

October 31, 1990

Docket No. 50-395

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

Dear Mr. Skolds:

SUBJECT: ISSUANCE OF AMENDMENT NO. 93 TO FACILITY OPERATING LICENSE
NO. NPF-12 REGARDING DIESEL GENERATOR FUEL OIL MONITORING -
VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1,
(TAC NO. 74823)

The Nuclear Regulatory Commission has issued the enclose Amendment No. 93 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 July 27, 1989, as supplemented September 21, 1989, April 10, 1990 and May 29, 1990.

Your July 27, 1989, submittal requested a revision to Surveillance Requirement 4.8.1.1.2 of Technical Specification (TS) 3/4.8.1, A. C. Sources. This revision would change the diesel fuel oil storage, monitoring, sampling and analysis requirements so they would be consistent with those contained in the "Standard Technical Specifications for Westinghouse Pressurized Water Reactors" (NUREG-0452). This Amendment approves this TS change.

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,

Original signed by:
George F. Wunder, Project Manager
Project Directorate II-1
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 93 to NPF-12
2. Safety Evaluation

cc w/enclosures:
See next page

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Mr. John L. Skolds
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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. 93
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 July 27, 1989, as supplemented September 21, 1989, April 10, 1990, and May 29, 1990, 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:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 93, 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

Original signed by:
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: October 31, 1990

OFC	: LA: <i>POA</i>	DRPR: PM- PD21: DRPR: <i>Booth</i>	OGC	: SPIB	: D: PD21: DRPR	:	:
NAME	: PAnderson:	: JHayes: sw	:	: C McCracken	: EAdensam	:	:
DATE	: 9/21/90	: 9/24/90	: 10/12/90	: 10/19/90	: 10/31/90	:	:

ATTACHMENT TO LICENSE AMENDMENT NO. 93
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 indicated by marginal lines.

Remove Pages

3/4 8-3

3/4 8-4

3/4 8-5

3/4 8-6a

Insert Pages

3/4 8-3

3/4 8-4

3/4 8-5

3/4 8-6a

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. Demonstrated OPERABLE at least once every 18 months by manually transferring the onsite Class 1E power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each EDG 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 an indicated 4150-4250 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 31 days by checking for and removing accumulated water from the fuel oil storage tanks;
- d. By sampling new fuel oil in accordance with ASTM-D4057 prior to addition to storage tanks and:
 - 1) By verifying in accordance with the tests specified in ASTM-D975-81 prior to addition to the storage tanks that the sample has:
 - a. An API Gravity of within 0.3 degrees at 60°F, or a specific gravity of within 0.0016 at 60/60°F, when compared to the supplier's certificate, or an absolute specific gravity at 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89, or an API gravity of greater than or equal to 27 degrees but less than or equal to 39 degrees;
 - b. A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes (alternatively, Saybolt viscosity, SUS at 100°F of greater than or equal to 32.6, but not less than or equal to 40.1), if gravity was not determined by comparison with the supplier's certification;

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

**This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band shall not invalidate the test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c. A flash point equal to or greater than 125°F; and
- d. A clear and bright appearance with proper color when tested in accordance with ASTM-D4176-82.
- 2. By verifying within 30 days of obtaining the sample that the other properties specified in Table 1 of ASTM-D975-81 are met when tested in accordance with ASTM-D975-81 except that the analysis for sulfur may be performed in accordance with ASTM-D1552-79 or ASTM-D2622-82.
- e. At least once every 31 days by obtaining a sample of fuel oil in accordance with ASTM-D2276-88, and verifying that total particulate contamination is less than 10 mg/liter when checked in accordance with ASTM-D2276-88, Method A.
- f. At least once per 184 days by:
 - 1. Starting and accelerating the EDG to synchronous speed (504 rpm) with generator voltage and frequency at 7200 ± 720 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The EDG shall be started for this test by using one of the following signals:
 - a) Simulated loss of offsite power by itself.
 - b) Simulated loss of offsite power in conjunction with an ESF actuation test signal.
 - c) An ESF actuation test signal by itself.
 - d) Simulated degraded offsite power by itself.
 - e) Manual.
 - 2. The generator shall be manually synchronized, loaded to an indicated 4150-4250 kW** in less than or equal to 60 seconds, and operate for at least 60 minutes.
- g. At least once every 18 months by:
 - 1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service,
 - 2. Verifying that on rejection of a load of greater than or equal to 729, the voltage and frequency are maintained at 7200 ± 720 volts and frequency at 60 ± 1.2 Hz.
 - 3. Verifying the generator capability to reject a load of 4250 kw without tripping. The generator voltage shall not exceed 7920 volts during and following the load rejection.

**This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band shall not invalidate the test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4. Simulating a loss of offsite power by itself, and:
 - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
 - 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 of these loads, the steady-state voltage and frequency shall be maintained at 7200 ± 720 volts and 60 ± 1.2 Hz.
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 EDG 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 and maintains the steady state voltage and frequency at 7200 ± 720 volts and 60 ± 1.2 Hz.
 - c) Verifying that all EDG trips, except engine overspeed, generator differential and low lube oil pressure are automatically bypassed upon loss of voltage on the emergency bus concurrent with a safety injection actuation signal.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- h. 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.
- i. 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 in a Special Report pursuant to Specification 6.9.2 within 30 days. 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 diesel generator 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.



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

October 31, 1990

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 93 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 July 27, 1989, South Carolina Electric & Gas Company (the licensee) submitted a proposed change to Surveillance Requirement 4.8.1.1.2 of Technical Specification (TS) 3/4.8.1, A. C. Sources. The initial request was supplemented by submittals dated September 21, 1989, April 10, 1990 and May 29, 1990, which provided clarifying information that did not affect the staff's proposed no significant hazards consideration determination.

Surveillance Requirement 4.8.1.1.2 requires that each diesel generator be demonstrated OPERABLE "by obtaining a sample of fuel oil in accordance with ASTM D270-1975 at least once per 92 days and prior to the addition of new fuel oil to the storage tanks...." The purpose of demonstrating the operability of the diesel generators is to ensure that sufficient power will be available to supply the safety related equipment required for the safe shutdown for the facility and the mitigation and control of accident conditions within the facility. The diesel fuel oil monitoring and analyses requirements in Surveillance Requirement 4.8.1.1.2 ensure that the quality of the oil meets the NRC guidelines on kinematic viscosity, water and sediment control, and specific gravity, per Regulatory Guide 1.137, Revision 1, "Fuel Oil Systems for Standby Diesel Generators," October 1979. The licensee has proposed a change to Surveillance Requirement 4.8.1.1.2 by deleting the existing item c and replacing it with the standard requirements delineated in NUREG-0452, "Standard Technical Specifications for Westinghouse Pressurized Water Reactors" (STS). In addition, the licensee has proposed an additional requirement to check for and remove any accumulated water in the fuel oil storage tanks every 31 days. This addition is also included in NUREG-0452.

2.0 EVALUATION

The licensee is proposing this change to the Summer TS on testing methodology and acceptability of emergency diesel generator fuel oil to comply with the latest ASTM test standards and to bring their TS into conformance with the STS. Changes which the licensee has proposed include:

1. Addition of a new requirement to check for and remove any accumulated water in the fuel oil storage tank every 31 days;
2. Deletion of the requirement for sampling of the fuel oil once per 92 days;
3. Obtaining the fuel oil sample per ASTM D4057-81 versus ASTM D270-75 which was discontinued in 1984;
4. Analysis of the fuel oil sample in accordance with ASTM D975-81, Appendix XI in place of ASTM D975-1977 with exceptions taken to the monitoring program specified in Appendix X.3 of ASTM D975-81 such that:
 - a) sampling will be performed in accordance with ASTM D4057-81;
 - b) insoluble fuel contaminants will be determined using ASTM D2276-88 with sampling as specified in the method; and
 - c) the fuel stability test (ASTM D-2274) will not be performed.
5. Adds a requirement for a "clear and bright appearance with proper color" test per ASTM D4176-82;
6. Changes the flash point test to require it only prior to addition of new fuel to tanks and not once per 92 days;
7. Deletes requirement for a water and sediment content test;
8. Verification of kinematic viscosity can be demonstrated by showing that the Saybolt Viscosity is within a specified range;
9. Verification that specific gravity or API gravity is within a specified range within the specified tolerance of the supplier's certificate allowing two additional alternative methods for verification.
10. Within 30 days of obtaining a sample, rather than two weeks, the properties specified in Table 1 of ASTM D975-1981, rather than the properties specified in Table 1 of ASTM D975-1977 and Regulatory Guide 1.137, Position 2.a, will be verified and

tested in accordance with the 1981 version of ASTM D975, rather than the 1977 version. An exception will be that the sulfur analysis will be performed in accordance with either ASTM D1552-79 or ASTM D2622-82;

11. Sampling and analysis of fuel oil once every 31 days in accordance with ASTM D2276-88 Method A that the particulate contamination is less than 10 mg/liter;
12. Deletion of verification that within one week of obtaining a sample of fuel oil, the sample will have an impurity level of less than 2 mg of insoluble per 100 ml when tested per ASTM D2274-70; and
13. Relettering of sections d, e, f, and g of Surveillance Requirement 4.8.1.1.2.

The licensee indicated the proposed changes would bring the Summer Surveillance Requirements for diesel fuel oil monitoring and analysis into conformance with the Westinghouse STS and would ensure proper quality fuel oil for the operation of the diesel generators. The licensee also indicated that there was no difference between the sampling and analysis requirements contained in the 1981 version of ASTM D975 and the 1977 version. The oxidation stability analysis in the present TS is being replaced by a total particulate contamination analysis, as included in the Westinghouse STS. The deletion of the oxidation stability analysis is considered an improvement because the analysis is considered hazardous and the analysis is time consuming. In addition, the results of the stability test are not indicative of the actual conditions in the tanks. Results of the total particulate contamination tests performed by chemistry personnel at the V. C. Summer Nuclear Station have proven satisfactory.

The staff reviewed the licensee's submittal and did not conclude that the proposed changes brought the Summer TS into agreement with the Westinghouse STS. However, the changes are consistent with the TSs issued for such recent licensees as Commache Peak, South Texas, and Vogtle. The staff has reviewed these changes and has concluded that the changes will continue to ensure that the quality of the diesel generator fuel oil will be maintained and thereby ensure that sufficient power will be provided for the safety-related equipment required for safe shutdown of the reactor and for the mitigation and control of accident conditions within the facility. The staff has, therefore, determined that the licensee's request is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to 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 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.

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 January 10, 1990 (55 FR 939) and consulted with the State of South Carolina. No public comments or requests for hearing were received, and the State of South Carolina did not have 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) 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: October 31, 1990

AMENDMENT NO. 93 TO FACILITY OPERATING LICENSE NO. NPF-12 - SUMMER, UNIT 1

Docket File

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