

September 27, 1996

Mr. Michael B. Sellman
Vice President Operations
Energy Operations, Inc.
P. O. Box B
Killona, LA 70066

SUBJECT: ISSUANCE OF AMENDMENT NO. 121 TO FACILITY OPERATING LICENSE
NPF-38 WATERFORD STEAM ELECTRIC STATION, UNIT 3 (TAC NO. M94011)

Dear Mr. Sellman:

The Commission has issued the enclosed Amendment No. 121 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated November 7, 1995, as supplemented by letter dated April 11, 1996.

The amendment modifies the Appendix A TSs related to Safety Injection Tank level and pressure setpoints.

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. 121 to NPF-38
2. Safety Evaluation

cc w/encls: See next page

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NAME	P Tressler	C Patel:sp	CLiang	W. Beckner
DATE	8/7/96	8/7/96	8/7/96	9/17/96
COPY	(YES)NO	(YES)NO	(YES)NO	(YES)NO

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Handwritten: signed 9/27/96

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

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Mr. Michael B. Sellman
Vice President Operations
Entergy Operations, Inc.
P. O. Box B
Killona, LA 70066

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Sincerely,

for Chandu P. Patel

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

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2. Safety Evaluation

cc w/encs: See next page

Mr. Michael B. Sellman
Entergy Operations, Inc.

Waterford 3

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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. 121
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 November 7, 1995, as supplemented by letter dated April 11, 1996, 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.

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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. 121, 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

for 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: September 27, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 121

TO FACILITY OPERATING LICENSE NO. NPF-38

DOCKET NO. 50-382

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

REMOVE PAGE

3/4 5-1

INSERT PAGE

3/4 5-1

3/4.5 EMERGENCY COOLING SYSTEMS (ECCS)

3/4.5.1 SAFETY INJECTION TANKS

LIMITING CONDITION FOR OPERATION

3.5.1 Each Reactor Coolant System safety injection tank shall be OPERABLE with:

- a. The isolation valve open,
- b. A contained borated water volume of between 926 (40%) and 1807 (83.8%) cubic feet,
- c. Between 1720 and 2300 ppm of boron, and
- d. A nitrogen cover-pressure of between 600 and 670 psig.

APPLICABILITY: MODES 1, 2, 3*, and 4*.

ACTION:

- a. With one safety injection tank inoperable, except as a result of a closed isolation valve, restore the inoperable tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With one safety injection tank inoperable due to the isolation valve being closed, either immediately open the isolation valve or be in at least HOT STANDBY within 1 hour and be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.5.1 Each safety injection tank shall be demonstrated OPERABLE:

- a. At least once per 12 hours by:
 1. Verifying the contained borated water volume and nitrogen cover-pressure in the tanks, and
 2. Verifying that each safety injection tank isolation valve is open.

*With pressurizer pressure greater than or equal to 1750 psia. When pressurizer pressure is less than 1750 psia, at least three safety injection tanks must be OPERABLE, each with a minimum pressure of 235 psig and a maximum pressure of 670 psig, and a contained borated water volume of between 1332 (61%) and 1807 (83.8%) cubic feet. With all four safety injection tanks OPERABLE, each tank shall have a minimum pressure of 235 psig and a maximum pressure of 670 psig, a boron concentration of between 1720 and 2300 ppm boron, and a contained borated water volume of between 888 (39%) and 1807 (83.8%) cubic feet. In MODE 4 with pressurizer pressure less than 392 psia (700 psia for remote shutdown from LCP-43), the safety injection tanks may be isolated.

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 1% of tank volume by verifying the boron concentration of the safety injection tank solution.
- c. At least once per 31 days when the RCS pressure is above 1750 psia, by verifying that the isolation valve operator breakers are padlocked in the open position.
- d. At least once per 18 months by verifying that each safety injection tank isolation valve opens automatically under each of the following conditions:
 - 1. When an actual or simulated RCS pressure signal exceeds 535 psia, and
 - 2. Upon receipt of a safety injection test signal.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 121TO

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 November 7, 1995, as supplemented by letter dated April 11, 1996, 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 modify the TSs related to Safety Injection Tanks (SIT) level and pressure setpoints. The April 11, 1996, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination or expand the scope of the original Federal Register notice.

2.0 EVALUATION

There are four SITs in the Emergency Core Cooling System (ECCS) at Waterford 3. These SITs are designed to provide borated water to the reactor vessel (RV) during the blowdown and refill phase following a Large Break Loss of Coolant Accident (LBLOCA). During plant operation, the SITs are partially filled with borated water and pressurized with nitrogen gas. Appropriate pressure and water level are maintained in the SITs during plant operation to assure that tank water will be injected into the RV following a LBLOCA at a rate and volume consistent with safety analysis.

The current TS 3/4.5.1 requires that SITs be operable with a water volume in the range of 1679 cubic feet (78%) to 1807 cubic feet (83.8%) and a nitrogen pressure between 600 psig to 625 psig. The proposed changes to TS 3/4.5.1 would require that the SITs be operable with a water volume in the range of 926 cubic feet (40%) to 1807 cubic feet (83.8%) and a nitrogen pressure between 600 psig to 670 psig. These changes would reduce the excessive cycling of Safety Injection System components for frequent refill of the SITs due to system leakage.

The licensee has provided the results of an analysis to support its proposed TS changes. The supporting analysis was performed in two steps:

- 1) The first step was a parametric study of SIT level and pressure, over the expanded ranges, to determine the limiting SIT conditions for use in the LBLOCA analysis. The results of the study determined that for the range of level (40 percent to 83.8 percent indicated) and pressure (600 to 670 psig indicated) that was investigated, the maximum level and minimum pressure are the limiting SIT conditions for the LBLOCA analysis which would result in the worst consequences following a LBLOCA. Small break LOCA evaluation was also performed to justify the proposed changes regarding SIT conditions. It is concluded that the changes are acceptable because the limiting small break LOCA, the 0.04 ft², discharge leg break, does not credit injection from SITs. For breaks larger than 0.04 ft², increasing SIT pressure and decreasing SIT level results in an increased SIT flow rate and, therefore, would improve the transient results.
- 2) The second step was to reanalyze the LBLOCA using Asea Brown Boveri Combustion Engineering's NRC approved ECCS performance evaluation model documented in CENPD-132, Supplement 3-P-A, "Calculational Methods for the CE Large Break LOCA Evaluation Model for the Analysis of CE and Westinghouse Designed NSSS", June 1985, with the limiting SIT conditions identified in step 1 above. The results of the reanalysis demonstrated conformance to the ECCS acceptance criteria of 10 CFR 50.46, and there is a high level of probability that the criteria will not be exceeded.

The acceptance criteria of 10 CFR 50.46 are outlined below:

1. The calculated maximum fuel element cladding temperature shall not exceed 2200°F.
2. The calculated total oxidation of the cladding shall nowhere exceed 0.17 times the total cladding thickness before oxidation.
3. The calculated total amount of hydrogen generated from the chemical reaction of the cladding with water or steam shall not exceed 0.01 times the hypothetical amount that would be generated if all of the metal in the cladding cylinders surrounding the fuel, excluding the cladding surrounding the plenum volume, were to react.
4. Calculated changes in core geometry shall be such that the core remains amenable to cooling.
5. After any calculated successful initial operation of the ECCS, the calculated core temperature shall be maintained at an acceptably low value and decay heat shall be removed for the extended period of time required by the long-lived radioactivity remaining in the core.

The licensee determined that the proposed changes are also acceptable for a Small Break Loss of Coolant Accident (SBLOCA) since the analysis of the limiting SBLOCA does not credit water injection from SITs following the event. The staff agrees with this licensee's conclusion.

The licensee's proposed changes in TS 3/4.5.1 reflect the changes discussed above. The staff has reviewed the licensee's assessment presented in its submittal and finds that the changes are reasonably conservative and are acceptable.

The bases of the staff's acceptance are as follows:

- 1) The licensee has identified the most limiting conditions associated with the water level and pressure of the SITs using parametric study. The postulated LBLOCA has been reanalyzed assuming the most limiting water level and pressure identified above. The results of the licensee's reanalysis confirms that the ECCS acceptance criteria of 10 CFR 50.46 are met. The staff agrees with the licensee's assessment.
- 2) The proposed TS limits of the SIT water level and pressure would result in less severe consequences following a LBLOCA. Therefore, they are conservative and acceptable.
- 3) The license used the approach specified above which is consistent with the requirements of 10 CFR 50.46 to support its ECCS modifications.

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. 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 58401). 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. Y. Liang

Date: September 27, 1996