



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.

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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