March 7, 2003

Mr. Joseph E. Venable
Vice President Operations
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - ISSUANCE OF AMENDMENT RE: REACTIVITY/BORON CONCENTRATION CHANGES (TAC NO. MB6616)

Dear Mr. Venable:

The Commission has issued the enclosed Amendment No. 185 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3 (Waterford 3). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated October 24, 2002, as supplemented by your letter dated February 4, 2003.

The amendment revises TSs relating to positive reactivity additions while in shutdown modes by clarifying TSs involving positive reactivity additions. In addition, the borated water volume requirements in TS 3.1.2.7 is now presented in "percent level" units, and an obsolete reference from Surveillance Requirement 4.8.2.2 is deleted. These are considered administrative changes.

The Bases for the revised TS sections should be revised in accordance with the Waterford 3 TS Bases Control Program.

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

N. Kalyanam, Project Manager, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures: 1. Amendment No. 185 to NPF-38
2. Safety Evaluation

cc w/encls: See next page

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ENTERGY OPERATIONS, INC.

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 185
License No. NPF-38

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Entergy Operations, Inc. (EOI) dated October 24, 2002, as supplemented by letter dated February 4, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2. of Facility Operating License No. NPF-38 is hereby amended to read as follows:

   2. Technical Specifications and Environmental Protection Plan

      The Technical Specifications contained in Appendix A, as revised through Amendment No. 185, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. EOI shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Gramm, Chief, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: March 7, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 185

TO FACILITY OPERATING LICENSE NO. NPF-38

DOCKET NO. 50-382

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
3/4 1-6	3/4 1-6
3/4 1-8	3/4 1-8
3/4 1-10	3/4 1-10
3/4 1-12	3/4 1-12
3/4 3-6	3/4 3-6
3/4 3-7	3/4 3-7
3/4 4-2	3/4 4-2
3/4 4-3	3/4 4-3
3/4 4-5	3/4 4-5
3/4 4-6	3/4 4-6
3/4 8-8	3/4 8-8
3/4 8-12	3/4 8-12
3/4 8-15	3/4 8-15
3/4 9-2	3/4 9-2
3/4 9-8	3/4 9-8
3/4 9-9	3/4 9-9

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 185 TO

FACILITY OPERATING LICENSE NO. NPF-38

ENTERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated October 24, 2002, as supplemented by letter dated February 4, 2003, Entergy 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 revise TSs relating to positive reactivity additions while in shutdown modes by clarifying TSs involving positive reactivity additions. The proposed changes allow for small, controlled, safe insertions of positive reactivity while in shutdown modes. In addition, the licensee requested two administrative changes: (1) to change the borated water volume requirements in TS 3.1.2.7 so that they are presented in one set of units (percent level) and (2) to delete an obsolete reference in Surveillance Requirement 4.8.1.2.

The supplement dated February 4, 2003, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on December 10, 2002 (67 FR 75874).

2.0 BACKGROUND

The industry and the U.S. Nuclear Regulatory Commission (NRC) staff have been working through the TS Task Force (TSTF) to develop generic changes for Standard TS (STS), known as TSTFs. Once approved by the NRC, licensees can use the TSTFs as models in amendment requests.

The proposed changes conform closely to TSTF-286, Revision 2. TSTF-286, Revision 2, revises most of the actions requiring licensees to "suspend operations involving positive reactivity additions" to allow minimum reactivity additions due to temperature fluctuations or operations, which are necessary to maintain fluid inventory within the required shutdown margin (SDM) or refueling boron concentration, as applicable. The NRC approved TSTF-286, Revision 2, by letter dated July 6, 2000.

TSTFs are based on the STS, which are contained in NUREG-1432 for Combustion Engineering plants. Waterford 3 has not adopted the STS, therefore, there are administrative differences between the wording and format that the licensee proposes for use, and the

wording and format for the TSs changes approved by TSTF-286, Revision 2. The licensee provided plant-specific differences between the proposed changes and TSTF-286, Revision 2, in its submittal.

3.0 EVALUATION

TSTF-286, Revision 2, revises the following STS provisions: (1) actions that require licensees to "suspend operations involving positive reactivity additions," (2) various Notes precluding reduction in boron concentration, and (3) Reactor Coolant System (RCS) isolated loop startup limit, which requires the isolated loop to be at a boron concentration greater than or equal to the operating loop(s). Instead, limits are placed on the introduction into the RCS of reactivity more positive than that required to meet the required SDM or refueling boron concentrations, as applicable.

The actions that preclude positive reactivity changes or reduction in boron concentration, or both, are intended to ensure that no power increases occur and that licensees maintain SDM. RCS inventory must be maintained and RCS temperature must be controlled. These activities necessarily involve addition to the RCS of water at a temperature different than that of the RCS, may involve slight RCS temperature changes, and may involve inventory makeup from sources that are at boron concentrations less than RCS concentration. These activities constitute small positive reactivity changes that are precluded by the current TSs. However, these activities should not be precluded if the worst-case overall effect on the core would still assure the required SDM (or the required refueling boron concentration) is maintained. Therefore, the proposed changes provide the flexibility necessary to ensure continued safe reactor operations, while also limiting any potential for excess positive reactivity addition.

The licensee maintains the initial assumptions of the most limiting accident analysis and any positive reactivity additions resulting from the changes remain bounded by the Final Safety Analysis Report accident analyses, specifically the inadvertent boron dilution and slow positive reactivity insertion events. The licensee states that plant systems and procedures, currently in place, properly monitor the overall effect on core reactivity and the required SDM and maintain the required refueling boron concentration.

The Waterford 3 TSs do not conform with the STS format. Therefore there are administrative differences between the wording and format Entergy proposes and the exact wording and format for the TSs changes approved by TSTF-286, Revision 2. However, the proposed changes remain valid, and substantial deviations with TSTF-286, Revision 2, are described and justified below.

3.1 TSs Changes

3.1.1 TSs 3.1.2.1, 3.1.2.3, 3.1.2.5, and 3.1.2.7

TS 3.1.2.1, Boration Systems, Flow Paths - Shutdown; TS 3.1.2.3, Charging Pumps - Shutdown; TS 3.1.2.5, Boric Acid Makeup Pumps - Shutdown; and TS 3.1.2.7, Borated Water Sources - Shutdown currently prohibit the addition of any positive reactivity to the reactor while in shutdown Modes 5 and 6. Since temperature changes in the RCS impose reactivity changes by means of the moderator temperature coefficient, this TS revision will allow plant temperature changes, provided the temperature change is accounted for in the calculated SDM. Small

changes in RCS temperature are unavoidable and, so long as the required SDM is maintained during these changes, any positive reactivity additions will be limited to acceptable levels. In order to maintain consistency with the existing TSs, the term positive reactivity additions will be annotated by an asterisk instead of a note, with the asterisk wording comparable to that used for insert 2 of TSTF-286, Revision 2. This is a plant-specific change because NUREG-1432 has no equivalent TSs for boration sources and flowpaths. The proposed wording for the TS change is consistent with the wording approved for license amendments 179 and 122 for St. Lucie Plant, Units 1 and 2 (Docket numbers 50-335 and 50-389).

The staff has reviewed the proposed changes and finds that they meet the intent of TSTF-286, Revision 2, and are acceptable.

Additionally, TS 3.1.2.7, Borated Water Sources - Shutdown currently contains borated water volume requirements in both gallons and percent level. TS 3.1.2.7 will be revised such that required borated water volumes are specified in percent level only. Control Room level indications for the boric acid makeup tank (BAMT) and refueling water storage pool (RWSP) are provided in percent level. Operations personnel use percent level to verify TS 3.1.2.7 compliance and do not have direct indication of BAMT and RWSP levels in gallons. A review of the BAMT and RWSP level calculations has revealed a conservative difference between the gallons and percent level requirements as specified in TS 3.1.2.7. The application states that, in both cases, the percent level requirement converts to a greater number of gallons than the gallons requirement listed, and therefore bounds both values listed in TS 3.1.2.7. Therefore, the proposed change is an administrative change.

The staff has reviewed the proposed change and finds it acceptable.

3.1.2 TS Table 3.3-1

TS Table 3.3-1, Reactor Protective Instrumentation, Action 4 for the logarithmic power level - high shutdown requirements currently prohibits any positive reactivity additions to the shutdown reactor. This TS would be modified by a note allowing controlled plant operations that may result in limited reactivity additions (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control), provided they are accounted for in the calculated SDM. This would maintain the required SDM and limit any potential reactivity additions to acceptable levels. In order to maintain consistency with the existing TSs, the term positive reactivity additions will be annotated by an asterisk instead of a note, with the asterisk wording identical to that used for insert 1 of TSTF-286, Revision 2. Although there are differences in instrumentation nomenclature and mode applicability, the proposed change meets the intent of the TSTF-286 change associated with TS 3.3.13 with regard to the logarithmic power monitoring channels.

The staff has reviewed the proposed changes and finds that they meet the intent of TSTF-286, Revision 2 and are acceptable.

3.1.3 TSs 3.4.1.2. 3.4.1.3, 3.4.1.4, 3.4.1.5, 3.9.8.1, and 3.9.8.2

TS 3.4.1.2, Reactor Coolant System - Hot Standby; TS 3.4.1.3, Reactor Coolant System - Hot Shutdown; TS 3.4.1.4, Reactor Coolant System - Cold Shutdown - Loops Filled; TS 3.4.1.5, Reactor Coolant System - Cold Shutdown - Loops Not Filled currently prohibit operations that

would cause any reduction of the RCS boron concentration. These TSs would be revised to prohibit operations that would cause introduction into the RCS of coolant with boron concentration less than that which would meet SDM requirements.

TS 3.9.8.1, Shutdown Cooling and Coolant Circulation, High Water Level, and TS 3.9.8.2, Low Water Level currently prohibit operations that would cause any reduction of the RCS boron concentration. These TSs would be revised to prohibit operations that would cause introduction into the RCS of coolant with boron concentration less than required to meet the minimum required boron concentration of TS 3.9.1.

Additions of makeup water to the RCS are routinely required. If the makeup water is at a lower boron concentration than the RCS, it would result in a positive reactivity addition. In addition, water in the RWSP of the same boron concentration as the RCS may appear to be at a slightly lower boron concentration due to chemistry sampling uncertainties. However, makeup to the RCS under these circumstances is a safe operation provided the makeup boron concentration is greater than or equal to the concentration required to preserve the required SDM. In case of refueling operations, these revised TSs would prohibit operations that would cause introduction into the RCS of coolant with boron concentration less than required to meet the minimum required boron concentration of TS 3.9.1.

The proposed TSs changes are similar to those approved in TSTF-286, Revision 2, except that TS 3.1.1 and 3.1.2 are not combined as assumed in TSTF-286, Revision 2. For Waterford 3, the equivalent TSs are 3.1.1.1 and 3.1.1.2. Additionally, TS 3.9.8.2 contains a note identical to the note in TS 3.9.8.1 regarding removal of the shutdown cooling loop from operation for short periods of time during core alterations. The note in TS 3.9.8.1 is consistent with the note in TSTF-286, Revision 2, TS 3.9.4. To meet the intent of TSTF- 286, Revision 2, the note in TS 3.9.8.2 will be revised to be consistent with the changes proposed to TS 3.9.8.1. Otherwise, the proposed TS changes are comparable with TSTF-286, Revision 2.

The staff has reviewed the proposed changes and finds that they meet the intent of TSTF-286, Revision 2, and are acceptable.

Additionally, by letter dated November 30, 1998, the licensee had, in TS Change Request (TSCR) NPF-38-177, Revision 2, requested a change to TS 3.9.8.2, ACTION a, to read, "... or to establish greater than or equal to 23 feet of water above the top of the fuel seated in the reactor pressure vessel." However, when Amendment Number 148 for this TSCR was issued, the above line read, "... or to establish greater than or equal to 23 feet of water above the top of the fuel selected in the reactor pressure vessel." The licensee, in a telephone conversation on November 25, 2002, identified this and requested that the change from "selected" to "seated" be treated as an administrative change and be made now. The staff finds that this proposed change is an administrative change involving a typographical error in a previously approved amendment and finds it acceptable.

3.1.4 TSs 3.8.1.2, 3.8.2.2, 3.8.3.2, and 3.9.2

TS 3.8.1.2, A.C. [alternating current] Sources - Shutdown; TS 3.8.2.2, D.C. [direct current] Sources - Shutdown; TS 3.8.3.2, Onsite Power Distribution - Shutdown; and TS 3.9.2, Instrumentation currently require suspension of operations involving positive reactivity additions under certain conditions. These TSs would be modified to suspend operations involving

positive reactivity additions only if they could result in loss of required SDM or required boron concentration. Small, controlled, safe insertions of positive reactivity would be allowed. The proposed changes are comparable to those changes approved in TSTF-286, Revision 2.

Additionally, SR 4.8.1.2, A.C. Sources - Shutdown will be revised to eliminate the reference to 4.8.1.1.3. SR 4.8.1.1.3 was previously deleted by Amendment 132 making its reference in SR 4.8.1.2 obsolete. Therefore, this proposed change is an administrative change.

The initial assumptions of the most limiting accident analysis and any positive reactivity additions resulting from the proposed changes remain bounded by the Final Safety Analysis Report accident analysis, specifically the inadvertent boron dilution and slow positive reactivity insertion events. Waterford 3 plant systems and procedures, currently in place, properly monitor the overall effect on core reactivity and the required SDM, and maintain the required refueling boron concentration.

3.2 TS Bases

In its submittal, the licensee proposed changes to the TS BASES 3/4.1.2, Boration Systems; 3/4.4.1, Reactor Coolant Loops and Coolant Circulation; 3/4.8.1, 3/4.8.2, and 3/4.8.3, A.C. Sources, D.C. Sources, and Onsite Power Distribution Systems; 3/4.9.1, Boron Concentration; and 3/4.9.8, Shutdown Cooling and Coolant Circulation. These sections would be revised to reflect the proposed TS changes. The proposed BASES wording meets the intent of TSTF-286, Revision 2, and should be incorporated in accordance with the licensee's TS Bases Control Program.

3.3 Summary

The staff has reviewed the licensee's submittal and supporting documentation, and clarifying information obtained through discussions with the licensee. Based on the considerations above, the staff has concluded that the proposed revisions to the TSs identified above are consistent with the intent of the language the staff approved in TSTF-286, Revision 2, and are acceptable.

4.0 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.

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 (67 FR 75874, dated December 10, 2002). 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.

Principal Contributor: N. Kalyanam

Date: March 7, 2003

cc:

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