

August 7, 1989

Docket No. 50-395

DISTRIBUTION  
See attached sheet

Mr. O. S. Bradham  
Vice President, Nuclear Operations  
South Carolina Electric & Gas Company  
Virgil C. Summer Nuclear Station  
P.O. Box 88  
Jenkinsville, South Carolina 29065

Dear Mr. Bradham:

SUBJECT: ISSUANCE OF AMENDMENT NO. 80 TO OPERATING LICENSE NPF-12 - V. C. SUMMER  
NUCLEAR STATION, UNIT NO. 1, REGARDING D. C. SOURCES  
(TAC NO. 72727)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 80 to Facility Operating License No. NPF-12 for the Virgil C. Summer Nuclear Station, Unit No. 1. The Amendment consists of changes to the Technical Specifications (TS) in response to your application dated August 24, 1988.

Your August 24, 1988 submittal requested a revision to the average electrolyte temperature referenced in TS 4.8.2.1.b.3 and the value for the battery capacity as referenced in TS 4.8.2.1.e. This Amendment grants this request.

A copy of the related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's Bi-weekly Federal Register notice.

Sincerely,

Ronnie Lo/

John J. Hayes, Jr., Project Manager  
Project Directorate II-1  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

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Enclosures:

1. Amendment No. 80 to NPF-12
2. Safety Evaluation

cc w/enclosures:  
See next page

[SUM ISSU AMEND 72727]

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*1/1*

OFC	:LA:PD21:DRPR:PM:PD21:DRPR:D:PD21:DRPR:	:	:	:
NAME	:PAnderson:JHayes:bd:EAdensam:	:	:	:
DATE	:08/7/89:08/7/89:08/7/89:	:	:	:

*AP/gh*

Mr. O. S. Bradham  
South Carolina Electric & Gas Company

Virgil C. Summer Nuclear Station

cc:

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Chairman, Fairfield County Council  
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Mr. Heyward G. Shealy, Chief  
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South Carolina Electric & Gas Company  
Mr. A. R. Koon, Jr., Manager  
Nuclear Licensing  
Virgil C. Summer Nuclear Station  
P. O. Box 88  
Jenkinsville, South Carolina 29065

AMENDMENT NO. 80 TO FACILITY OPERATING LICENSE NO. NPF-12 - SUMMER, UNIT NO. 1

Docket File

NRC PDR

Local PDR

PDII-1 Reading

S. Varga (14E4)

G. Lainas

E. Adensam

P. Anderson

J. Hayes

F. Rosa

OGC

D. Hagan (MNBB 3302)

E. Jordan (MNBB 3302)

B. Grimes (9A2)

T. Meeks (4) (P1-137)

W. Jones (P-130A)

J. Calvo (11D3)

ACRS (10)

GPA/PA

ARM/LFMB

Chopra (8-D-20)

cc: Licensee/Applicant Service List



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

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. 80  
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 August 24, 1988, 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:

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(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 80, 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

Ronnie Lo/

Elinor G. Adensam, Director  
Project Directorate II-1  
Division of Reactor Projects I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: August 7, 1989

*13 add*

OFC	:LA:PD21:DRPR:PM:PD21:DRPR:	OGC	:D:PD21:DRPR:	SEIB	:	:
NAME	: PAnderson	: JHayes:bd	:	: EAdensam	: FRosa	:
DATE	:07/19/89	:07/19/89	:07/2/89	:08/7/89	:08/4/89	:

ATTACHMENT TO LICENSE AMENDMENT NO. 80  
TO FACILITY OPERATING LICENSE NO. NPF-12  
DOCKET NO. 50-395

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change. Corresponding overleaf pages are also provided to maintain document completeness.

Remove Pages

3/4 8-9 (overleaf)

3/4 8-10

Insert Pages

3/4 8-9 (overleaf)

3/4 8-10

## ELECTRICAL POWER SYSTEMS

### 3/4.8.2 D.C. SOURCES

#### OPERATING

#### LIMITING CONDITION FOR OPERATION

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3.8.2.1 As a minimum the following D.C. electrical sources shall be OPERABLE:

- a. 125-volt Battery bank No. 1A and its associated full capacity charger.
- b. 125-volt Battery bank No. 1B and its associated full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

#### ACTION:

- a. With one of the required battery banks inoperable, restore the inoperable battery bank to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one of the required full capacity chargers inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1.a.1 within one hour, and at least once per 8 hours thereafter. If any Category A limit in Table 4.8-2 is not met, declare the battery inoperable.

#### SURVEILLANCE REQUIREMENTS

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4.8.2.1 Each 125-volt battery bank and charger shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
  1. The parameters in Table 4.8-2 meet the Category A limits, and
  2. The total battery terminal voltage is greater than or equal to 129 volts on float charge.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

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- b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110-volts, or battery overcharge with battery terminal voltage above 150-volts, by verifying that:
  - 1. The parameters in Table 4.8-2 meet the Category B limits,
  - 2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than  $150 \times 10^{-6}$  ohms, and
  - 3. The average electrolyte temperature of 10 of the connected cells is  $\geq 65^{\circ}\text{F}$ .
- c. At least once per 18 months by verifying that:
  - 1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
  - 2. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material,
  - 3. The resistance of each cell-to-cell and terminal connection is less than or equal to  $150 \times 10^{-6}$  ohms, and
  - 4. The battery charger will supply at least 300 amperes at 132 volts for at least 8 hours.
- d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.
- e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 90% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test may be performed in lieu of the battery service test required by Surveillance Requirement 4.8.2.1.d.
- f. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 80 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

In a letter dated August 24, 1988, South Carolina Electric & Gas Company (the licensee) submitted a proposed change to Technical Specifications (TS) Section 3/4.2, D. C. Sources, of the V. C. Summer Nuclear Station. The purpose of the TS amendment request was to modify the value for the average electrolyte temperature referenced in TS 4.8.2.1.b.3 and the value for the battery capacity in TS 4.8.2.1.e. The proposed amendment request would change the average electrolyte temperature from 60 to 65 degrees Fahrenheit and the battery capacity from 80% to 90%.

2.0 EVALUATION

The licensee identified during an emergency power review that the calculation for sizing ESF batteries 1A and 1B used a derating factor for aging and temperature more conservative than those identified in the TS. The calculations used an aging derating factor of 90% and a temperature derating factor of 94% (65 degrees Fahrenheit) as opposed to an 80% aging derating factor and 90% (60 degrees Fahrenheit) temperature derating factor, as presently stated in the TS. It was identified, based upon a letter from the battery manufacturer, that the original calculations of December 26, 1980 showed the capacity of the battery at the end of its useful life to be 90%. With respect to the temperature derating factor, the licensee indicated that a factor of 94% had been utilized to account for the effect of minimum temperature. Table 3.11-3 of the Summer Final Safety Analysis Report (FSAR) identified the minimum design temperature for the battery room to be 65 degrees Fahrenheit. In actual plant operation, the battery room temperature is controlled by a thermostat which is set to maintain room temperature at 75 degrees Fahrenheit. If the control system malfunctions, a bistable controller connected to a temperature element in the room will close the supply damper if the temperature falls below 70 degrees Fahrenheit. The damper will reopen if the temperature increases.

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The licensee indicated that the standard temperature for stating cell capacity is 77 degrees Fahrenheit and that temperature correction factors are used to determine the additional battery capacity required at lower temperatures to achieve the same battery performance as if it were 77 degrees Fahrenheit. The licensee stated in their submittal that the electrolyte temperature is assured to be at a temperature equal to or greater than ambient because of the heating effects of the float charge. Thus, the minimum room design temperature of 65 degrees Fahrenheit was used in conjunction with the vendor supplied curves for the specific battery in use to establish the derating factor of 94%.

The staff has reviewed the licensee's submittal. The bases for this TS indicate that by verifying that the average electrolyte temperature is above the minimum for which the battery was sized is one of a number of surveillances which all together ensure the effectiveness of the charging system, the ability to handle high discharge rates and the battery capacity at a given time with the rated capacity. The staff has reviewed the proposed changes. The changes proposed reflect the actual design basis for the facility and are actually more conservative than the values identified in the TS. Therefore, the staff has determined that the licensee's request is acceptable.

### 3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in the 10 CFR Part 20 and changes to the surveillance requirements. The 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 off-site 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 Section 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.

### 4.0 CONCLUSION

The Commission has issued a "Notice of Consideration of Issuance of Amendment to Facility Operating License and Propose No Significant Hazards Consideration Determination and Opportunity for Hearing" which was published in the FEDERAL REGISTER on May 3, 1989 (54 FR 18959) and consulted with the State of South Carolina. No public comments or request for hearing were received, and the State of South Carolina did not have comments.

The staff has concluded, based upon 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: J. Hayes

Dated: August 7, 1989