

May 20, 1986

Docket No. 50-395

DISTRIBUTION

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Vice President Nuclear Operations
South Carolina Electric & Gas Company
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ACRS (10)
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*L. Tremper
N. Thompson
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Dear Mr. Nauman:

The Nuclear Regulatory Commission has issued Amendment No. 50 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 partial response to your letter dated June 10, 1985.

The amendment would revise Technical Specification 3/4 8.1, "A.C. Sources," and its bases, and is based on NRC Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability." The proposed revision will reduce the number and severity of diesel generator starts, thereby decreasing engine wear and restructure the action and surveillance requirements for clarity and useability. The amendment is effective 7 days after its date of issuance.

A copy of the related safety evaluation is enclosed. A Notice of issuance will be included in the Commission's next bi-weekly Federal Register notice.

Sincerely,

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

Enclosures:

- 1. Amendment No. 50
- 2. Safety Evaluation

cc w/enclosure:
See next page

*See previous concurrence

*LA: PAD#2
DM: Tler
5/20/86

*PM: PAD#2
JHopkins:hc
5/20/86

D: PAD#2 for
LRubenstein
5/20/86

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4/ /86

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E. Jordan Gray File
Peter Kang

Dear Mr. Nauman:

The Nuclear Regulatory Commission has issued Amendment No. 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 partial response to your letter dated June 10, 1985 as supplemented by letter dated December 6, 1985.

The amendment would revise Technical Specification 3/4 8.1, "A.C. Sources," and its bases, and is based on NRC Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability." The proposed revision will reduce the number and severity of diesel generator starts, thereby decreasing engine wear and restructure the action and surveillance requirements for clarity and useability. The amendment is effective 7 days after its date of issuance.

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See next page

LA:PAD#2
D:Miller
5/1/86

PM:PAD#2
JHopkins:hc
4/13/86

D:PAD#2
LRubenstein
4/ 186

OELD (4/14/86) w/ noted revisions to SE and notice
m Young
4/14/86

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

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.50
License No. NPF-12

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the South Carolina Electric & Gas Company acting for itself and South Carolina Public Service Authority (the licensees), dated June 10, 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.

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PDR

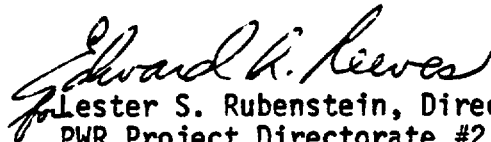
2. Accordingly, the license is hereby amended by changes to the Technical Specifications as indicated in the attachments to this license amendment and paragraph 2.C(2) of Facility Operating License No. NPF-12 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 50 , 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.

3. This license amendment is effective seven days after its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



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: May 20, 1986

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO.50 TO FACILITY OPERATING LICENSE NO. NPF-12

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

<u>Remove Pages</u>	<u>Insert Pages</u>
3/4 8-2	3/4 8-2
3/4 8-3	3/4 8-3
3/4 8-4	3/4 8-4
3/4 8-5	3/4 8-5
3/4 8-6	3/4 8-6
--	3/4 8-6a
3/4 8-7	3/4 8-7

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and
- b. Two separate and independent diesel generators, each with:
 1. A separate day fuel tank containing a minimum volume of 300 gallons of fuel,
 2. A separate fuel storage system containing a minimum volume of 42,500 gallons of fuel, and
 3. A separate fuel transfer pump.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With either an offsite circuit or diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1.a and 4.8.1.1.2.a.4 within one hour and at least once per 8 hours thereafter; restore at least two offsite circuits and two diesel generators to OPERABLE status within 72 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 offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1.a and 4.8.1.1.2.a.4 within one hour and at least once per 8 hours thereafter; restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two offsite circuits and two diesel generators to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. Demonstrated OPERABLE at least once per 18 months during shutdown by manually transferring unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
 - 1. Verifying the fuel level in the day tank and fuel storage tank.
 - 2. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
 - 3. Verifying the diesel generator can start* and accelerate to synchronous speed (504 rpm) with generator voltage and frequency at 7200 ± 720 volts and 60 ± 1.2 Hz.
 - 4. Verifying the generator is synchronized, gradually loaded* to greater than or equal to 4250 kW and operates for at least 60 minutes.
- b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by removing accumulated water from the day tank.
- c. At least once per 92 days and from new fuel prior to addition to the storage tanks, by obtaining a sample of fuel oil in accordance with ASTM-D270-1975, and by verifying that the sample meets the following minimum requirements and is tested within the specified time limits:
 - 1. As soon as sample is taken (or prior to adding new fuel to the storage tank) verify in accordance with the tests specified in ASTM-D975-77 that the sample has:
 - a) A water and sediment content of less than or equal to 0.05 volume percent.
 - b) A kinematic viscosity @ 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes.
 - c) A specific gravity as specified by the manufacturer @ 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89 or an API gravity @ 60°F of greater than or equal to 27 degrees but less than or equal to 39 degrees.

*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected shutdown loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 7200 ± 720 volts and 60 ± 1.2 Hz during this test.
5. Verifying that on an ESF actuation test signal, without loss of offsite power, the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 7200 ± 720 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the steady-state generator voltage and frequency shall be maintained within these limits during this test. After 5 minutes of standby operation verify that on a simulated loss of offsite power,
 - a) the loads are shed from the emergency busses
 - b) the diesel generator does not connect to the bus for at least 5 seconds, and
 - c) that subsequent loading of the diesel generator is in accordance with design requirements.
 6. Simulating a loss of offsite power in conjunction with an ESF actuation test signal, and
 - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
 - b) Verifying the diesel starts in the emergency mode, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected emergency (accident) loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 7200 ± 720 volts and 60 ± 1.2 Hz during this test.
 - c) Verifying that all automatic diesel generator trips, except engine overspeed, low lube oil pressure and generator differential, are automatically bypassed upon loss of voltage on the emergency bus concurrent with a safety injection actuation signal.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- f. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously, during shutdown, and verifying that the diesel generators accelerate to at least 504 rpm in less than or equal to 10 seconds.
- g. At least once per 10 years by:
 - 1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite solution or its equivalent, and
 - 2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III subsection ND of the ASME Code at a test pressure equal to 110 percent of the system design pressure.

4.8.1.1.3 Reports - All diesel generator failures, valid or non-valid, shall be reported to the Commission pursuant to Specification 6.9.1. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests (on a per nuclear unit basis) is greater than or equal to 7, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

TABLE 4.8-1

DIESEL GENERATOR TEST SCHEDULE

<u>Number of Failures in Last 20 Valid Tests*</u>	<u>Number of Failures in Last 100 Valid Tests*</u>	<u>Test Frequency</u>
≤1	≤4	Once per 31 days
≥2**	≥5	Once per 7 days

*Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, but determined on a per diesel generator basis.

For the purposes of determining the required test frequency, the previous test failure count may be reduced to zero if, in conjunction with the manufacturer a complete diesel overhaul to like-new conditions is completed, and if acceptable reliability has been demonstrated. The reliability criterion shall be the successful completion of 14 consecutive tests in a single series. Ten of these tests shall be in accordance with Surveillance Requirement 4.8.1.1.2.a.3; four tests, in accordance with Surveillance Requirement 4.8.1.1.2.d. If this criterion is not satisfied during the first series of tests, any alternate criterion to be used to transvalue the failure count to zero requires NRC approval.

**The associated test frequency shall be maintained until seven consecutive failure free demands have been performed and the number of failures in the last 20 valid demands has been reduced to one.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 50 TO FACILITY OPERATING LICENSE NPF-12
SOUTH CAROLINA ELECTRIC & GAS COMPANY
SOUTH CAROLINA PUBLIC SERVICE AUTHORITY

I. INTRODUCTION

By letter dated June 10, 1985, South Carolina Electric & Gas Company (the licensee) requested a change to the Virgil C. Summer Nuclear Station Technical Specification Section 3/4.8.1, "A.C. Sources," and its bases. The proposed revision is based on NRC Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability." The revision will reduce the frequency and severity of diesel generator starts, thereby decreasing engine wear and increasing reliability. The revision will also regroup, for clarity and useability, some listings of the surveillance requirements.

II. EVALUATION

To reduce the number of cold fast start surveillance tests for diesel generators (DGs), Generic Letter (GL) 84-15 allows preparatory actions such as prelubrication on all moving parts and warmup procedures which are necessary to reduce engine wear, extend life and improve availability. The proposed revision to Technical Specification (T.S.) surveillance requirement 4.8.1.1.2.a considers such actions as prescribed by the manufacturer regarding engine prelube, warmup procedures, and gradual loading. The requirement to fast load the DGs is maintained but on a reduced frequency of once per 184 days by inserting a new T.S. surveillance requirement 4.8.1.1.2.d to start and load the DGs from ambient conditions (fast start) within the time required for accident conditions. T.S. surveillance requirements were then renumbered to accommodate this addition.

We have reviewed the proposed revisions and find that these proposed surveillance requirements are consistent with the intent of GL 84-15 to reduce the number and severity of cold fast starts. Therefore, we conclude that these revisions are acceptable except as noted below.

In T.S. Surveillance Requirements 4.8.1.1.2.a, d, and e, the licensee proposed that the continuous rating be changed to a band of 3900-4100 KW from the present rating of 4250 KW. The basis for this change is to take into account the potential for instrument inaccuracies and meter reading errors. However, the periodic testing of DG units prescribed by Regulatory Guide 1.108 requires the DG to demonstrate full-load-carrying capability (continuous rating). This item is still under review and will be addressed at a later date.

The licensee has also proposed a revision to T.S. Table 4.8-1 which changes the DG test frequencies from every 3, 7, 14 or 31 days, depending on failure history, to 7 or 31 days depending on failure history resulting in an overall reduction in DG starts. Also, the test frequencies are now on a per DG basis rather than per nuclear unit basis. This prevents testing of all DGs due to failure experienced on one DG and results in reduced DG starts. These changes are consistent with the intent of GL 84-15 to reduce the frequency of DG starts, thereby decreasing engine wear and increasing reliability. We have reviewed this request and find that the changes to T.S. Table 4.8-1 are acceptable.

The licensee has proposed to regroup the surveillance requirements to clarify the requirements and increase their useability. We have reviewed these administrative changes to the T.S. and find them acceptable.

The licensee has also proposed revision to other sections of T.S. 3/4.8.1, "AC Sources," including the proposed reduction in a test frequency to once per refueling. Those revisions are still under review along with the continuous rating and will be addressed at a later date.

III. ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the use of facility components located within the restricted area as defined in 10 CFR Part 20 or changes in an inspection or surveillance requirement. 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 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 29016) on July 17, 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.

The staff 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, 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: May 20, 1986

Principal Contributors:

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