November 14, 1989

Docket No. 50-382

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Mr. J. G. Dewease
Senior Vice President - Nuclear Operations
Louisiana Power and Light Company
Post Office Box 60340
New Orleans, Louisiana 70160

Dear Mr. Dewease:

SUBJECT: ISSUANCE OF AMENDMENT NO. 59 TO FACILITY OPERATING LICENSE NPF-38 - WATERFORD STEAM ELECTRIC STATION, UNIT 3 (TAC NO. 75069)

The Commission has issued the enclosed Amendment No. 59 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 October 5, 1989 as supplemented by letters dated October 23 and November 1, 1989.

The amendment changes the Appendix A Technical Specifications by revising the requirements on boron dilution and charging pumps - operating to permit changing plant operation from Mode 3 to Mode 2 by deborating the reactor coolant system.

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

Sincerely,

/s/

David L. Wigginton, Project Manager
Project Directorate IV
Division of Reactor Projects - III, IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 59 to NPF-38
2. Safety Evaluation

cc w/enclosures:
See next page

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

November 14, 1989

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Senior Vice President - Nuclear Operations
Louisiana Power and Light Company
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The amendment changes the Appendix A Technical Specifications by revising the requirements on boron dilution and charging pumps - operating to permit changing plant operation from Mode 3 to Mode 2 by deborating the reactor coolant system.

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Sincerely,

David L. Wigginton, Project Manager
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Office of Nuclear Reactor Regulation

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cc w/enclosures:
See next page

cc:
W. Malcolm Stevenson, Esq.
Monroe & Leman
201 St. Charles Avenue, Suite 3300
New Orleans, Louisiana 70170-3300

Mr. E. Blake
Shaw, Pittman, Potts & Trowbridge
2300 N Street, NW
Washington, D.C. 20037

Resident Inspector/Waterford NPS
Post Office Box 822
Killona, Louisiana 70066

Mr. Ralph T. Lally
Manager of Quality Assurance
Middle South Services, Inc.
Post Office Box 61000
New Orleans, Louisiana 70161

Chairman
Louisiana Public Service Commission
One American Place, Suite 1630
Baton Rouge, Louisiana 70825-1697

Mr. R. F. Burski
Nuclear Safety and Regulatory Affairs Manager
Louisiana Power & Light Company
317 Baronne Street
New Orleans, Louisiana 70112

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
Office of Executive Director for
Operations
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Mr. William H. Spell, Administrator
Nuclear Energy Division
Department of Environmental Quality
Post Office Box 14690
Baton Rouge, Louisiana 70898

President, Police Jury
St. Charles Parish
Hahnville, Louisiana 70057

William A. Cross
Bethesda Licensing Office
3 Metro Center
Suite 610
Bethesda, Maryland 20814

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

LOUISIANA POWER AND LIGHT COMPANY

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 59
License No. NPF-38

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

   A. The application for amendment by Louisiana Power and Light Company (the licensee) dated October 5, 1989 as supplemented by letters dated October 23 and November 1, 1989, 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. 59 , 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Frederick J. Hebdon, Director
Project Directorate IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 14, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 59

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 page is also provided to maintain document completeness.

Remove	Insert
3/4 1-15	3/4 1-15
3/4 1-16	3/4 1-16

BORON DILUTION

LIMITING CONDITION FOR OPERATION

3.1.2.9 Boron concentration shall be verified consistent with SHUTDOWN MARGIN requirements of Specifications 3.1.1.1, 3.1.1.2, and 3.9.1. Boron dilution events shall be precluded by either "a" or "b" below.

a. 1. Two boron dilution alarms (startup channel high neutron flux) shall be OPERABLE with the alarms set in accordance with Specification 4.1.2.9.5

and

2. i. If the plant is in MODE 4, then remove power to at least one charging pump.

ii. If the plant is in MODE 5 with $k_{eff} \leq 0.97$, then remove power to at least one charging pump.

iii. If the plant is in MODE 5 with $k_{eff} > 0.97$, then remove power to at least two charging pumps.

iv. If the plant is in MODE 6, then remove power to at least two charging pumps.

OR

b. 1. The primary makeup water flow path to the reactor coolant system shall be isolated

and

2. Do not operate the plant in the configurations prohibited by Tables 3.1-1 through 3.1-5 for the current MODE.

APPLICABILITY: MODES 3*, 4, 5, and 6.

*While any shutdown CEA is less than 145 inches withdrawn.

ACTION:

a. With the boron concentration not consistent with required SHUTDOWN MARGIN, initiate emergency boration.

b. With one boron dilution alarm inoperable and the primary makeup water flow path to the reactor coolant system not isolated, determine reactor coolant system boron concentration within one hour and at least at the monitoring frequency specified in Tables 3.1-1 through 3.1-5.

c. With both boron dilution alarms inoperable and the primary makeup water flow path to the reactor coolant system not isolated, determine the reactor coolant system boron concentration by two independent means within one hour and at least at the monitoring frequency specified in Tables 3.1-1 through 3.1-5; otherwise, immediately suspend all operations involving positive reactivity changes or CORE ALTERATIONS (if applicable).

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.1.2.9.1 The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 from MODE 2.

4.1.2.9.2 Each required boron dilution alarm shall be demonstrated OPERABLE by the performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days, and a CHANNEL CALIBRATION at least once per 18 months.

4.1.2.9.3 If the primary makeup water flow path to the Reactor Coolant System is isolated to fulfill 3.1.2.9.b, the required primary makeup water flow path to the Reactor Coolant System shall be verified to be isolated by either locked closed manual valves, deactivated automatic valves secured in the isolation position, or by power being removed from all charging pumps, at least once per 24 hours.

4.1.2.9.4 The requirements of Specification 3.1.2.9.a.2 or 3.1.2.9.b.2 shall be verified at least once per 24 hours.

4.1.2.9.5 Each required boron dilution alarm setpoint shall be adjusted to less than or equal to twice (2x) the existing neutron flux (cps) at the following frequencies:

a. At least once per 5 hours if the reactor has been shut down less than 25 hours;

b. At least once per 24 hours if the reactor has been shut down greater than or equal to 25 hours but less than 7 days;

c. At least once per 7 days if the reactor has been shut down greater than or equal to 7 days.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.1.2.9.1 The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 from MODE 2.

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4.1.2.9.4 The requirements of Specification 3.1.2.9.a.2 or 3.1.2.9.b.2 shall be verified at least once per 24 hours.

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c. At least once per 7 days if the reactor has been shut down greater than or equal to 7 days.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 59 TO

FACILITY OPERATING LICENSE NO. NPF-38

LOUISIANA POWER AND LIGHT COMPANY

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated October 5, 1989 as supplemented by letters dated October 23 and November 1, 1989, Louisiana Power and Light Company (LP&L or the licensee) requested changes to the Technical Specifications (Appendix A to Facility Operating License No. NPF-38) for Waterford Steam Electric Station, Unit 3. The revised Technical Specifications (TS) will permit more operable charging pumps in various shutdown modes at different k_{eff} values while two boron dilution alarms are operable. The intention of this change is to resolve two concerns from the current TS 3.1.2.9. First, the requirements of the minimum number of operable charging pumps are not consistent between TS 3.1.2.9 and TS 3.1.2.4. Second, the current TS 3.1.2.9 permits only one operable charging pump during Mode 3 when k_{eff} is greater than 0.98. This restriction causes operational difficulty when entering Mode 2 from Mode 3 and the dilution of RCS boron concentration using charging pumps is needed. Supplementary information was submitted by the licensee's letters dated October 23 and November 1, 1989 to support its proposed change of TS 3.1.2.9. The supplemental information was to clarify the proposal in the October 5, 1989 letter and did not change the staff's determination of no significant hazards consideration published in the Federal Register on October 23, 1989 (54 FR 43210).

2.0 EVALUATION

The current TS 3.1.2.9 requires two boron dilution alarms operable or the primary make-up path to the reactor coolant system be isolated and operation is prohibited in certain configurations specified in Tables 3.1-1 through 3.1-5. However, the requirements in these tables are based on an assumption that a 30 minute operator action for manual sampling of the boron concentration of the reactor coolant system is needed to identify a boron dilution event. Therefore, the restrictions of the Tables 3.1-1 through 3.1-5 are intended to serve as an alternate means of protection for a boron dilution event when one or two boron dilution alarms are not available.

The licensee proposed that TS 3.1.2.9 contain two separate sets of restrictions to guard against a boron dilution event. The restrictions of Specification 3.1.2.9.a apply when two boron dilution alarms are operable. These restrictions are based on required operator response time after an alarm consistent with SRP 15.4.6. That is 15 minutes for Modes 3, 4, and 5 and 30 minutes for Mode 6. When less than two boron dilution alarms are operable, TS 3.1.2.9.b does not allow the plant to be operated in the configurations prohibited by Table 3.1-1 through 3.1-5. These restrictions are based on the operator response time of SRP 15.4.6 plus an additional 30 minutes for sampling the boron concentration of the reactor coolant system. This part of the TS is essentially the same as the current TS 3.1.2.9.

In response to the staff request, the licensee in its letter dated November 1, 1989, provided the results of an analysis to support the revised TS 3.1.2.9. The staff has reviewed the calculated times between alarm and loss of shutdown margin for a postulated boron dilution event during various operating modes and k_{eff} values. The staff has concluded that the proposed new restrictions in TS 3.1.2.9.a meet the guidelines in SRP 15.4.6.

The revised TS 3.1.2.9.a will provide operational flexibility when the plant is transitioning between Modes 3 and 2. Also, it is consistent with the requirements of TS 3.1.2.4 which requires at least two charging pumps operable during Modes 1 through 4. However, when one or two boron dilution alarms are not operable and TS 3.1.2.9.b is in affect, the restriction from Tables 3.1-1 through 3.1-5 was not consistent with the requirements of TS 3.1.2.4. Therefore, the staff recommends that the licensee consider a change to TS 3.1.2.4 to define the applicability of TS 3.1.2.4 of Modes 1, 2, and Modes 3, 4 when there are two boron dilution alarms operable. In discussions with the licensee, this change is not needed at this time and a proposed amendment will be submitted in the future to correct the concern.

Based on the above evaluation, the staff concludes that proposed TS 3.1.2.9 is acceptable.

3.0 EXIGENT CIRCUMSTANCES

The conflict with the TS issued by Amendment No. 48, which would preclude reactor startup by deboration, was first discovered by reactor operators. Discussions within the licensee organization began on correcting the conflict by license amendment but no immediate action was deemed necessary at that time. During a subsequent management review, the licensee staff learned that the upcoming startup following the outgoing refueling would use deboration to reach criticality. This method is best for determining certain physics parameters for operation in Cycles 3 and 4. The license notified the NRC staff of the urgent need for the license amendment, arranged a special Safety Review Committee meeting to approve the request, and submitted the proposed TS change promptly thereafter. The licensee currently plans to

enter Mode 2 on November 15, 1989 which will not allow the full 30 days for comments on the proposed action. A delay in issuing the amendment will, on the current restart schedule, delay the restart.

4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if the operation of the facility in accordance with the amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
(3) Involve a significant reduction in a margin of safety.

The original analysis of the boron dilution accident for Waterford 3 and the Technical Specifications under which the facility was licensed included provisions for operation with two dilution alarms operable. This allowed initial reactor startup using boron dilution to establish physics parameters. Amendment 48 was issued in December 1988 to reduce conservatism and clarify monitoring frequencies but it inadvertently deleted the provisions which would allow startup by boron dilution. With the dilution alarms operable, the provisions change for charging pumps operable in going from Mode 3 to Mode 2. The staff's analysis and evaluation confirms that the proposed changes are within the bounds of the analysis that the plant was licensed under and that the accident analysis with alarms operable does support the proposed changing plant operations from Mode 3 to Mode 2. Therefore, the change in Technical Specifications returned the plant to the original licensing basis and preserves the analysis from Amendment 48. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated. The boron dilution accident has been evaluated and the change to return original license provisions does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Operation with dilution alarms operable and charging pumps in operation from Mode 3 to Mode 2 was approved for the original licensing of Waterford 3. Amendment 48 inadvertently altered this provision. This proposed change corrects the Technical Specifications, preserves the SRP guidelines, and therefore, does not involve a significant reduction in a margin of safety. On the basis of the above, the change to allow changing plant operation from Mode 3 to Mode 2 with dilution alarms operable does not involve a significant hazards consideration.

5.0 CONTACT WITH STATE OFFICIAL

The NRC staff has advised the Administrator, Nuclear Energy Division, Office of Environmental Affairs, State of Louisiana of the proposed determination of no significant hazards consideration. No comments were received.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment relates to changes in requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. 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 this amendment.

7.0 CONCLUSION

Based upon its evaluation of the proposed changes to the Waterford 3 Technical Specifications, the staff has concluded that: there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. The staff, therefore, concludes that the proposed changes are acceptable, and are hereby incorporated into the Waterford 3 Technical Specifications.

Dated: November 14, 1989

Principal Contributor: C. Liang
D. Wigginton