



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 179 AND 158 TO

FACILITY OPERATING LICENSE NOS. NPF-4 AND NPF-7

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

NORTH ANNA POWER STATION, UNITS NO. 1 AND NO. 2

DOCKET NOS. 50-338 AND 50-339

1.0 Introduction

By letter dated July 16, 1993, as supplemented on November 15, 1993, Virginia Electric and Power Company (the licensee), submitted proposed changes to the North Anna Power Station, Units 1 and 2 Technical Specifications (TS) in support of its plan to implement the revised 10 CFR Part 20.

The November 15, 1993, letter provided additional information requested by the staff. This additional information did not alter the proposed action or affect the staff's determination of no significant hazards consideration as noticed in the Federal Register on August 18, 1993 (58 FR 43937).

2.0 Evaluation

The licensee has revised the TS to include wording that is consistent with the revised 10 CFR Part 20, Standards for Protection Against Radiation, and will retain the same overall level of effluent control required to meet the design objectives of Appendix I to 10 CFR Part 50. An evaluation was not performed on item 2 regarding the definition of "UNRESTRICTED AREA" because this item is still being evaluated.

The proposed TS changes and evaluations follow:

1. Section 1.0 DEFINITIONS

The licensee has proposed to change definition 1.17, OFFSITE DOSE CALCULATION MANUAL (ODCM). The ODCM refers to the Semiannual Radioactive Effluent Release Report. The word "Semiannual" is being changed to "Annual."

The change is administrative in nature to implement the revised reporting requirement in 10 CFR 50.36a and is acceptable.

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2. Section 1.0 DEFINITIONS

The licensee has proposed to change definition 1.35, UNRESTRICTED AREA to conform to the definition used in 10 CFR 20.1003.

The staff is continuing the evaluation of this item and therefore will not address it at this time.

3. Technical Specification BASES 3/4.7.11 SEALED SOURCE CONTAMINATION

The licensee has proposed to delete the third sentence in the paragraph description of the bases for sealed source contamination. The information contained in the sentence includes internal dose terminology, i.e., "maximum permissible body burden" (MPBB) from the International Commission on Radiological Protection (ICRP 2). The revised 10 CFR Part 20 has eliminated the term "MPBB" from the regulation. Sealed source contamination is governed by 10 CFR 70.39(c).

The change to the BASES is administrative in nature and does not conflict with the revised 10 CFR Part 20. The change is acceptable.

4. Technical Specification BASES 3/4.11.1.4 LIQUID HOLDUP TANKS

The licensee has proposed to change the 10 CFR Part 20 reference and activity limit basis for liquid holdup tanks such "that in the event of an uncontrolled release of the tank's contents, the resulting radioactive material 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."

The change to the BASES is administrative in nature and is consistent with the revised 10 CFR Part 20. The change is acceptable.

5. Technical Specification 5.1.1 EXCLUSION AREA

The licensee has proposed to revise this TS to ensure consistency between TS 5.1-1 and Figure 5.1-1.

The change is administrative in nature and is acceptable.

6. Figure 5.1-1 Map Defining Unrestricted Areas for Radioactive Gaseous and Liquid Effluents

The licensee has proposed to revise this figure to show that the unrestricted area for gaseous effluents is at or beyond the site boundary rather than at the security fence.

The change is administrative in nature and is acceptable.

7. Technical Specification 6.8.4.e Radioactive Effluent Controls Program

The licensee has proposed to revise item 2 of this TS to change the liquid effluent release rate from maximum permissible concentration values in 10 CFR Part 20 to "ten times 10 CFR Part 20, Appendix B, Table 2, Column 2."

The licensee has proposed this change in order 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 contained 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 reactor 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 of 10 CFR Part 50 are small percentages of the implicit limits in 10 CFR 20.106 and the explicit limits in 10 CFR 20.1301. As secondary controls, the instantaneous dose 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 of 10 CFR Part 50. For the purposes 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 of 10 CFR Part 50. However, these releases are within the implicit limits in 10 CFR 20.106 and the explicit limits in 10 CFR 20.1302 which references Appendix B, Table II 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 effluent concentration limits given in Appendix B, Table 2, Column 2 to 10 CFR 20.1001 - 20.2401 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 of 10 CFR Part 50 are not likely to be exceeded, it is not necessary to reduce this limit by a factor of ten.

The licensee states that operational history at the North Anna Power Station 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 small percentages of the values given in Appendix I to 10 CFR Part 50. Therefore, the use of effluent concentration values that are ten times those listed in Appendix B, Table 2, Column 2 to 10 CFR 20.1001 - 20.2401 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 and 40 CFR Part 190 which are a fraction of the 10 CFR 20.1301 limits.

Based on the above, it is acceptable that the instantaneous limits associated with the liquid release rate TS are based on ten times the effluent concentration values given in Appendix B, Table 2, Column 2 to 10 CFR 20.1001 - 20.2401.

8. Technical Specification 6.8.4.e Radioactive Effluent Controls Program

The licensee has proposed to revise item 3 of this TS to replace the reference to "10 CFR 20.106" with "10 CFR 20.1302."

The change is administrative in nature to incorporate the corresponding revised 10 CFR Part 20 section number and is acceptable.

9. Technical Specification 6.8.4.e Radioactive Effluent Controls Program

The licensee has proposed to revise item 7 of this TS which specifies the limitations on the concentrations of radioactive material released in gaseous effluents. The licensee has proposed that the TS be revised to read as follows:

"Limitations on the dose rate resulting from radioactive material released in gaseous effluents 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 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."

The licensee has proposed this change in order to retain operational flexibility consistent with 10 CFR Part 50, Appendix I, 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 contained 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 reactor 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 of 10 CFR Part 50 are small percentages of the implicit limits in 10 CFR 20.106 and the explicit limits in 10 CFR 20.1301. As secondary controls, the instantaneous dose rates required by this specification 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 of 10 CFR Part 50. For purpose of the bases 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 of 10 CFR Part 50. However, these releases are within the limits specified in 10 CFR 20.106 (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 of 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 of 10 CFR Part 50.

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

10. Technical Specification 6.9.1.5 ANNUAL REPORTS

The licensee has proposed to revise this TS to replace the reference to "10 CFR 20.407" with "10 CFR 20.2206."

This change is administrative in nature to incorporate the corresponding revised 10 CFR Part 20 section number and is acceptable.

11. Technical Specification 6.9.1.9 ANNUAL RADIOLOGICAL EFFLUENT RELEASE REPORT

The licensee has proposed to revise the title of the "Semiannual Radioactive Effluent Release Report" to "Annual Radioactive Effluent Release Report." The report submittal date is also being changed to May 1.

The changes are administrative in nature and are consistent with the revised 10 CFR 50.36a. The changes are acceptable.

12. Technical Specification 6.12 HIGH RADIATION AREA

The licensee has proposed to replace the reference "20.203(c)(2)" with "20.1601" and to add an upper limit on the TS of "but less than 500 rads/hr. at one meter from a radiation source or any surface through which radiation penetrates."

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

13. Unit 1 Technical Specification 6.15 OFFSITE DOSE CALCULATION MANUAL
Unit 2 Technical Specification 6.14 OFFSITE DOSE CALCULATION MANUAL

The licensee has proposed to revise item a.2 in each of these TS to change the reference "10 CFR 106" to "10 CFR 20.1302."

This change is administrative in nature to incorporate the corresponding revised 10 CFR Part 20 section number and is acceptable.

14. Unit 1 Technical Specification 6.15 OFFSITE DOSE CALCULATION MANUAL
Unit 2 Technical Specification 6.14 OFFSITE DOSE CALCULATION MANUAL

The licensee has proposed to revise item c in each of these TS which refer to the reporting frequency for the Semiannual Radioactive Effluent Release Report. The word "Semiannual" is being changed to "Annual."

The change is administrative in nature to implement the revised reporting requirement in 10 CFR 50.36a and is acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an environmental assessment and finding of no significant impact was published in the Federal Register on January 18, 1994 (59 FR 2629).

Accordingly, based upon the environmental assessment, the Commission has determined that issuance of the amendments 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date: February 17, 1994