



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

November 23, 1985

Docket No. 50-395

Mr. D. A. Nauman
Vice President Nuclear Operations
South Carolina Electric & Gas Company
P.O. Box 764
Columbia, South Carolina 29218

Dear Mr. Nauman:

Subject: Issuance of Amendment No. 47 to Facility Operating
License NPF-12 Virgil C. Summer Nuclear Station,
Unit No. 1

The Nuclear Regulatory Commission has issued Amendment No. 47 to Facility Operating License NPF-12 for the Virgil C. Summer Nuclear Station, Unit No. 1, located in Fairfield County, South Carolina. This amendment is in response to your letter dated October 8, 1982, and supplemented April 26, 1984, and August 2 and September 25, 1985.

The amendment modifies the Technical Specifications related to leakage rate testing of certain containment isolation valves. The amendment is effective as of its date of issuance.

A copy of the related safety evaluation supporting Amendment No. 47 to Facility Operating License NPF-12 is enclosed.

Notice of issuance will be included in the Commission's next monthly Federal Register notice.

Sincerely,

for *L. L. Kintner*
Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Enclosures:

1. Amendment No. 47
2. Safety Evaluation

cc w/enclosure:
See next page

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Virgil C. Summer Nuclear Station

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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. 47
License No. NPF-12

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to the Virgil C. Summer Nuclear Station, Unit No. 1 (the facility) Facility Operating License No. NPF-12 filed by the South Carolina Electric & Gas Company acting for itself and South Carolina Public Service Authority (the licensees), dated October 8, 1982, and supplemented April 26, 1984, and August 2 and September 25, 1985, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the 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 set forth in 10 CFR Chapter I;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public;
 - E. The issuance of this license 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 hereby amended by page changes to the Technical Specifications as indicated in the attachments 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

The Technical Specifications contained in Appendix A, as revised through Amendment No. 47, are hereby incorporated into this license. South Carolina Electric & Gas Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for J J Kintner
Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Date of Issuance: November 23, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 47

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.

Amended
Page

3/4 6-20a
3/4 6-20b
3/4 6-20c

TABLE 3.6-1 (Continued)
CONTAINMENT ISOLATION VALVES

<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>MAXIMUM ISOLATION TIME (SEC)</u>
<u>C. REACTOR BUILDING PURGE SUPPLY AND EXHAUST ISOLATION</u>		
1. 0001A-AH	Reactor Building Purge Supply	5
2. 0001B-AH	Reactor Building Purge Supply	5
3. 0002A-AH	Reactor Building Purge Exhaust	5
4. 0002B-AH	Reactor Building Purge Exhaust	5
5. 6056-HR	Alternate Reactor Building Purge Supply Line	5
6. 6057-HR	Alternate Reactor Building Purge Supply Line	5
7. 6066-HR	Alternate Reactor Building Purge Exhaust Line	5
8. 6067-HR	Alternate Reactor Building Purge Exhaust Line	5
<u>D. MANUAL (1)</u>		
1. 8767-DN	Demineralized Water Line	N/A
2. 8768-DN	Demineralized Water Line	N/A
3. 6772-FS	Fire Service Hose Reel Supply	N/A
4. 6773-FS	Fire Service Hose Reel Supply	N/A
5. 2679-IA	Breathing Air Supply Line	N/A
6. 2680-IA	Breathing Air Supply Line	N/A
7. 6587-NG	Nitrogen Supply To Steam Generators	N/A
8. 2912-SA	Reactor Building Service Air	N/A
9. 6671-SF	Refueling Cavity Drain Line	N/A
10. 6672-SF	Refueling Cavity Drain Line	N/A
11. 6697-SF	Refueling Cavity Fill Line	N/A
12. 6698-SF	Refueling Cavity Fill Line	N/A
13. 7135-WL	Reactor Coolant Drain Tank Discharge To Waste	N/A
<u>E. REMOTE MANUAL (2)</u>		
1. 9602-CC	Component Cooling To R. C. Pumps	N/A
2. 8102A-CS#	Seal Injection To Reactor Coolant Pump A	N/A
3. 8102B-CS#	Seal Injection To Reactor Coolant Pump B	N/A
4. 8102C-CS#	Seal Injection To Reactor Coolant Pump C	N/A

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (SEC)
<u>E. REMOTE MANUAL (Continued)</u>		
5. 8107-CS	Charging Line To Regenerative Heat Exchange	N/A
6. 6050B-HR	Hydrogen Analyzer Return Line	N/A
7. 6051A-HR	Hydrogen Analyzer Supply Line	N/A
8. 6051B-HR	Hydrogen Analyzer Supply Line	N/A
9. 6051C-HR	Hydrogen Analyzer Supply Line	N/A
10. 6052A-HR	Hydrogen Analyzer Return Line	N/A
11. 6052B-HR	Hydrogen Analyzer Return Line	N/A
12. 6053A-HR	Hydrogen Analyzer Supply Line	N/A
13. 6053B-HR	Hydrogen Analyzer Supply Line	N/A
14. 8701A-RH#	RHR Pump Suction From Reactor Coolant Loop A	N/A
15. 8701B-RH#	RHR Pump Suction From Reactor Coolant Loop C	N/A
16. 8801A-SI	Boran Injection Tank To Reactor Coolant Loops	N/A
17. 8801B-SI	Boran Injection Tank To Reactor Coolant Loops	N/A
18. 8811A-SI	RHR Pump A Suction From Recirculation Sump	N/A
19. 8811B-SI	RHR Pump B Suction From Recirculation Sump	N/A
20. 8884-SI	High Head Safety Injection To Reactor Coolant Loops	N/A
21. 8885-SI	High Head Safety Injection To Reactor Coolant Loops	N/A
22. 8886-SI	High Head Safety Injection To Reactor Coolant Loops	N/A
23. 8888A-SI	Low Head Safety Injection To Reactor Coolant Loops	N/A
24. 8888B-SI	Low Head Safety Injection To Reactor Coolant Loops	N/A
25. 8889-SI	Low Head Safety Injection To Reactor Coolant Loops	N/A
26. 3003A-SP	Supply To Reactor Building Spray Nozzles	N/A
27. 3003B-SP	Supply To Reactor Building Spray Nozzles	N/A
28. 3004A-SP	Spray Pump A Suction From Recirculation Sump	N/A
29. 3004B-SP	Spray Pump B Suction From Recirculation Sump	N/A
30. 3103A-SW	Service Water From Reactor Building Cooling Unit A	N/A
31. 3103B-SW	Service Water From Reactor Building Cooling Unit B	N/A
32. 3106A-SW	Service Water To Reactor Building Cooling Unit A	N/A
33. 3106B-SW	Service Water To Reactor Building Cooling Unit B	N/A
34. 3110A-SW	Service Water To Reactor Building Cooling Unit A	N/A
35. 3110B-SW	Service Water To Reactor Building Cooling Unit B	N/A

TABLE 3.6-1 (Continued)
CONTAINMENT ISOLATION VALVES

<u>VALVE NUMBER</u>		<u>FUNCTION</u>	<u>MAXIMUM ISOLATION TIME (SEC)</u>
<u>F. CHECK</u>			
1. 7541-AC		CRDM Coolant Water Inlet Line	N/A
2. 7544-AC		CRDM Coolant Water Outlet Line	N/A
3. 9570-CC		Component Cooling To R. C. Pump Bearings	N/A
4. 9689-CC		Component Cooling From R. C. Pump Bearings	N/A
5. 8103-CS		Reactor Coolant Pump Seal Water Return	N/A
6. 8368A-CS#		Seal Injection To R. C. Pump A	N/A
7. 8368B-CS#		Seal Injection To R. C. Pump B	N/A
8. 8368C-CS#		Seal Injection To R. C. Pump C	N/A
9. 8381-CS		Charging Line To Regenerative Heat Exchanger	N/A
10. 6799-FS		Fire Service Deluge To Charcoal Filters	N/A
11. 2661-IA		Instrument Air Supply To Reactor Building	N/A
12. 6588-NG		Nitrogen Supply To Steam Generators	N/A
13. 8046-RC		Pressurizer Relief Tank Makeup Water Line	N/A
14. 2913-SA		Service Air Supply To Reactor Building	N/A
15. 3009A-SP		Supply To Reactor Building Spray Nozzles	N/A
16. 3009B-SP		Supply To Reactor Building Spray Nozzles	N/A
17. 8947-SI		Accumulator Nitrogen Supply	N/A
18. 8861-SI		Fill Line To Accumulators	N/A

#Valve not subject to Type "C" leakage test.

- (1) Manual valves may be opened on an intermittent basis under administrative control.
- (2) Remote manual valve positions are maintained by administrative control.
- (3) The provisions of Specification 3.0.4 are not applicable from December 28, 1982, until July 1, 1983.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 47 TO FACILITY OPERATING LICENSE NPF-12

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

VIRGIL C. SUMMER NUCLEAR STATION, UNIT 1

I. INTRODUCTION

By letters dated October 8, 1982, April 26, 1984, August 2 and September 25, 1985, the South Carolina Electric & Gas Company (the licensee) proposed certain changes to the facility Technical Specifications (TS) concerning Appendix J leakage rate testing of certain containment isolation valves.

The licensee proposes to change TS Table 3.6-1, "Containment Isolation Valves," as follows:

- (1) Two valves in the dead weight tester system would be deleted from the table;
- (2) Six valves in the reactor coolant pump seal injection lines would have footnotes added to indicate that they are not subject to Type C (local) leakage rate testing; and
- (3) Two valves in the Residual Heat Removal (RHR) system pump suction lines from the reactor coolant system would also be footnoted as not subject to Type C testing.

II. EVALUATION

Dead Weight Tester System Valves 809A and B

These two valves are being removed as a result of a plant modification. The penetration will then be plugged and seal-welded closed, and will no longer require local leakage rate testing. Therefore, the staff concludes that it is appropriate to delete these valves from TS Table 3.6-1.

Reactor Coolant Pump Seal Injection Valves SVT-8102 A, B, and C-CS;
XVC-8368 A, B, and C-CS

Valves 8102 A, B, and C are reactor coolant pump seal injection line globe valves located outside of containment. Valves 8368 A, B, and C are seal injection line check valves located inside containment on the same lines as the 8102 valves. These lines are filled with water from the charging system via the charging pumps. These line sense a pump discharge pressure of 2700 psig.

The seal injection system is normally in service and in operation at all times, except when the plant is in cold shutdown and reactor coolant pump seal maintenance is required. In the event of an accident, e.g., a large break LOCA, the seal injection system remains in operation receiving water from the charging pumps and injecting into the Reactor Coolant pump seals. During all phases of the accident (injection - cold leg recirculation - hot leg recirculation), the seal injection system continues to inject water into the Reactor Coolant pump seals to ensure the pump seals remain cooled. If closed during an accident condition, such as for a suspected seal injection line break, the charging pumps will maintain pump discharge pressure against the outside containment side of the valve. In addition, valve leakage through the valve leakoffs would come from the higher pressure side of the valves. This would be the charging pump side (outboard) of the 8102 valves. The 8368 valves do not have valve leakoffs, since they are check valves. There are no plant procedures which require closure of the seal injection valves during the first 30 days after onset of the accident.

During a safety injection and subsequent containment isolation, charging pump suction water is provided by the refueling water storage tank (RWST). Once this supply is exhausted, suction is automatically switched to the reactor building sump. Therefore, an inventory of water is always assured. Valves 8102 A, B, C and 8368 A, B, C are part of the seal water injection portion of the Safety Injection System B Train. Due to normally open cross-tie valves, the Safety Injection System A and B Trains are designed to operate with a single failure of any active component. Operability of the containment isolation valves is not required to maintain a water seal. Therefore, with the exception of "Loss of Offsite Power," at least one charging pump maintains pressure in both trains (A and B) for all accident scenarios involving a containment isolation signal. During "Loss of Offsite Power," the charging pumps will lose power for approximately 10 seconds while the diesel generators are starting. Since the lines remain filled with water during this period, there would not be leakage of containment atmosphere through these lines. All piping and components required to maintain the water seal are ASME safety class 2 or better and seismic Category 1.

Based on the foregoing, the staff concludes that the subject valves will remain sealed with water during a LOCA and do not constitute potential containment atmosphere leak paths. Therefore, Appendix J does not require that they be Type C tested, and TS Table 3.6-1 may be revised to note that they are not subject to Type C testing.

Residual Heat Removal System Valves SVG-8701A and B-RH

Valves 8701 A and B provide containment isolation for the Residual Heat Removal (RHR) system pump suctions from the reactor coolant system. They are gate valves located just inside containment. For these valves, the water seal consists of water filled piping that rises from the inboard side of these valves. This piping is outside the missile barrier and is not subject to pipe break as a result of the accident. Since the

8701 valves are inside containment, valve leakage from valve leakoffs remains inside the containment. Therefore, the water seal is bounded by the containment isolation valve and the point where the pipe penetrates the missile barrier. The water volume in the piping bounded by these two points is the thirty day inventory. Water leakage through the valve over thirty days must be less than that volume and is to be verified by a leak rate test performed in accordance with station procedures and the TS bases. These valves are motor operated but have no automatic function to change position under signals such as safety injection or Phase A or B isolation. The valves require operator action to open or close. They also have interlocks to prevent inadvertent operator opening during Modes 1, 2 and 3. The valves fail as-is and, therefore, are considered to remain closed in Modes 1, 2 and 3. Therefore, there are no active components whose failure would affect the water seal in these Modes.

In Mode 4 these valves are opened to initiate RHR. If one fails open, then the valve is not performing a containment isolation function and its leakage characteristics are of no consequence. If the valves close, there would not be a loss of water inventory while the valves are closing, because there is another vertical riser of pipe on the outboard of the valves. Therefore, the water seal would be maintained as necessary in Mode 4.

All piping and components required to maintain the water seal, including the vertical riser on the outboard of the valves, are ASME safety class 2 or better and seismic Category I.

Based on the foregoing, the staff concludes that the subject valves will remain sealed with water during a LOCA and do not constitute potential containment atmosphere leak paths. Therefore, Appendix J does not require that they be Type C tested, and TS Table 3.6-1 may be revised to note that they are not subject to Type C testing.

Therefore, the staff concludes that the proposed changes to TS Table 3.6-1 are acceptable.

III. ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation and use of facility component located within the restricted area as defined in 10 CFR Part 20 and changes in 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 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 Sec 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.

IV. CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (50 FR 43034) on October 23, 1985, and consulted with the state of South Carolina. No public comments were received, and the state of South Carolina did not have any comments.

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.

Principal Contributors: Jon B. Hopkins, Licensing Branch No. 4, DL
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Dated: November 23, 1985

November 23, 1985

AMENDMENT NO. 47 TO FACILITY OPERATING LICENSE NO. NPF-12 - Virgil C. Summer Unit 1

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