

April 1, 1988

Docket No. 50-382

Mr. J. G. Dewease
Senior Vice President - Nuclear Operations
Louisiana Power and Light Company
317 Baronne Street, Mail Unit 17
New Orleans, Louisiana 70112

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Dear Mr. Dewease:

SUBJECT: ISSUANCE OF AMENDMENT NO. 35 TO FACILITY OPERATING LICENSE
NPF-38 - WATERFORD STEAM ELECTRIC STATION, UNIT 3
(TAC NO. 67367)

The Commission has issued the enclosed Amendment No. 35 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 January 28, 1988.

The amendment changes the Appendix A Technical Specifications by revising the shutdown cooling flow to 2000 gpm at 375 hours after reactor shutdown.

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

A copy of the Safety Evaluation supporting the amendment is also enclosed. Notice of Issuance will be included in the Commission's next Bi-weekly 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. 35 to NPF-38
2. Safety Evaluation

cc w/enclosures:
See next page

LTR NAME: WATERFORD 3 AMEND 3/15/88

PD4/LA *DM*
PNoonan
03/17/88

PD4/PM *AW*
DWigginton:vh
03/21/88

RSB *MS*
WHodges
03/22/88

OGC-Rockville
03/28/88

PD4/D *MC*
JCalvo
03/01/88
04

*concur -
with minor changes
APH as noted
APIT*

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*concur -
with minor changes
APH as noted
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 1, 1988

Docket No. 50-382

Mr. J. G. Dewease
Senior Vice President - Nuclear Operations
Louisiana Power and Light Company
317 Baronne Street, Mail Unit 17
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A copy of the Safety Evaluation supporting the amendment is also enclosed. Notice of Issuance will be included in the Commission's next Bi-weekly Federal Register notice.

Sincerely,

A handwritten signature in black ink, appearing to read "D. L. Wigginton".

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. 35 to NPF-38
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. Jerrold G. Dewease
Louisiana Power & Light Company

Waterford 3

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Chairman
Louisiana Public Service Commission
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Office of Environmental Affairs
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President, Police Jury
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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. 35
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 January 28, 1988, 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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PDR ADDCK 05000382
P PDR

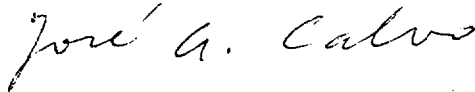
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. NPF-38 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 35, 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



Jose A. Calvo, 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: April 1, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 35
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

3/4 9-8
3/4 9-9

Insert

3/4 9-8
3/4 9-9

REFUELING OPERATIONS

3/4.9.8 SHUTDOWN COOLING AND COOLANT CIRCULATION

HIGH WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.1 At least one shutdown cooling train shall be OPERABLE and in operation.*

APPLICABILITY: MODE 6 when the water level above the top of the reactor pressure vessel flange is greater than or equal to 23 feet.

ACTION:

With no shutdown cooling train OPERABLE and in operation, suspend all operations involving an increase in the reactor decay heat load or a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required shutdown cooling train to OPERABLE and operating status as soon as possible. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

SURVEILLANCE REQUIREMENTS

4.9.8.1 At least one shutdown cooling train shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 4000 gpm** at least once per 12 hours.

*The shutdown cooling loop may be removed from operation for up to 1 hour per 8-hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

**The minimum flow may be reduced to 3000 gpm after the reactor has been shut down for greater than or equal to 175 hours or by verifying at least once per hour that the RCS temperature is less than 135°F. The minimum flow may be reduced to 2000 gpm after the reactor has been shut down for greater than or equal to 375 hours.

REFUELING OPERATIONS

LOW WATER LEVEL

LIMITING CONDITION FOR OPERATION

3.9.8.2 Two[#] independent shutdown cooling trains shall be OPERABLE and at least one shutdown cooling train shall be in operation.*

APPLICABILITY: MODE 6 when the water level above the top of the reactor pressure vessel flange is less than 23 feet.

ACTION:

- a. With less than the required shutdown cooling trains OPERABLE, immediately initiate corrective action to return the required trains to OPERABLE status, or to establish greater than or equal to 23 feet of water above the reactor pressure vessel flange, as soon as possible.
- b. With no shutdown cooling train in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required shutdown cooling train to operation. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

SURVEILLANCE REQUIREMENTS

4.9.8.2 At least one shutdown cooling train shall be verified to be in operation and circulating reactor coolant at a flow rate of greater than or equal to 4000 gpm** at least once per 12 hours.

[#]Only one shutdown cooling train is required to be OPERABLE provided there are no irradiated fuel assemblies seated within the reactor pressure vessel.

*The shutdown cooling loop may be removed from operations for up to 1 hour per 8-hour period during the performance of CORE ALTERATIONS in the vicinity of the reactor pressure vessel hot legs.

**The minimum flow may be reduced to 3000 gpm after the reactor has been shut down for greater than or equal to 175 hours or by verifying at least once per hour that the RCS temperature is less than 135°F. The minimum flow may be reduced to 2000 gpm after the reactor has been shut down for greater than or equal to 375 hours.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 35 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 January 28, 1988, 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 proposed changes addressed by this amendment would add provisions to allow the shutdown cooling flow to be reduced to 2000 gpm at 375 hours after the reactor is shut down.

2.0 DISCUSSION

On July 9, 1987, the NRC issued Generic Letter 87-12 "Loss of Residual Heat Removal (RHR) While the Reactor Coolant System (RCS) is Partially Filled" which, with other NRC and industry publications, noted the effect of shutdown cooling (SDC) flow rate upon the potential for vortexing at the connection of the SDC suction line to the RCS when the RCS is partially drained. The Generic Letter requested licensees to investigate the potential loss of residual heat removal (RHR) and the effects of such a loss on operations. As a part of the review, licensees have further requested technical specification changes to allow for reduced SDC flow to around 2000 gpm when decay heat and other considerations are appropriate. For the proposed amendment, LP&L has addressed decay heat and boron stratification concerns.

3.0 EVALUATION

The licensee has performed analyses to determine SDC flow rates required to remove decay heat during Mode 6 (refueling) at several different times following reactor shutdown. The heat removal rate of the SDC heat exchanger was determined at steady state RCS and SDC system conditions for several SDC flow rates. The decay heat curves were then used to determine the times after reactor shutdown when the decay heat rate equaled the heat exchanger power for the selected SDC flow rates. The licensee has chosen the flow rate of 2000 gpm at 375 hours after reactor shutdown as the next appropriate level for RHR operation; the Technical Specifications already address 3000 gpm after the reactor has been shutdown for at least 175 hours.

The licensee's analysis included conservatisms in the overall heat transfer coefficients and decay heat concerns, which contain a 10% conservatism, from NUREG-0800, Branch Technical Position ASB 9-2, Revision 2. No credit was taken for heat losses from the RCS and SDC system piping. The resulting analysis of 2000 gpm at 375 hours after reactor shutdown is, therefore, acceptable.

The licensee further analyzed the effects of reduced SDC system flow on the potential for boron stratification, i.e., inadequate boron mixing. Also of concern in the boron dilution event is the loop transit time or time to criticality with the most limiting flow. At 2000 gpm, the flow is still well within the turbulent flow regime and the loop transit time is less than half the minimum time to criticality for the most limiting dilution event. Therefore, the SDC flow rates at 2000 gpm and greater are acceptable.

The licensee has proposed to revise the Technical Specification to incorporate the additional SDC system flow of 2000 gpm at 375 hours after reactor shutdown and we find the proposed changes acceptable.

4.0 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.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment relates to changes in 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.

6.0 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: April 1, 1988

Principal Contributor: David L. Wigginton