Class 2 systems and each refueling outage for Class 1 systems. Under the proposed alternative, the licensee will perform the system pressure tests with the insulation in place using a 4-hour hold time. The 4-hour hold time will allow significant leakage to penetrate the insulation, thus providing a means of detecting such leakage with the insulation in place. By removing the insulation each refueling outage for Class 1 systems and each inspection period for Class 2 systems, the licensee will be able to detect minor leakage indicated by the presence of boric acid crystals or residue and to take appropriate corrective action. The staff continues to find that this two-step approach will provide an acceptable level of quality and safety for Class 1 and 2 bolted connections in borated systems inside containment.

4.0 STAFF CONCLUSION

Based on its evaluation, the staff concludes that the proposed alternative for use on all Class 1 and 2 borated systems inside containment is authorized pursuant to 10 CFR 50.55a(a)(3)(i) in that it provides an acceptable level of quality and safety. The alternative is authorized for the remainder of the second 10-year inservice inspection interval at VCSNS.

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Date: January 5, 2001

cc:

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