50-382

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

December 18, 1997

Mr. Charles M. Dugger
Vice President Operations
Entergy Operations, Inc.
P. O. Box B
Killona, LA 70066

SUBJECT: ISSUANCE OF AMENDMENT NO. 137 TO FACILITY OPERATING LICENSE NPF-38 - WATERFORD STEAM ELECTRIC STATION, UNIT 3 (TAC NOS. M96247 AND M98366)

Dear Mr. Dugger:

The Commission has issued the enclosed Amendment No. 137 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 July 17, 1996, as supplemented by letters dated June 3, and July 7, 1997, and your application dated April 11, 1997.

The amendment changes the Appendix A TS 3.7.1.3 by increasing the minimum required contained water volume in the Condensate Storage Pool (CSP) from 82 percent to 91 percent indicated level. In addition, this amendment expands the applicability of TS 3.7.1.3 to include Mode 4 operational requirements. The amendment also deletes Action (b) in TS 3.7.1.3 and its associated surveillance requirement in Waterford 3 TSs. It should be noted that your application lacked quality control and attention to detail. Specifically, your method for calculating vortex margin was inappropriate, and the information on Wet Cooling Tower basin water volume was inconsistent within the submittals. A paragraph was dropped in the middle without any explanation. Significant interactions with your staff were required and two additional submittals were needed to resolve the issues involved.

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

Sincerely,

Chandu P. Patel

Chandu P. Patel, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures: 1. Amendment No.137 to NPF-38
2. Safety Evaluation

cc w/encls: See next page

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

Sincerely,
ORIGINAL SIGNED BY:
Chandu P. Patel, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures: 1. Amendment No. 137 to NPF-38
2. Safety Evaluation

cc w/encls: See next page

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Document Name: WAT96247.AMD *See previous concurrence

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DATE	12/17/97	12/15/97	10/07/97	12/17/97
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 137
License No. NPF-38

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

   A. The application for amendment by Entergy Operations, Inc. (the licensee) dated July 17, 1996, as supplemented by letters dated June 3, and July 7, 1997, and your application dated April 11, 1997, comply 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 applications, 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. 137, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee 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 to be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Chandu P. Patel

Chandu P. Patel, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: December 18, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 137

TO FACILITY OPERATING LICENSE NO. NPF-38

DOCKET NO. 50-382

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE PAGES	INSERT PAGES
3/4 7-6	3/4 7-6
B 3/4 7-2	B 3/4 7-2

SURVEILLANCE REQUIREMENTS (Continued)

c. At least once per 18 months during shutdown by:

1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an emergency feedwater actuation test signal.

2. Verifying that each pump starts automatically upon receipt of an emergency feedwater actuation test signal.

d. Following any cold shutdown of 30 days or longer or whenever feedwater line cleaning through the emergency feedwater line has been performed, by verifying, by means of a flow test, the normal flow path from the condensate storage pool through each emergency feedwater ump to each of the steam generators. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 for the turbine-driven pump.

CONDENSATE STORAGE POOL

LIMITING CONDITION FOR OPERATION

3.7.1.3 The condensate storage pool (CSP) shall be OPERABLE with a minimum contained volume of at least 91% indicated level.*

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

In MODES 1, 2, and 3:

With the condensate storage pool inoperable, within 4 hours restore the CSP to OPERABLE status or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

In MODE 4:

With the condensate storage pool inoperable, within 4 hours restore the CSP to OPERABLE status or be in at least COLD SHUTDOWN within the next 24 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.3.1 The condensate storage pool shall be demonstrated OPERABLE at least once per 12 hours by verifying the contained water volume is within its limits.

*In MODE 4, the CSP shall be OPERABLE with a minimum contained volume of at least 11% indicated level.

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line code safety valves ensures that the secondary system pressure will be limited to within 110% (1210 psia) of its design pressure of 1100 psia during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Vessel Code, 1974 Edition. The total relieving capacity for all valves on all of the steam lines is 16.267×10^6 lb/hr (at 1210 psia design pressure less 50 psi pressure drop to the inlet of the valves) which is 104.2% of the total secondary steam flow plus 2% uncertainties of 15.61×10^6 lb/hr at 100% RATED THERMAL POWER. A minimum of 2 OPERABLE safety valves per steam generator ensures that sufficient relieving capacity is available for removing decay heat.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in secondary system steam flow and THERMAL POWER required by the reduced reactor trip settings of the Power Level-High channels. The reactor trip setpoint reductions are derived on the following bases:

For two-loop 4 pump operation

$$SP = \frac{6-N}{6} \times 104.2\%$$

where:

SP = reduced reactor trip setpoint in percent of RATED THERMAL POWER

N = maximum number of inoperable safety valves per steam line

104.2 = the ratio of the total relieving capacity of all 12 main steam safety valves divided by the secondary steam flow at 100% Rated Thermal Load, plus 2% uncertainty.

3/4.7.1.2 EMERGENCY FEEDWATER SYSTEM

The OPERABILITY of the emergency feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss-of-offsite power.

Each electric-driven emergency feedwater pump is capable of delivering a total feedwater flow of 350 gpm at a pressure of 1163 psig to the entrance of the steam generators. The steam-driven emergency feedwater pump is capable of delivering a total feedwater flow of 700 gpm at a pressure of 1163 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the shutdown cooling system may be placed into operation.

The surveillance requirement to verify the minimum pump discharge pressure on recirculation flow ensures that the pump performance curve has not degraded below that used to show that the pumps meet the above flow requirements and is consistent with the requirements of ASME Section XI.

3/4.7.1.3 CONDENSATE STORAGE POOL

The OPERABILITY of the condensate storage pool (CSP) with the minimum water volume ensures that sufficient water is available (173,500 gallons) to cool the Reactor Coolant System to shutdown cooling entry conditions following any design basis accident. Additional makeup water is stored in the wet cooling tower (WCT) basins providing the capability to maintain HOT STANDBY conditions for at least an additional 2 hours prior to initiating shutdown cooling. The total makeup capacity also provides sufficient cooling for 24 hours until shutdown cooling is initiated in the event the ultimate heat sink sustains tornado damage concurrent with the tornado event. The CSP contained water volume limit (91% indicated in MODES 1, 2, and 3) includes an allowance for water not usable because of vortexing and instrumentation uncertainties. This provides an assurance that a minimum of 170,000 gallons of water is available in the CSP for the emergency feedwater system and that 3,500 gallons of water is available in the CSP for use by the component cooling water makeup system. The CSP contained water volume limit (11% indicated in MODE 4) includes an allowance for water not usable because of vortexing and instrumentation uncertainties. This provides an assurance that a minimum of 3,500 gallons of water is available in the CSP for the component cooling water makeup system. If natural circulation is required, the combined capacity (WCT and CSP) is sufficient to maintain the plant at HOT STANDBY for 4 hours, followed by a cooldown to shutdown cooling entry conditions assuming the availability of only onsite power or only offsite power, and the worst single failure (loss of a diesel generator or atmospheric dump valve). This requires approximately 275,000 gallons and complies with BTP RSB 5-1.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO.137 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 July 17, 1996, as supplemented by letters dated June 3, and July 7, 1997, Entergy Operations, Inc. (the licensee), submitted a request for changes to the Waterford Steam Electric Station, Unit 3, Technical Specifications (TSs). The requested changes would modify existing TS 3.7.1.3, CONDENSATE STORAGE POOL (CSP), by increasing the minimum required contained water volume in the CSP from 82 percent to 91 percent indicated level. In addition, by a July 7, 1997, letter the licensee proposed to expand the applicability of TS 3.7.1.3 to include Mode 4 operational requirements. The proposed changes are required to ensure that the minimum useable water volume in the Condensate Storage Pool is maintained greater than or equal to 173,500 gallons. The new minimum level accounts for the minimum level required to prevent Emergency Feedwater pump suction line vortexing, to account for instrument measurement uncertainties, and to satisfy the short term water requirements for the Component Cooling Water Makeup system.

Also, by application dated April 11, 1997, the licensee requested to delete Action (b) in TS 3.7.1.3 and its associated surveillance requirement. The current technical specification allows the Wet Cooling Tower (WCT) basins to be used as the primary supply to the Emergency Feedwater (EFW) pumps extending EFW system operability up to 7 days in the event that the CSP were to become inoperable for greater than 4 hours. The proposed change will not allow this option.

2.0 EVALUATION

2.1 Condensate Storage Pool Water Level

The primary source of EFW is the CSP. The CSP is a stainless steel lined, reinforced concrete Seismic Category I pool located within the Reactor Auxiliary Building (RAB). The CSP has a capacity of approximately 210,000 gallons and must be operable in modes 1, 2, and 3 with a contained volume specified in the current TSs. The CSP, with the minimum water volume,

provides the primary source of water to the Reactor Coolant System (RCS) to shutdown cooling entry conditions following any design basis accident. An additional source of water is stored in the WCT basins providing additional capability to maintain Hot Standby conditions for at least an additional two hours prior to initiating shutdown cooling.

The indicated level specified in the current TSs (82 percent) did not account for the vortex phenomena or the instrumentation measurement uncertainties. In addition, it did not account for the water required for the Component Cooling Water Makeup (CCWM) system. The proposed level of 91 percent (approximately 191,100 gallons) is based on having at least 173,500 gallons of useable water available to cool the RCS to shutdown cooling entry conditions following any design basis accident, thus ensuring that a minimum of 170,000 gallons of water will be available in the CSP to supply the Emergency Feedwater system and 3500 gallons of water will be available for CCWM to provide makeup for CCW, Essential Chilled Water, and Emergency Diesel Generator Jacket Water systems following a tornado, LOCA, or seismic event. In addition, the proposed level allows 3.57 percent margin for vortexing with vortex breakers installed in CSP, and 4.96 percent margin for instrument measurement uncertainties.

By letter dated July 7, 1997, the licensee requested that TS 3.7.1.3 be applicable in Mode 4 and the Limiting Condition for Operation be footnoted to indicate that a minimum CSP level of 11 percent be required in Mode 4. The licensee indicated that short term requirements for CCW Makeup have been included in the design basis of the CSP to provide makeup for CCW, Essential Chilled Water, and Emergency Diesel Generator Jacket Water systems following a tornado, LOCA, or seismic event. These systems are required to be operable in Mode 4. In Mode 4, EFW is not required to be operable and therefore, the requirement to maintain 170,000 gallons for EFW is not applicable. Thus, in Mode 4, the licensee requested that only 11 percent be required to be available in the CSP to assure an adequate short term source for the CCW Makeup system. This level is based on having at least 3,500 gallons available for CCWM while accounting for the required level to suppress vortexing with vortex breakers installed and instrumentation measurement uncertainties. If the CSP becomes inoperable while in Mode 4, the licensee has proposed an action to place the unit in Cold Shutdown within 24 hours. This Action is modeled after the Cold Shutdown action statement contained in TS 3.0.3.

The Nuclear Regulatory Commission (NRC) staff has reviewed the licensee's model for predicting vortexing in EFW suction lines and determined that the licensee has provided a reasonable approach in estimating required vortexing margin after installing vortex breakers in the CSP. Considering additional margin provided for instrumentation measurement uncertainties, the staff concluded that the proposed increased minimum level will provide an adequate supply of water to the EFW and an additional 3,500 gallons of water will be available to provide makeup for CCW, Essential Chilled Water, and Emergency Diesel Generator Jacket Water systems following a tornado, LOCA, or seismic event. Also, additional changes to include Mode 4 in the TS for CSP are considered improvements in the current TSs. Therefore, the staff finds the

proposed changes acceptable. Also, corresponding changes in Bases Section 3/4.7.1.3 made by the licensee to reflect the new level are appropriate and they are acceptable to the staff.

2.2 Deleting of Action (b) in TS 3.7.1.3

The current Waterford 3 TS 3.7.1.3 limiting condition for operation (LCO) was modeled according to NUREG-0212, Revision 3, "Combustion Engineering - Standard Technical Specifications," which provides for an alternate supply for emergency feedwater in the event the CSP is unavailable as the primary source. The current TS (Action (b), TS 3.7.1.3) for Waterford 3 allows the WCT basins to be used as the primary supply to the EFW pumps extending EFW system operability up to 7 days in the event that the Condensate Storage Pool (CSP) were to become inoperable for greater than 4 hours.

Recently, the licensee and the NRC staff have identified some concerns for lining up the WCT basins as the primary source of EFW. It was documented in NRC inspection report 96-12 as Notice of Violation (NOV) 9612-05. Since the licensee could not provide an adequate basis for using WCT basins as the primary source of water for EFW when CSP is inoperable, the licensee has requested to delete Action (b) in TS 3.7.1.3 and its associated surveillance requirement in Surveillance Requirement 4.7.1.3.2. The proposed change is conservative. Therefore, it is acceptable to the staff.

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

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 and changes surveillance requirements. 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 March 26, 1997 (62 FR 14461), July 30, 1997 (62 FR 40849), and April 22, 1997 (62 FR 19624). 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.

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.

Principal Contributor: C. Patel, NRR

Date: December 18, 1997