



**ENTERGY**

**Entergy Operations, Inc.**  
P.O. Box B  
Kilona, LA 70066-0751  
Tel 504 738 6661

**Ross P. Barkhurst**  
Vice President, Operations  
Waterford 3

W3F1-93-0319  
A4.05  
PR

February 14, 1994

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555

Subject: Waterford 3 SES  
Docket No. 50-382  
License No. NPF-38  
Technical Specification Change Request NPF-38-150

Gentlemen:

The attached description and safety analysis support a change to the Waterford 3 Technical Specifications. The proposed amendment revises portions of the Technical Specifications to support compliance with the new requirements of Title 10 Code of Federal Regulations Part 20.

The proposed change has been evaluated in accordance with 10CFR50.91(a)(1) using criteria in 10CFR50.92(c) and it has been determined that the proposed change involves no significant hazards considerations.

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Should you have any questions or comments concerning this request, please contact Paul Caropino at (504) 739-6692.

Very truly yours,



R.P. Barkhurst  
Vice President, Operations  
Waterford 3

RPB/PLC/dc  
Attachments: Affidavit  
NPF-38-150

cc: L.J. Callan, NRC Region IV  
D.L. Wigginton, NRC-NRR  
R.B. McGehee  
N.S. Reynolds  
NRC Resident Inspectors Office  
Administrator Radiation Protection Division  
(State of Louisiana)  
American Nuclear Insurers

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the matter of )  
 )  
Entergy Operations, Incorporated ) Docket No. 50-382  
Waterford 3 Steam Electric Station )

AFFIDAVIT

R.P. Barkhurst, being duly sworn, hereby deposes and says that he is Vice President Operations - Waterford 3 of Entergy Operations, Incorporated; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached Technical Specification Change Request NPF-38-150; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.



R.P. Barkhurst  
Vice President Operations - Waterford 3

STATE OF LOUISIANA )  
 )ss  
PARISH OF ST. CHARLES )

Subscribed and sworn to before me, a Notary Public in and for the Parish and State above named this 14<sup>TH</sup> day of FEBRUARY, 1994.



Notary Public

My Commission expires WITH LIFE.

DESCRIPTION AND SAFETY ANALYSIS  
OF PROPOSED CHANGE NPF-38-150

The Standards for Protection against Radiation (10CFR20) have been revised. The revised 10CFR20 provides an increase in the overall protection of the public safety and amounts to a redefinition of adequate protection based on developments in underlying radiation protection principles and scientific advancements in the last thirty years. The changes below will update the Waterford 3 Technical Specifications (TS) consistent with the revised 10CFR20.

The NRC draft generic letter, "Guidance for Modification of Technical Specifications to Reflect (A) Revisions to 10 CFR Part 20, 'Standards for Protection Against Radiation' and 10 CFR 50.36(a), 'Technical Specifications on Effluents from Nuclear Power Reactors,' (B) Related Current Industry Initiatives, and (C) Miscellaneous Related Editorial Clarifications," has been reviewed and where applicable the Waterford 3 TS were modified to reflect the draft guidance.

Existing Specification

See Attachment A

Proposed Specification

See Attachment B

Description

1. The proposed change makes administrative changes to:
  - a. Update the Definitions of:
    - 1) Section 1.15 MEMBER(s) OF THE PUBLIC
    - 2) Section 1.29 SITE BOUNDARY
  - b. Update the following sections by incorporating the new 10CFR20 section numbers and table number style:
    - 1) Section 6.8.4.2.f.3
    - 2) Section 6.9.1.5
    - 3) Section 6.12
    - 4) Section 6.14.2.a.2
    - 5) Section 6.8.4.f.2
    - 6) Bases Section 3/4.11.1.4

2. The proposed change increases the concentration values by a factor of 10 for liquid effluents that reference Appendix B to 10 CFR Part 20 values. This proposed change will maintain the current level of effluent control and operational flexibility. This change affects TS 3.11.1.4 and TS 6.8.4.2.f.2.3.
3. The proposed change revises TS 6.8.4.f.7 gaseous release rate limit.
4. The proposed change incorporates reporting requirements in ACTION (a) of TS 3.11.2.6.
5. TS 5.1.3 was revised for clarification and a change to the SITE BOUNDARY was incorporated in Figure 5.1-3.
6. The proposed change incorporates current ANNUAL REPORT requirements in TS 6.9.1.4, 6.9.1.5, 6.9.1.8.
7. The proposed change modifies TS 6.10.3 to specify records of radiation exposure, as required by 10CFR20, be retained for the duration of the unit operating license.
8. The proposed change replaces TS 6.12 HIGH RADIATION AREA.

#### Discussion of Change

1. The proposed change modifies the TS consistent with the revised Part 20 as follows:
  - a. Definitions
    - 1) MEMBER(s) OF THE PUBLIC is not defined in the old 10CFR20. The revised 10CFR20.1003 defines MEMBER(s) OF THE PUBLIC as "an individual in a controlled or UNRESTRICTED AREA. However an individual is not a MEMBER(s) OF THE PUBLIC during any period in which the individual receives an occupational dose." The proposed change incorporates the MEMBER(s) OF THE PUBLIC definition of the revised 10CFR20 into the definitions section of the Waterford 3 Technical Specifications.
    - 2) The current definition of SITE BOUNDARY in the TS definitions section makes reference only to land, where the definition in the revised 10CFR20.1003 refers to land or property. This is an administrative clarification only.

b. The changes below are necessary to reflect the new references of the revised 10CFR20:

1) Bases Section 3/4.11.1.4; the Part 20 reference was changed to read "Appendix B, Table 2, Column 2, to 10 CFR 20.1001-20.2402."

2) 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."

3) Section 6.8.4.2.f.3, 10CFR20.106 changed to 10CFR20.1302.

4) Section 6.9.1.5, 10CFR20.407 changed to 10CFR20.2206.

5) Sections 6.12, 10CFR20.203(c)(2) changed to 10CFR20.1601(a).

6) Section 6.14.2.a.2, 10CFR20.106 changed to 10CFR20.1302.

2. The proposed change to the liquid concentration release limit is being made in order to accommodate needed operational flexibility to facilitate implementation of the new 10CFR20 requirements.

The basic requirements for Technical Specifications concerning effluents from nuclear power reactors are stated in 10CFR50.36a. These requirements indicate that compliance with effluent TS will keep average annual releases of radioactive material in effluents to small percentages of the limits specified in the old 10CFR20.106 (new 10CFR20.1302). These requirements further indicate that operational flexibility is allowed, compatible with considerations of health and safety, which may temporarily result in releases higher than such small percentages, but still within the limits specified in the old 10CFR20.106 that references Appendix B, Table II maximum permissible concentrations (MPCs). These referenced concentrations are specific values that relate to an annual dose of 500 mrem. It is further indicated in 10CFR50.36a that when using operational flexibility, best efforts shall be exerted to keep levels of radioactive materials as low as is reasonably achievable (ALARA) as set forth in 10CFR50, Appendix I.

As stated in the Introduction to Appendix B of the new 10CFR20, the liquid effluent concentration limits given in Appendix B, Table 2 Column 2, are based on an annual dose of 50 mrem. Since a release concentration corresponding to a limiting dose rate of 500 mrem/year has been acceptable as a TS limit for liquid effluents, which applies at all times as an assurance that the limits of 10CFR50, Appendix I are not likely to be exceeded, it should not be necessary to reduce this limit by a factor of ten.

Operational history at Waterford 3 has demonstrated that the use of TS limits based on concentration values associated with the old 10CFR20.106 has resulted in calculated maximum individual doses to a member of the public that are small percentages of the limits of 10CFR50 Appendix I. Therefore, the use of concentration values that correspond to an annual dose of 500 mrem (ten times the concentration values stated in the new 10CFR20, Appendix B, Table 2, Column 2) should not have a negative impact on the ability to continue to operate within the limits of 10CFR50, Appendix I and 40CFR190.

Having sufficient operational flexibility is also important in establishing a basis for effluent monitor setpoint calculations. As discussed above, the concentrations stated in the new 10CFR20, Appendix B, Table 2, Column 2, relate to a dose of 50 mrem in a year. When applied on an instantaneous basis, this corresponds to a dose rate of 50 mrem/year. The concentrations associated with this low value are impractical to base effluent monitor setpoint calculations for many liquid concentration release situations when monitor background, monitor sensitivity, and monitor performance must be taken into account.

Therefore, to accommodate operational flexibility needed for effluent releases, the limits associated with the liquid concentration release rate technical specifications are based on ten times the concentrations stated in the new 10CFR20, Appendix B, Table 2, Column 2. The multiplier of ten is proposed because the annual dose of 500 mrem (that is the bases for the concentrations in the old 10CFR20, Appendix B, Table II, Column 2), is a factor of ten higher than the annual dose of 50 mrem (that is the bases for the concentrations in the new 10CFR20, Appendix B, Table 2, Column 2).

Compliance with the limits of the new 10CFR20.1301 will be demonstrated by operating within the limits of 10CFR50, Appendix I and 40CFR190.

The limit for the liquid holdup tanks (TS 3.11.1.4) has been changed from  $1.57 \times 10^{-2}$  curies to  $7.85 \times 10^{-3}$  curies in accordance with the new Part 20 criteria. TS Bases 3/4.11.1.4 and TS 6.8.4.f.2.3 have been revised to include the operational flexibility discussed above.

3. The proposed change to TS 6.8.4.f.7 gaseous release rate limit is being made in order to accommodate operational flexibility to facilitate implementation of the new 10CFR20 requirements.

The basic requirements for TS concerning effluents from nuclear power reactors are stated in 10CFR50.36a. These requirements indicate that compliance with effluent TS will keep average annual releases of radioactive material in effluents to small percentages of the limits specified in the old 10CFR20.106 (new 10CFR20.1302). These requirements further indicate that operational flexibility is allowed, compatible with considerations of health and safety, which may temporarily result in releases higher than such small percentages, but still within the limits specified in the old 10CFR20.106 that references Appendix B, Table II MPCs. These referenced concentrations are specific values that relate to an annual dose of 500 mrem. It is further indicated in 10CFR50.36a that when using operational flexibility, best efforts shall be exerted to keep levels of radioactive materials as low as is reasonably achievable (ALARA) as set forth in 10CFR50, Appendix I.

As stated in the Introduction to Appendix B of the new 10CFR20, the gaseous effluent concentrations limits given in Appendix B, Table 2, Column 1, are based on an annual dose of 50 mrem for isotopes for which inhalation or ingestion is limiting, or 100 mrem for isotopes for which submersion (noble gases) is limiting. Release concentrations corresponding to limiting dose rates at the site boundary from noble gases less than or equal to 500 mrem/year to the whole body and 3000 mrem/year to the skin; and 1500 mrem/year to any organ from Iodine-131, Iodine-133, for tritium and all radionuclides in particulate form with half lives greater than eight days has been acceptable as a TS limit for gaseous effluents to assure that limits of 10CFR50, Appendix I and 40CFR190 are not likely to be exceeded. It should not be necessary to restrict the operational flexibility by incorporating the dose rate limit associated with the effluent concentration value for isotopes based on the inhalation/ingestion (50 mrem/year) or the dose rate associated with the effluent concentration value for isotopes based on submersion (100 mrem/year).

Having sufficient operational flexibility is also important in establishing a basis for effluent monitor setpoint calculations. As discussed above, the concentrations stated in the new 10CFR20, Appendix B, Table 2, Column 1, relate to a dose of 50 or 100 mrem in a year. When applied on an instantaneous basis, this corresponds to a dose rate of 50 or 100 mrem/year. The concentrations associated with these low values are impractical upon which to base effluent monitor setpoint calculations for many gaseous release situations when monitor background, monitor sensitivity, and monitor performance must be taken into account.



To accommodate operational flexibility needed for effluent releases, the limits associated with gaseous release rate TS will be maintained at the current instantaneous dose rate limit for noble gases of 500 mrem/year to the whole body and 3000 mrem/year to the skin; and for Iodine-131, Iodine-133, for tritium, and for all radionuclides in particulate form with half lives greater than eight days, an instantaneous dose rate limit of 1500 mrem/year to any organ.

Compliance with the limits of the new 10CFR20.1301 will be demonstrated by operating within the limits of 10CFR50, Appendix I and 40CFR190. Operational history at Waterford 3 has demonstrated that the use of the dose rate values listed above (i.e. 500, 3000 and 1500 mrem/year) as TS limits has resulted in calculated maximum individual doses to a member of the public that are small percentages of the limits of 10CFR50 Appendix I.

4. Radioactive Effluents, Gas Storage Tanks LCO 3.11.2.6 was clarified by adding "equivalent" to Xe-133. Effluent release reporting requirements were added to ACTION a, which is consistent with the effluent TS ACTION in the Liquid Holdup Tank LCO.
5. A paragraph has been added to TS 5.1.3 which clarifies the definition of UNRESTRICTED AREA as used in implementing effluent Technical Specifications. As a result of this clarification, TS FIGURE 5.1-3 has been modified by moving 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 added in 5.1.3 in that, "the UNRESTRICTED AREA does not include areas over water bodies." The current Figure depicts the SITE BOUNDARY over water. The revised Figure locates the SITE BOUNDARY in its intended location. Gaseous effluent calculations will be improved as a result of this change because they will involve dose and dose rate estimates to a "real" receptor location instead of an imaginary receptor location in the Mississippi River.
6. Reporting requirements were modified by changing March 1 to March 31 in TS 6.9.1.4, updating TS 6.9.1.5 by incorporating the appropriate requirements and reference to the new Part 20, and increasing the time period for submitting the Radioactive Effluent Release Report from 60 days to May 1 (120 days) in TS 6.9.1.8.
7. TS 6.10.3.c currently requires exposure records be maintained for the duration of the operating license for all individuals entering radiation control areas. Neither the old revision of 10CFR20 nor the new revision requires exposure records be maintained for all individuals who enter a

radiation control area. Radiation control area is not defined in 10CFR20. The new 10CFR20.2106(a) requires licensees to "maintain records of doses received by individuals for whom monitoring is required pursuant to 10CFR20.1502, and records of doses received during planned special exposures, accidents, and emergency conditions. 10CFR20.2106(f) requires the licensee to retain each required form or record until the Commission terminates each pertinent license requiring the record." Entrance into a radiation control area is not included in the criteria requiring individual monitoring listed in 10CFR20.1502. Waterford 3 will continue to comply with the monitoring, reporting and record keeping criteria of 10CFR20 and applicable Regulatory Guides. This change will not create a new radiological hazard to plant personnel or the public.

8. TS 6.12 HIGH RADIATION AREA was revised in its entirety to incorporate the model TS appearing in the staffs' draft Generic Letter. The Waterford 3 proposed HIGH RADIATION AREA TS are in verbatim compliance with the draft model TS with the exception of 6.12.2.A. In addition to using locked doors and administrative control of keys, Waterford 3 proposes an alternative control measure by using guards in place of locked doors to prevent inadvertent unauthorized access for some circumstances. This change will not decrease the ability for the radiation protection programs to provide control of exposure from external sources in restricted areas. In item (i) shift foreman was replaced with "shift supervisor," and health physics supervisor was replaced with "health physics staff" to accommodate the shift manning and titles at Waterford 3.

### Safety Analysis

The proposed change described above shall be deemed to involve a significant hazards consideration if there is a positive finding in any of the following areas:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of any accident previously evaluated?

Response: No

The proposed revisions to the liquid and gaseous concentration release rate limits will not involve a significant increase in the probability or consequences of an accident previously evaluated because there will be no change in the types and amounts of effluents that will be

released, nor will there be an increase in individual or cumulative occupational radiation exposures.

The administrative changes for definitions, terminology, paragraph references, and record keeping requirements are necessary so that the Waterford 3 Technical Specifications will remain consistent with the revised federal regulations (i.e., 10CFR20 and 10CFR50.36a). Record retention and reporting requirements will continue to meet NRC regulations. These changes are administrative in nature and do not affect plant hardware or operation.

Restricting access to high radiation areas via guards rather than locked doors provides operational flexibility while continuing to meet the underlying intent of precluding unauthorized access.

Therefore, the proposed changes will not involve a significant increase in the probability or consequences of any accident previously evaluated.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different type of accident from any accident previously evaluated?

Response: No

Changes to the liquid and gaseous concentration limits are necessary to provide adequate operational flexibility. Operational history at Waterford 3 has demonstrated that the use of concentration values associated with the old 10CFR20.106 requirements has resulted in calculated maximum individual doses to a member of the public that are small percentages of the limits of 10CFR50, Appendix I. The proposed revisions will not create the possibility of a new or different kind of accident from any previously evaluated because the revisions will not change the types and amounts of effluent that will be released.

The administrative changes for definitions, terminology, paragraph references, and record keeping are necessary so that the Technical Specifications will remain consistent with the revised federal regulations (i.e., 10CFR20 and 10CFR50.36a). Record retention and reporting requirements will continue to meet NRC regulations. These changes are administrative in nature and do not affect plant hardware or operation.

Restricting access for ALARA with guards rather than locked doors will continue to meet the underlying intent of the TS. These changes do not involve plant hardware or operation.

Therefore, the proposed changes will not create the possibility of a new or different kind of accident from any previously evaluated.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No

The proposed revisions do not involve any changes in the types or increases in the amounts of effluents released off site. The methodology used to control radioactive effluents and calculate effluent monitor setpoints will result in the same effluent release rate as the current methodology. The basic requirements for TS concerning effluent releases (10CFR50.36a) indicate that compliance with TS will keep average annual release to small percentages of 10CFR20 limits. For liquid effluent releases, the annual dose of 500 mrem, that is the bases for the concentrations in the old 10CFR20, is a factor of 10 higher than the annual dose that is the bases for the concentrations in the new 10CFR20. The 50.36a requirements further indicate that operational flexibility is allowed, compatible with considerations of health and safety, which may temporarily result in releases higher than such small percentages, but still within the limits specified in the old 10CFR20.106 that references Appendix B maximum permissible concentrations (MPCs). For gaseous effluent releases, the limits associated with the gaseous release rate TS will be maintained at the current instantaneous dose rate limits. Compliance with the limits of the new 10CFR20.1301 will be demonstrated by operating within the limits of 10CFR50, Appendix I, and 40CFR190. The revision will not change the types and amounts of effluent that will be released.

The administrative changes for definitions, terminology, paragraph references, and record keeping are necessary so that the Technical Specifications will remain consistent with the revised federal regulations (i.e., 10CFR20 and 10CFR50.36a). Record retention and reporting requirements will continue to meet NRC regulations. These changes are administrative in nature and do not affect plant hardware or operation.

Controlling access to high radiation areas for ALARA can be performed effectively by guards in place of locked doors. These changes do not involve plant hardware or operation.

Therefore, the proposed changes will not involve a significant reduction in the margin of safety.

### Safety and Significant Hazards Determination

Based on the above safety analysis, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10CFR50.92; and (2) there is a reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (3) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC final environmental statement.



NPF-38-150

ATTACHMENT A