

April 2, 1987

Docket No. 50-395

DISTRIBUTION

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Vice President, Nuclear Operations
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Dear Mr. Nauman:

The Commission has issued the enclosed Amendment No. 62 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 in response to your application dated December 9, 1986, as supplemented March 2, 1987.

The amendment allows the licensee the flexibility to reconstitute fuel assemblies. The amendment is effective as of its date of issuance, and shall be implemented within 30 days of issuance.

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

Sincerely,

ISI

Jon B. Hopkins, Project Manager
PWR Project Directorate #2
Division of PWR Licensing-A
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 62 to NPF-12
2. Safety Evaluation

cc w/enclosures:

See next page

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P PDR

LA:PAD#2
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3/18/87

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JHopkins:aj
3/18/87

Handwritten notes:
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3/30/87

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LRubenstein
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4/1/87

Mr. D. A. Nauman
South Carolina Electric & Gas Company

Virgil C. Summer Nuclear Station

cc:

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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. 62
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 and South Carolina Public Service Authority (the licensees) dated December 9, 1986, as supplemented March 2, 1987, 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:

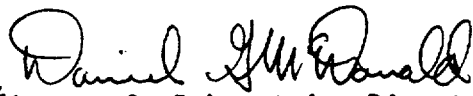
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(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 62, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

acting for 
Lester S. Rubenstein, Director
PWR Project Directorate #2
Division of PWR Licensing-A
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 2, 1987

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 62 TO FACILITY OPERATING LICENSE NO. NPF-12

DOCKET NO. 50-395

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page. The revised page is identified by amendment number and contains a vertical line indicating the area of change.

Remove Page

5-6

Insert Page

5-6

DESIGN FEATURES

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The reactor core shall contain 157 fuel assemblies with each fuel assembly normally containing 264 fuel rods clad with Zircaloy-4, except that limited substitution of fuel rods by filler rods consisting of Zircaloy-4 or stainless steel, or by vacancies, may be made if justified by a cycle specific reload analysis. Each fuel rod shall have a nominal active fuel length of 144 inches. The initial core loading shall have a maximum enrichment of 3.2 weight percent U-235. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum enrichment of 4.3 weight percent U-235.

CONTROL ROD ASSEMBLIES

5.3.2 The reactor core shall contain 48 full length control rod assemblies. The full length control rod assemblies shall contain a nominal 142 inches of absorber material. The nominal values of absorber material shall be 80 percent silver, 15 percent indium and 5 percent cadmium. All control rods shall be clad with stainless steel tubing.

5.4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

5.4.1 The reactor coolant system is designed and shall be maintained:

- a. In accordance with the code requirements specified in Section 5.2 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,
- b. For a pressure of 2485 psig, and
- c. For a temperature of 650°F, except for the pressurizer which is 680°F.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is 9407 ± 100 cubic feet at a nominal T_{avg} of 586.8°F.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 62 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

INTRODUCTION

By letter dated December 9, 1986, South Carolina Electric and Gas Company (the licensee) requested a change to Facility Operating License No. NPF-12 for the Virgil C. Summer Station. The proposed change is to Technical Specification 5.3.1, "Fuel Assemblies." The proposed revision would allow the licensee the flexibility to reconstitute fuel assemblies in order to reduce coolant activity and utilize the remaining energy in fuel assemblies which contain small numbers of defective fuel rods. Supplemental and background information was provided by letter dated March 2, 1987, which did not change the initial amendment request; therefore, this amendment was not renoticed.

EVALUATION

The intent of the proposed change to the Summer Technical Specifications is to allow for the reduction in the number of fuel rods per assembly in cases where leaking fuel rods can be identified and replaced with Zircaloy-4 or stainless steel rods or vacancies. Replacement of leaking fuel rods will permit utilization of the remaining energy in fuel assemblies containing defective fuel rods.

In general, substitution of a limited number of fuel rods with filler rods or water holes has a negligible effect on core physics parameters and consequently on the safety analysis. The wording of the change specifically provides that the substitutions may be made if justified by a cycle specific reload analysis.

The licensee states that in each reload core the reconstituted assemblies will be evaluated using standard methods described in the approved Westinghouse Reload Methodology Topical Report, WCAP-9272. The reload analysis will ensure that the safety criteria and design limits, including peaking factors and core average linear heat rate effects, are not exceeded. Thus, the final safety evaluation of implementation of substitutions allowed by this change will be made as part of the reload analysis performed for the affected cycle.

The radiological risk due to fuel reconstitution will be no greater than that resulting from the "worst case" single fuel assembly handling accident analyzed in the Virgil C. Summer Final Safety Analysis Report (FSAR). The FSAR fuel handling accident postulates a worst-case radiological release due to the dropping of a fuel assembly, which results in the rupture of all assembly fuel rods and their subsequent fission product release. This FSAR accident is a bounding analysis for fuel reconstitutions since only one fuel assembly at a time may be moved and reconstituted.

The process of irradiated fuel rod movement from fuel assemblies has been extensively utilized by Westinghouse in cooperation with various utilities. These movements have been part of engineering product evaluation programs and have utilized fuel assemblies having removable rods whereby access is provided to the rods without nozzle removal.

Also, a fuel modification campaign was recently completed by Westinghouse for a domestic utility. In this case, three fuel assemblies were reassembled (full transfer of all rods to a new skeleton) and two reconstituted (substitution of several stainless rods for detected failed rods). This effort was implemented by bottom nozzle removal.

The licensee has experienced a limited amount of fuel rod movement similar to that involved with reconstitution with the Vantage 5 demonstration assemblies currently in the reactor core. On previous occasions, a small number of pins have been removed and then replaced in those assemblies. Also, the NRC staff notes that the last NRC Systematic Assessment of Licensee Performance conducted in 1986 for the V.C. Summer facility had ratings of Category 1 for the functional area of "Radiological Controls," Category 2 for the functional area of "Refueling/Outages," and Category 2 for the functional area of "Quality Programs and Administrative Controls Affecting Quality."

Based on the above evaluation, the NRC staff finds that there is industry experience with individual fuel rod movement, that fuel assembly reconstitution is bounded by FSAR accident analysis, and that reconstituted assemblies will have cycle specific evaluations performed using an approved model. Therefore, the proposed change is acceptable.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 offsite, 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.

CONCLUSION

We have 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, 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.

Dated: April 2, 1987

Principal Contributors:

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