



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 151 TO FACILITY OPERATING LICENSE NO. DPR-28
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
DOCKET NO. 50-271

1.0 INTRODUCTION

By letter dated August 27, 1993, as supplemented by letter dated November 9, 1993, April 26, 1996, and September 25, 1996, Vermont Yankee Nuclear Power Corporation (the licensee), submitted proposed changes to the Vermont Yankee Nuclear Power Station Technical Specifications (TSs) to incorporate the revised 10 CFR Part 20. Other changes not related to 10 CFR Part 20 were also submitted. The November 9, 1993, April 26, 1996, and September 25, 1996, submittals did not change the initial proposed no significant hazards determination.

2.0 EVALUATION

The licensee has revised the TSs 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.

The proposed TS changes and evaluations follow:

1. Technical Specification - DEFINITIONS

The licensee has proposed to delete the definition of "Member(s) of the Public."

The term "Member(s) of the Public" is defined in 10 CFR 20.1003 and does not need to be included in the TSs. Deletion of the definition in the TS is acceptable.

2. Technical Specification BASES Section 3.2

The licensee has proposed to delete a reference to 10 CFR Part 20 for the main steam line high radiation monitor. The monitor is set specifically for 10 CFR Part 100 dose value for the control rod drop accident. There is no reduction in the operational response of the system as a result of this change.

The removal of the reference to 10 CFR Part 20 is an administrative change to delete unnecessary references from the TS and is acceptable.

3. Technical Specifications 3.8.A.1 and 3.9.A

The licensee has proposed to revise the liquid effluent specification to read as follows:

"The concentration of radioactive material in liquid effluents released to Unrestricted Areas shall be limited to 10 times the concentrations specified in Appendix B to 10 CFR Part 20.1001 - 20.2401, Table 2, Column 2, for radionuclides other than noble gases, and 2×10^{-4} $\mu\text{Ci/ml}$ total activity concentration for all dissolved or entrained noble gases."

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 TSs 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 the old 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 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 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 10.

Based on the above, it is acceptable for the liquid release rate TS, as applied on an instantaneous basis, to be based on 10 times the effluent concentration values given in Appendix B, Table 2, Column 2 to 10 CFR 20.1001 - 20.2401.

4. Technical Specification BASES 3.8.D

The licensee has proposed to change the bases for the liquid holdup tanks to change a 10 CFR Part 20 reference from "10 CFR Part 20, Appendix B, Table II, Column 2" to "10 CFR Part 20.1001 - 20.2401, Appendix B, Table 2, Column 2".

The change is administrative in nature to incorporate a revised reference to 10 CFR Part 20 and is acceptable.

5. Technical Specifications 3.8.L.1 and 4.8.L.1

The licensee has proposed a change which clarifies that the standby gas treatment system (SBGT) is only effective for the removal of radioiodines and particulates, with no credit taken for noble gas removal. The licensee states that this filter system is used, during containment purges, if the concentration of Iodine-131, Iodine-133, or particulates with half-lives greater than 8 days are detected above the values given in Appendix B to 10 CFR Part 20. The licensee has also proposed to revise Table 4.8.2 to change the lower limit of detection (LLD) from $1E-04$ to $1E-09$ $\mu\text{Ci/ml}$ to cover the sensitivity requirements needed to satisfy the TS and to clarify that the grab samples are for particulates.

The TS change is needed because the concentrations that need to be monitored range between $1E-06$ and $1E-08$ $\mu\text{Ci/ml}$. However, the licensee's Table 4.8.2 only required analyses to a LLD of $1E-04$ $\mu\text{Ci/ml}$, thereby not requiring analyses to be sensitive enough to be sure that requirements of TS 3.8.L.1 could be demonstrated. As a result, the licensee implemented a TS interpretation to ensure that proper sample counting would provide the necessary sensitivity. With the use of the proposed LLD of $1E-09$ $\mu\text{Ci/ml}$, the licensee will delete the TS interpretation.

The licensee's proposed change to increase the detection capability for monitoring radioactive releases from containment does not involve a change in the types or amounts of effluents released, nor is it expected that there will be any increase in individual or cumulative occupational radiation exposures. Based on the above, the proposed changes are acceptable.

6. Technical Specification 3.8.M

The licensee has proposed to add the term "in areas at and beyond the site boundary" to clarify where the member of the public dose limits of 40 CFR Part 190 apply. The licensee has also proposed an administrative change to replace the Part 20 reference of "20.405(c)" with "20.2203(a)(4)."

The changes are consistent with 10 CFR Part 20 and 40 CFR Part 190 and are acceptable.

7. Table 4.9.1 and 4.9.2

The licensee has proposed to change the reference for traceability requirements for calibration sources from the "National Bureau of Standards" to the "National Institute for Standards and Technology."

The change is administrative in nature to incorporate the revised name of the referenced facility and is acceptable.

8. Technical Specification 6.6

The licensee has proposed to change the plant recordkeeping requirement to reflect the new requirement in 10 CFR Part 20 that records of radioactive shipments be retained for the life of the plant instead of for only 5 years.

The change is consistent with 10 CFR Part 20 and is acceptable.

9. Technical Specification 6.13

The licensee has proposed to change the terminology used in this specification to incorporate the revised 10 CFR Part 20 section numbers. Additionally, the licensee has proposed to include wording which explains how amendments to the Offsite Dose Calculation Manual (ODCM) need to be documented. The revised wording is more direct in specifying the information and documentation requirements necessary to implement changes.

The changes are consistent with 10 CFR Part 20, as well as guidance contained in Generic Letter 89-01 and NUREG-1433, and are acceptable.

10. Table 3.9.1, Note 5

The licensee has proposed to correct a typographical error that references "e.8.A.1" instead of "3.8.A.1."

The change is administrative in nature and is acceptable.

11. Technical Specification 6.5.B

The licensee has proposed to change the specification to be consistent with 10 CFR Part 20 by updating the Part 20 section references and to specify the distances at which the radiation levels are to be measured.

The changes are consistent with 10 CFR Part 20 and are acceptable.

12. Technical Specification 6.7.A.2

The licensee has proposed to replace the term "pocket dosimeter" with "Self-Reading Dosimeter (SRD)." The change is being made to reflect a

more general category that includes both pocket ion chambers and electronic dosimeters that can be used in estimating dose.

The change is administrative in nature and is acceptable.

13. Technical Specification BASES 3.8.E

The licensee has proposed to change the wording of a phrase in this bases section from "... via the cow-milk-infant pathway to 1500 mrem/year for the nearest cow to the plant." to "... via the cow-milk-infant pathway to 1500 mrem/year for the highest impacted cow."

The proposed wording is consistent with the guidance contained in NUREG-0133 and is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Vermont State officials were notified of the proposed issuance of the amendment. The State officials had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (60 FR 507). Accordingly, the 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 the amendment.

6.0 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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