



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 116 TO

FACILITY OPERATING LICENSE NO. NPF-38

ENERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated February 14, 1994, as supplemented by letters dated July 25, August 15, and August 29, 1995, Energy Operations, Inc. (the licensee), submitted a request for changes to the Waterford Steam Electric Station, Unit 3 (Waterford 3), technical specifications (TSs). The requested changes would make the Waterford 3 TSs consistent with the revised 10 CFR Part 20, Standards for Protection Against Radiation.

The July 25, August 15, and August 29, 1995, letters provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

The licensee has proposed to revise 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.

The proposed TS changes and evaluations follow:

1. Section 1.0 DEFINITIONS

The licensee has proposed to revise the definitions of MEMBER(S) OF THE PUBLIC and SITE BOUNDARY to use the wording in 10 CFR 20.1003.

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

2. The licensee has proposed changes to reference the revised 10 CFR Part 20 section numbers. The following TS sections are proposed to be changed.

- a. Bases Section 3/4.11.1.4; the Part 20 reference was changed to read "Appendix B, Table 2, to 10 CFR 20.1001-20.2402."
- b. Section 6.8.4.f.2; the Part 20 reference was changed to read "Appendix B, Table 2, Column 2, to 10 CFR 20.1001-20.2402."
- c. Section 6.8.4.2.f.3; "20.106" is changed to "20.1302."
- d. Section 6.9.1.5; "20.407" is changed to "20.2206."
- e. Section 6.12; "20.203(c)(2)" is changed to "20.1601."
- f. Section 6.14.2.a.2; "20.106" is changed to "20.1302."

These changes are administrative in nature and incorporate the corresponding revised 10 CFR Part 20 section numbers and table number and are acceptable.

### 3. TS 3.11.1.4 LIQUID HOLDUP TANKS

The licensee has proposed to change the amount of radioactivity allowed to be stored in unprotected outdoor tanks from " $1.57 \times 10^{-2}$  curies" to " $7.85 \times 10^{-4}$  curies." The proposed change is based on 80% tank capacity and the effluent concentration of  $1.0 \times 10^{-6}$   $\mu\text{Ci}/\text{ml}$  Cesium-137 equivalent from Appendix B, Table 2, Column 2, to 10 CFR Part 20.

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

### 4. TS 6.8.4.2.f, RADIOACTIVE EFFLUENT CONTROLS PROGRAM

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

"Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS conforming to 10 times the concentration values in Appendix B, Table 2, Column 2, to 10 CFR 20.1001-20.2402."

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 the old 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 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 - 20.2402 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.

The licensee states that the use of effluent concentration values that are 10 times those listed in Appendix B, Table 2, Column 2 to 10 CFR 20.1001 - 20.2402 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.

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 - 20.2402.

5. TS 6.8.4.f, RADIOACTIVE EFFLUENT CONTROLS PROGRAM

The licensee has proposed to revise Item 7 of this specification to read as follows:

"Limitations on the dose rate resulting from radioactive material released in gaseous effluent from the site to areas 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/year to the total body and less than or equal to a dose rate of 3000 mrem/year 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/year 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 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 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 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 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 and 40 CFR Part 190.

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

#### 6. TS 3.11.2.6, GAS STORAGE TANKS

The licensee has proposed to change this TS for clarification by adding the word "equivalent" to Xe-133. Also, ACTION statement "a" was changed to add reporting requirements consistent with the Liquid Holdup Tank TS. The proposed TS is as follows:



- "a. With the quantity of radioactive material in any gas storage tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank. Within 48 hours reduce the tank contents to within the limits and describe the events leading to this condition in the next Radioactive Effluent Release Report, pursuant to Specification 6.9.1.8."

The changes provide additional requirements that are consistent with the Standard Technical Specifications and are acceptable.

7. TS 5.1.3, MAP DEFINING UNRESTRICTED AREAS FOR RADIOACTIVE GASEOUS AND LIQUID EFFLUENTS

The licensee has proposed to revise this specification to add a paragraph which clarifies the definition of UNRESTRICTED AREA as used in implementing the effluent TS. As a result of the clarification, TS FIGURE 5.1-3 was also revised to move the northern boundary line for the SITE BOUNDARY to the opposite shore of the Mississippi River. The location of the revised SITE BOUNDARY is consistent with the clarification to the definition in that, "...the UNRESTRICTED AREA does not include areas over water bodies." The current Figure depicts the SITE BOUNDARY over water. The proposed revised Figure locates the SITE BOUNDARY in its intended location.

The licensee states that gaseous effluent calculations will be improved because the dose and dose rate calculation will be to a "real" receptor location instead of an imaginary receptor location in the Mississippi River.

The changes provide clarification to the TS and are consistent with the Standard Technical Specifications and are acceptable.

8. TS 6.9.1.5, ANNUAL REPORTS

The licensee has proposed to change the wording for this specification to reflect the radiation exposure terminology and section number used in the revised 10 CFR Part 20 and to change the submittal date for the report from "March 1" to "March 31."

The radiation exposure terminology and section number changes proposed by the licensee are consistent with the revised 10 CFR Part 20 and are acceptable. The revised submittal date for the report is acceptable.

9. 6.9.1.8, ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

The licensee has proposed to change the submittal date for the Annual Radioactive Effluent Release Report from "within 60 days after January 1"

to "prior to May 1" of each year. 10 CFR 50.36a was changed on October 1, 1992, to require licensees to submit the Radioactive Effluent Release report on an annual basis. Previously, the report was required to be submitted semi-annually. The revised submittal date will allow adequate time for the licensee to prepare a complete report containing the prior year's data. The submittal date is consistent with Commission guidance for submission of a similar report (i.e., Annual Radiological Environmental Operating report).

Based on the above, the change is acceptable.

10. TS 6.10.3, RECORD RETENTION

The licensee has proposed to change Item c of this specification to read as follows:

"Records of radiation exposure as required by 10 CFR 20."

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

11. TS 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 Part 20 section reference "20.203(c)(2)" is changed to "20.1601". The radiation level measurement distance for classifying a high radiation area is changed from "18 inches" to "30 centimeters". Also, an upper range of 500 rads in one hour as measured at one meter is added to distinguish the TS requirements from those needed for 10 CFR 20.1602. An administrative change was also proposed to add "/designee" to "supervision".

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

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana State 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 was published in the Federal Register on May 23, 1994 (59 FR 26673). Accordingly, based upon the environmental assessment, the Commission has determined that 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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