

December 28, 1995

Mr. Gary J. Taylor
Vice President, Nuclear Operations
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
Post Office Box 88
Jenkinsville, South Carolina 29065

SUBJECT: ISSUANCE OF AMENDMENT ON IMPLEMENTATION OF REVISED 10 CFR PART 20,
VIRGIL C. SUMMER NUCLEAR STATION, UNIT 1 (TAC NO. M91628)

Dear Mr. Taylor:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 130 to Facility Operating License No. NPF-12 for the Virgil C. Summer Nuclear Station, Unit No. 1. The amendment is in response to your application dated February 21, 1995, as revised on August 31, 1995, and December 4, 1995.

The amendment revises the Technical Specifications (TS) to reflect changes to 10 CFR Part 20, "Standards for Protection Against Radiation," and also provides editorial changes to improve the clarity of the TS.

A copy of our related Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,
Original signed by

Stephen Dembek, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-395

- Enclosures: 1. Amendment No. 130 to NPF-12
2. Safety Evaluation

cc w/enclosures: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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. 130
License No. NPF-12

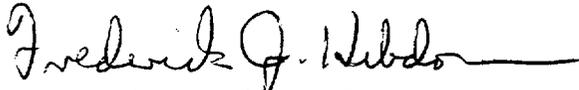
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by South Carolina Electric & Gas Company (the licensee), dated February 21, 1995, as supplemented on August 31, 1995, and December 4, 1995, complies with the standards and requirements of the Atomic 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. 130 , 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 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Frederick J. Hebdon, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: December 28, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 130
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 revisions are indicated by marginal lines.

<u>Remove Page</u>	<u>Insert Page</u>
3/4 11-1	3/4 11-1
3/4 11-2	3/4 11-2
3/4 11-3	3/4 11-3
3/4 11-4	3/4 11-4
B 3/4 11-1	B 3/4 11-1
B 3/4 11-2	B 3/4 11-2
6-11	6-11
6-12	6-12
6-12a	6-12a
6-12b	6-12b
6-13	6-13
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6-18	6-18
6-19	6-19
6-20	6-20

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.1 LIQUID EFFLUENTS

LIQUID HOLDUP TANKS

LIMITING CONDITION FOR OPERATION

3.11.1.1 Deleted by Amendment 104.

3.11.1.2 Deleted by Amendment 104.

3.11.1.3 Deleted by Amendment 104.

3.11.1.4 The quantity of radioactive material contained in each of the following tanks shall be limited to less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases.

- a. Condensate Storage Tank
- b. Outside Temporary Storage Tank

APPLICABILITY: At all times.

ACTION:

- a. With the quantity of radioactive material in any of the above listed tanks exceeding the above limit, immediately suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.1.1 Deleted by Amendment 104.

4.11.1.2 Deleted by Amendment 104.

4.11.1.3 Deleted by Amendment 104.

4.11.1.4 The quantity of radioactive material contained in each of the above listed tanks shall be determined to be within the above limit by analyzing a representative sample of the tank's contents at least once per 7 days when radioactive materials are being added to the tank.

RADIOACTIVE EFFLUENTS

SETTLING POND

LIMITING CONDITION FOR OPERATION

3.11.1.5 The quantity of radioactive material contained in each settling pond shall be limited by the following expression:

$$\frac{264}{V} \cdot \sum_j \frac{A_j}{C_j} < 1.0$$

excluding tritium and dissolved or entrained noble gases, where,

A_j = Pond inventory limit for single radionuclide "j", in curies.

C_j = 10 CFR 20, Appendix B, Table 2, column 2, concentration for single radionuclide "j", microcuries/ml.

V = design volume of liquid and slurry in the pond, in gallons.

264 = Conversion unit, microcuries/curie per milliliter/gallon.

APPLICABILITY: At all times.

ACTION:

- a. With the quantity of radioactive material in the settling pond exceeding the above limit, immediately suspend all additions of radioactive material to the pond and within 48 hours reduce the pond contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.1.5 The quantity of radioactive material contained in each batch of slurry (used powdex resin) to be transferred to the settling ponds shall be determined to be within the above limit by analyzing a representative sample of the slurry, and batches to be transferred to the settling ponds shall be limited by the expression:

$$\sum_j \frac{Q_j}{C_j} < 1.0$$

RADIOACTIVE EFFLUENTS

SURVEILLANCE REQUIREMENTS (Continued)

where

- Q_j = concentration of radioactive materials in wet, drained slurry (used powdex resin) for radionuclide "j" excluding tritium, dissolved or entrained noble gas and radionuclides with less than 8 day half-life, in microcuries per gram. The analysis shall include at least Ce-144, Cs-134, Cs-137, Sr-89, Sr-90, Co-58 and Co-60. Estimates of Sr-89, Sr-90, batch concentrations shall be based on the most recently available quarterly composite analyses.
- C_j = 10 CFR 20, Appendix B, Table 2, column 2, concentration for single radionuclide "j", in microcuries/milliliter.

RADIOACTIVE EFFLUENTS

3/4.11.2 GASEOUS EFFLUENTS

EXPLOSIVE GAS MIXTURE

LIMITING CONDITION FOR OPERATION

- 3.11.2.1 Deleted by Amendment 104.
- 3.11.2.2 Deleted by Amendment 104.
- 3.11.2.3 Deleted by Amendment 104.
- 3.11.2.4 Deleted by Amendment 104.

3.11.2.5 The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of oxygen in the waste gas holdup system greater than 2% by volume but less than or equal to 4% by volume, restore the concentration of oxygen to within the limit within 48 hours.
- b. With the concentration of oxygen in the waste gas holdup system greater than 4% by volume, immediately suspend all additions of waste gases to the system and reduce the concentration of oxygen to less than 4% by volume within 1 hour and less than or equal to 2% by volume within 48 hours.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.11.2.1 Deleted by Amendment 104.
- 4.11.2.2 Deleted by Amendment 104.
- 4.11.2.3 Deleted by Amendment 104.
- 4.11.2.4 Deleted by Amendment 104.

4.11.2.5 The concentration of hydrogen and oxygen in the waste gas holdup system shall be determined to be within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the hydrogen and oxygen monitors required OPERABLE by Table 3.3-13 of Specification 3.3.3.9.

3/4.11 RADIOACTIVE EFFLUENTS

BASES

3/4.11.1 LIQUID EFFLUENTS

3/4.11.1.1 Deleted by Amendment 104.

3/4.11.1.2 Deleted by Amendment 104.

3/4.11.1.3 Deleted by Amendment 104.

3/4.11.1.4 LIQUID HOLDUP TANKS

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tanks' contents, the resulting concentrations would be less than the limits of 10 CFR Part 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area.

3/4.11.1.5 SETTLING PONDS

The inventory limits of the settling ponds (SP) are based on limiting the consequences of an uncontrolled release of the pond inventory. The expression in Specification 3.11.1.5 assumes the pond inventory is uniformly mixed, that the pond is located in an unrestricted area as defined in 10 CFR 20, and that the concentration limit in Note 4 to Appendix B of 10 CFR 20 applies.

The density of wet, drained resin is approximately the same as water (bulk density of about 58 pounds per cubic foot); and the absorption characteristics for gamma radiation are essentially that of water. Therefore, direct comparison of radionuclide specific activity in wet, drained resin to the appropriate concentration in 10 CFR 20, Appendix B, Table 2, Column 2, ensures that the limit of Specification 3.11.1.5 will not be exceeded.

RADIOACTIVE EFFLUENTS

BASES

3/4.11.2 GASEOUS EFFLUENTS

- 3/4.11.2.1 Deleted by Amendment 104.
- 3/4.11.2.2 Deleted by Amendment 104.
- 3/4.11.2.3 Deleted by Amendment 104.
- 3/4.11.2.4 Deleted by Amendment 104.

3/4.11.2.5 EXPLOSIVE GAS MIXTURE

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas holdup system is maintained below the flammability limits of hydrogen and oxygen. Automatic control features are included in the system to prevent the hydrogen and oxygen concentrations from reaching these flammability limits. These automatic control features include isolation of the source of hydrogen and/or oxygen to reduce the concentration below the flammability limits. Maintaining the concentration of hydrogen and oxygen below their flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

3/4.11.2.6 GAS STORAGE TANKS

Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that in the event of an uncontrolled release of the tank's contents, the resulting total body exposure to an individual at the nearest exclusion area boundary will not exceed 0.5 rem. This is consistent with Standard Review Plan 15.7.1, "Waste Gas System Failure".

ADMINISTRATIVE CONTROLS

- d. Critical operation of the unit shall not be resumed until authorized by the Commission.

6.8 PROCEDURES AND PROGRAMS

6.8.1 Written procedures shall be established, implemented and maintained covering the activities referenced below:

- a. The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978.
- b. Refueling operations.
- c. Surveillance and test activities of safety-related equipment.
- d. Security Plan.
- e. Emergency Plan.
- f. Fire Protection Program.
- g. PROCESS CONTROL PROGRAM.
- h. OFFSITE DOSE CALCULATION MANUAL.
- i. Effluent and environmental monitoring program using the guidance in Regulatory Guide 4.15, Revision 1, February 1979.

6.8.2 Each procedure of 6.8.1 above, and changes thereto, shall be reviewed prior to implementation as set forth in 6.5 above.

6.8.3 NOT USED.

6.8.4 The following programs shall be established, implemented and maintained:

- a. Primary Coolant Sources Outside Containment

A program to reduce leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to as low as practical levels. The systems include the chemical and volume control, letdown, safety injection, residual heat removal, nuclear sampling, liquid radwaste handling, gas radwaste handling and reactor building spray system. The program shall include the following:

- 1) Preventive maintenance and periodic visual inspection requirements, and
- 2) Integrated leak test requirements for each system at refueling cycle intervals or less.

- b. In-Plant Radiation Monitoring

- 1) Training of personnel,
- 2) Procedures for monitoring, and
- 3) Provisions for maintenance of sampling and analysis equipment.

ADMINISTRATIVE CONTROLS

This report shall also include the results of specific activity analysis in which the primary coolant exceeded the limits of specification 3.4.8. The following information shall be included: (1) Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded; (2) Results of the last isotopic analysis for radioiodine performed prior to exceeding the limit, results of analysis while limit was exceeded and results of one analysis after the radioiodine activity was reduced to less than limit. Each result should include date and time of sampling and the radioiodine concentrations; (3) Clean-up system flow history starting 48 hours prior to the first sample in which the limit was exceeded; (4) Graph of the I-131 concentration and one other radioiodine isotope concentration in microcuries per gram as a function of time for the duration of the specific activity above the steady-state level; and (5) The time duration when the specific activity of the primary coolant exceeded the radioiodine limit.

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

6.9.1.6 The annual radiological environmental operating report covering the operation of the unit during the previous calendar year shall be submitted before May 1 of each year.

The report shall include summaries, interpretations, and an analysis of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in (1) the ODCM and (2) Sections IV.B.2, IV.B.3, and IV.C of Appendix I to 10 CFR Part 50.

6.9.1.7 Not used.

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

6.9.1.8 Annual radioactive effluent release report covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year.

The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be (1) consistent with the objectives outlined in the ODCM and PCP and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR Part 50.

ADMINISTRATIVE CONTROLS

- e. Records of transient or operational cycles for those unit components identified in Table 5.7-1.
- f. Records of reactor tests and experiments.
- g. Records of training and qualification for current members of the unit staff.
- h. Records of in-service inspections performed pursuant to these Technical Specifications.
- i. Records of Quality Assurance activities as specified in the NRC's approved SCE&G position on Regulatory Guide 1.88, Rev. 2, October 1976.
- j. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59.
- k. Records of meetings of the PSRC and the NSRC.
- l. Records of the service lives of all hydraulic and mechanical snubbers defined in Section 3.7.7 including the date at which the service life commences and associated installation and maintenance records.
- m. Records of secondary water sampling and water quality.
- n. Records of analysis required by the radiological environmental monitoring program.
- o. Records of reviews performed for changes made to the Offsite Dose Calculation Manual and the Process Control Program.

6.11 RADIATION PROTECTION PROGRAM

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

6.12 HIGH RADIATION AREAS

6.12.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.1601(a) of 10 CFR 20, each high radiation area in which the intensity of radiation is greater than 100 mrem/hr* but less than 1000 mrem/hr* shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Health Physics personnel or individuals escorted by Health Physics personnel shall be exempt from the RWP issuance requirement during the performance of their assigned duties, provided they otherwise comply with approved radiation protection procedures for entry into high radiation areas. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

- a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.

* Measurement made at 30 cm (12 in.) from the radiation source or from any surface penetrated by the radiation.

ADMINISTRATIVE CONTROLS

- b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.
- c. A health physics qualified individual (i.e., qualified in radiation protection procedures) with a radiation dose rate monitoring device who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the RWP.

6.12.2 In addition to the requirements of 6.12.1, areas accessible to personnel with radiation levels greater than 1000 mrem/hr* but less than 500 rads/hr** shall be provided with locked doors to prevent unauthorized entry, and the keys shall be maintained under the administrative control of the duty Shift Supervisor and/or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP which shall specify the dose rate levels in the immediate work area. The maximum allowable stay time for individuals in that area shall be established prior to entry. In lieu of the stay time specification of the RWP, direct or remote continuous surveillance (such as closed circuit TV cameras) shall be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities within the area.

For individual areas accessible to personnel with radiation levels greater than 1000 mrem/hr* but less than 500 rads/hr** that are located within larger areas (such as PWR containment) where no enclosure can be reasonably constructed around the individual areas, then those areas shall be barricaded, conspicuously posted, and a flashing light shall be activated as a warning device.

6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 The PCP shall be approved by the Commission prior to implementation.

6.13.2 Changes to the PCP:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.o. This documentation shall contain:
 - 1) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change (s); and
 - 2) A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.
- b. Shall become effective after review and acceptance by the PSRC and approval of the General Manager, Nuclear Plant Operations.

* Measurement made at 30 cm (12 in.) from the radiation source or from any surface penetrated by the radiation.

** Measurement made at 1 meter from the radiation source or from any surface penetrated by the radiation.

c. Secondary Water Chemistry

A program for monitoring of secondary water chemistry to inhibit steam generator tube degradation. This program shall include:

- 1) Identification of a sampling schedule for the critical variables and control points for these variables,
- 2) Identification of the procedures used to measure the values of the critical variables,
- 3) Identification of process sampling points, including monitoring the discharge of the condensate pumps for evidence of condenser in-leakage,
- 4) Procedures for the recording and management of data,
- 5) Procedures defining corrective actions for all off-control point chemistry conditions,
- 6) A procedure identifying (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective action.

d. Postaccident Sampling

A program which will ensure the capability to obtain and analyze reactor coolant, radioactive iodines and particulates in plant gaseous effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

- 1) Training personnel,
- 2) Procedures for sampling and analysis,
- 3) Provisions for maintenance of sampling and analysis equipment.

e. Radioactive Effluent Controls Program

A program shall be provided conforming with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program (1) shall be contained in the ODCM, (2) shall be implemented by operating procedures, and (3) shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- 1) Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determinations in accordance with the methodology in the ODCM;
- 2) Limitations on the concentration of radioactive material released in liquid effluents to unrestricted areas conforming to 10 times the concentration values in 10 CFR Part 20, Appendix B, Table 2, Column 2;

ADMINISTRATIVE CONTROLS

- e. Radioactive Effluent Controls Program (Continued)
- 3) Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM;
 - 4) Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released to unrestricted areas conforming to Appendix I to 10 CFR Part 50;
 - 5) Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days;
 - 6) Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases or radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual or dose commitment conforming to Appendix I to 10 CFR Part 50;
 - 7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the site boundary shall be limited to the following:
 - (a) For noble gases: Less than or equal to a dose rate of 500 mrem/yr to the total body and less than or equal to a dose rate of 3000 mrem/yr to the skin; and
 - (b) For Iodine-131, Iodine-133, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to a dose rate of 1500 mrem/yr to any organ;
 - 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents to areas beyond the site boundary conforming to Appendix I to 10 CFR Part 50;
 - 9) Limitations on the annual and quarterly doses to a member of the public from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released to areas beyond the site boundary conforming to Appendix I to 10 CFR Part 50;
 - 10) Limitations on the annual dose or dose commitment to any member of the public due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

ADMINISTRATIVE CONTROLS

f. Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measures of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall (1) be contained in the ODCM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

- 1) Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM;
- 2) A Land Use Census to ensure that changes in the use of areas at and beyond the site boundary are identified and that modifications to the monitoring program are made if required by the results of the census; and
- 3) Participation in an Inter-laboratory Comparison Program to ensure that independent checks on the precision and accuracy of measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

ADMINISTRATIVE CONTROLS

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Regional Administrator Office of Inspection and Enforcement unless otherwise noted.

STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The startup report shall address each of the tests identified in the Final Safety Analysis Report and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial operation) supplementary reports shall be submitted at least every three months until all three events have been completed.

ANNUAL REPORT

6.9.1.4 Annual reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 31 of each year. The initial report shall be submitted prior to March 31 of the year following initial criticality.

6.9.1.5 Reports required on an annual basis shall include a tabulation on an annual basis of the number of station, utility, and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated collective deep dose equivalent (reported in person-rem) according to work and job functions, ^{1/} e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling. The dose assignments to various duty functions may be estimated based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20 percent of the individual total dose need not be accounted for. In the aggregate, at least 80 percent of the total whole body dose received from external sources should be assigned to specific major work functions.

^{1/} This tabulation supplements the requirements of §20.2206 of 10 CFR Part 20.

ADMINISTRATIVE CONTROLS

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.14.1 The ODCM shall be approved by the Commission prior to implementation.

6.14.2 Changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.o. This documentation shall contain:
 - 1) Sufficient information to support the change together with appropriate analyses or evaluations justifying the change(s); and
 - 2) A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.
- b. Shall become effective after review and acceptance by the PSRC and the approval of the General Manager, Nuclear Plant Operations.
- c. Shall be submitted to the Commission in the form of a complete legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 130 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

By letter dated February 21, 1995, as supplemented on August 31, 1995 and December 4, 1995, South Carolina Electric & Gas Company (the licensee), submitted a request for a change to the Virgil C. Summer Nuclear Station, Unit No. 1, Technical Specifications (TS). The proposed amendment would implement the revised 10 CFR Part 20, "Standards for Protection Against Radiation." Also, several editorial changes were requested to improve the clarity of the TS. The December 4, 1995 letter provided supplemental information that did not change the initial proposed no significant hazards consideration determination or expand the scope of the original Federal Register notice.

2.0 EVALUATION

The licensee has proposed to revise the TS to include wording that is consistent with the revised 10 CFR Part 20 and will retain the same overall level of effluent control required to meet the design objectives of Appendix I to 10 CFR Part 50. The proposed TS changes and corresponding evaluations follow:

1. Section 6.8.4.e.3; "10 CFR 20.106" is changed to "10 CFR 20.1302."
2. Section 6.9.1.5; "10 CFR 20.407" is changed to "10 CFR 20.2206."
3. Section 6.12.1; "10 CFR 20.203(c)(2)" is changed to "10 CFR 20.1601(a)."
4. Section 6.14.2.a.2); "10 CFR 20.106" is changed to "10 CFR 20.1302."

These four changes incorporate the corresponding revised 10 CFR Part 20 section numbers and table numbers. Therefore, they are acceptable editorial changes.

5. Technical Specification 3/4.11.1 LIQUID EFFLUENTS

The title "3/4.11 RADIOACTIVE EFFLUENTS" has been added to the top of page 3/4 11-1. This title was inadvertently deleted in a previous amendment and its restoration is an acceptable editorial change.

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ENCLOSURE

TS sections 3.11.1.1-3 and 4.11.1.1-3 have been added with the notation "Deleted by Amendment 104." This editorial change was necessary to eliminate the confusion that resulted from the current TS which start with numbers 3.11.1.4 and 4.11.1.4. The licensee's proposed changes clarify the TS and are acceptable.

Also, the licensee corrected a typographical error in action statement a. of TS 3.11.1.4 by changing "or" to "of." This is an acceptable editorial correction to the TS.

6. Technical Specification 3/4.11.1.5 SETTLING PONDS

The licensee has proposed to revise this TS and its associated bases to specify that the settling ponds are located in an unrestricted area as defined in 10 CFR Part 20, and that the effluent concentration limits in Appendix B, Table 2, Column 2, of 10 CFR Part 20 apply.

The proposed revision to the radioactive material quantity in the settling ponds will not change the types and will conservatively lower the amount of effluents that can be released. The new settling ponds limit is based on that quantity which would not exceed the effluent concentrations of 10 CFR Part 20, Appendix B, Table 2, Column 2, at the nearest potable water supply if an uncontrolled release of settling pond inventory should occur. The effluent concentration limits in 10 CFR Part 20, Appendix B, Table 2, are more conservative than the current limits in the licensee's TS. Thus the change proposed by the licensee results in a net decrease in the maximum quantity of radioactive material permitted in the settling ponds.

The changes are consistent with the revised 10 CFR 20 and are therefore acceptable.

7. Technical Specification 3/4 11.2 GASEOUS EFFLUENTS

TS sections 3.11.2.1-4 and 4.11.2.1-4 have been added with the notation "Deleted by Amendment 104." This editorial change was necessary to eliminate the confusion that resulted from the current TS which start with numbers 3.11.2.5 and 4.11.2.5. The licensee's proposed changes clarify the TS and are acceptable.

8. Technical Specification 6.8.4.e Radioactive Effluent Control Program

The licensee has proposed to revise item 2 of this specification to read as follows:

"Limitations on the concentration of radioactive material released in liquid effluents to unrestricted areas conforming to 10 times the concentration values in 10 CFR Part 20, Appendix B, Table 2, Column 2."

The licensee proposed this change to retain operational flexibility consistent with Appendix I to 10 CFR Part 50, concurrent with the implementation of the revised 10 CFR Part 20.

The current requirements for the content of the licensee's TS concerning radioactive effluents are stated in 10 CFR 50.36a. 10 CFR 50.36a requires licensees to maintain control over radioactive material in gaseous and liquid effluents to unrestricted areas, produced during normal operations, to levels that are as low as reasonably achievable (ALARA). For power reactors, Appendix I to 10 CFR Part 50 contains the numerical guidance to meet the ALARA requirement. The dose values specified in Appendix I to 10 CFR Part 50 are a small percentage of the implicit limits in 10 CFR 20.106 and the explicit limits in 10 CFR 20.1301. As secondary controls, the instantaneous concentration release rates required by this TS were chosen by the staff to help maintain annual average releases of radioactive material in gaseous and liquid effluents to within the dose values specified in Appendix I to 10 CFR Part 50. For the purpose of this TS, 10 CFR Part 20 is used as a source of reference values only. These TS requirements allow operational flexibility, compatible with consideration of health and safety, which may temporarily result in release rates which, if continued for the calendar quarter, would result in radiation doses higher than specified in Appendix I to 10 CFR Part 50. However, these releases are within the implicit limits in the old 10 CFR 20.106 and the explicit limits in 10 CFR 20.1302, which references Appendix B concentrations. These referenced concentrations in the old 10 CFR Part 20 are specific values which relate to an annual dose of 500 mrem. The liquid effluent radioactive concentrations limits given in Appendix B, Table 2, Column 2 are based on an annual dose of 50 mrem total effective dose equivalent. Since an instantaneous release concentration corresponding to a dose rate of 500 mrem/year has been acceptable as a TS limit for liquid effluents, which applies at all times to assure that the values in Appendix I to 10 CFR Part 50 are not likely to be exceeded, it is not necessary to reduce this limit by a factor of 10.

The licensee states that operational history at V.C Summer has demonstrated that the use of the concentration values associated with 10 CFR 20.106 as TS limits has resulted in calculated maximum individual doses to a member of the public that are a small percentage of the values given in 10 CFR Part 50. Therefore, the use of effluent concentration values that are 10 times those listed in Appendix B, Table 2, Column 2, will not have a negative impact on the ability to continue to operate within the limits of 10 CFR Part 50 (Appendix I) and 40 CFR Part 190 which are a fraction of the 10 CFR 20.1301 limits.

On this basis, it is acceptable that the instantaneous limits associated with the liquid release rate TS are based on 10 times the effluent concentrations given in Appendix B, Table 2, Column 2.

The licensee also proposed to revise item 7 of this specification to read as follows:

"Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the site boundary shall be limited to the following:

- (a) For noble gases: Less than or equal to a dose rate of 500 mrem/yr to the total body and less than or equal to a dose rate of 3000 mrem/yr to the skin; and
- (b) For Iodine-131, Iodine-133, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to a dose rate of 1500 mrem/yr to any organ."

As with the proposed changes to liquid effluents, the licensee has proposed these changes to retain operational flexibility consistent with Appendix I to 10 CFR Part 50, concurrent with the implementation of the revised 10 CFR Part 20.

The current requirements for the content of the licensee's TS concerning radioactive effluents are stated in 10 CFR 50.36a. Section 10 CFR 50.36a requires licensees to maintain control over radioactive material in gaseous and liquid effluents to unrestricted areas, produced during normal operations, to levels that are as low as reasonably achievable (ALARA). For power reactors, Appendix I to 10 CFR Part 50 contains the numerical guidance to meet the ALARA requirement. The dose values specified in Appendix I to 10 CFR Part 50 are a small percentage of the implicit limits in the old 10 CFR 20.106 and the explicit limits in 10 CFR 20.1301. As secondary controls, the staff chose the instantaneous dose rates required by this TS to help maintain annual average releases of radioactive material in gaseous and liquid effluents to within the dose values specified in Appendix I to 10 CFR Part 50. For the purpose of this TS, 10 CFR Part 20 is used as a source of reference values only. These TS requirements allow operational flexibility, compatible with considerations of health and safety, which may temporarily result in release rates which, if continued for the calendar quarter, would result in radiation doses higher than specified in Appendix I to 10 CFR Part 50. However, these releases are within the limits in the old 10 CFR 20.106 and the current 10 CFR 20.1302.

This specification which is based on guidance contained in NUREG-0133, is acceptable as a TS limit for gaseous effluents, which applies at all times as an assurance that the values in Appendix I to 10 CFR Part 50 are not likely to be exceeded.

The licensee states that the proposed TS change will not have a negative impact on the ability to continue to operate within the design objectives in Appendix I to 10 CFR Part 50.

On this basis, it is acceptable that the gaseous release rate TS for radioactive material be based on the stated dose rates.

9. Technical Specifications 6.9.1.4, 5, and 8 ANNUAL REPORT

For TS 6.9.1.4, the licensee has proposed to change the reporting requirement due date from March 1 to March 31 of each year. This is an acceptable administrative change.

For TS 6.9.1.5, the licensee has proposed to revise this TS to replace the word "manrem exposure" with "collective deep dose equivalent (reported in person-rem)" and to replace the reference "20.407" with "20.2206." These editorial changes are needed for consistency with the revised 10 CFR Part 20 and are acceptable.

For TS 6.9.1.8, the licensee has proposed to clarify the reporting period to mean a calendar year. Also, the licensee is changing the reporting requirement due date to May 1. These are acceptable administrative changes.

10. Technical Specification 6.12 HIGH RADIATION AREA

The licensee has proposed several changes to this specification in order to be consistent with the revised 10 CFR Part 20. The radiation level measurement distance for classifying a high radiation area is changed from 18 inches to 30 centimeters. An upper limit of 500 rads in 1 hour at one meter is included to distinguish the TS requirements from those needed for 10 CFR 20.1602, a very high radiation area.

The changes are consistent with the requirements of the revised 10 CFR Part 20 and are acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of South Carolina official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an environmental assessment and finding of no significant impact has been prepared and published in the Federal Register on December 26, 1995 (60 FR 66806). Accordingly, based upon the environmental assessment, the Commission has determined that the issuance of this amendment will not have a significant effect on the quality of the human environment.

5.0 CONCLUSION

The Commission 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 the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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