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March 25, 1988

J. G. DEWEASE  
SENIOR VICE PRESIDENT  
NUCLEAR OPERATIONS

W3P88-0046  
A4.05  
QA

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

SUBJECT: Waterford SES Unit 3  
Docket No. 50-382  
Proposed Technical Specification Change NPF-38-76

Gentlemen:

Please find attached Technical Specification Change NPF-38-76. The proposed change would revise Technical Specification 3.1.2.9, Boron Dilution as a result of a reevaluation of the boron dilution event for Waterford 3.

Upon completion of the Cycle 3 reload, when in modes 4 and 5, LP&L will institute administrative controls until the proposed Technical Specification is approved. These controls will require plant operators to isolate unborated primary makeup to the RCS when in modes 4 and 5. While this configuration is sufficient to minimize the potential for a boron dilution event, there may be several conditions in which it would be beneficial to add unborated primary makeup water to the RCS. Therefore, the expeditious review of the proposed change would be greatly appreciated.

Should you have any questions, please feel free to contact me or Larry Laughlin at (504) 595-2845.

Yours very truly,

*J. G. Dewease*  
J.G. Dewease  
Senior Vice President  
Nuclear Operations

JGD/LWL/tsy

Attachment

cc: E.L. Blake, W.M. Stevenson, J.A. Calvo, D.L. Wigginton, R.D. Martin,  
NRC Resident Inspector's Office (W3)

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

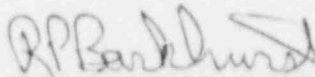
In the matter of

Louisiana Power & Light Company  
Waterford 3 Steam Electric Station

)  
)  
) Docket No. 50-382  
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AFFIDAVIT

R.P. Barkhurst, being duly sworn, hereby deposes and says that he is Vice President-Nuclear of Louisiana Power & Light Company; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached Technical Specification Change Request NPF-38-76; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.



R.P. Barkhurst  
Vice President-Nuclear

STATE OF LOUISIANA)

) ss

PARISH OF ORLEANS )

Subscribed and sworn to before me, a Notary Public in and for the Parish and State above named this 25th day of March, 1988.



Notary Public

My Commission expires

For life

DESCRIPTION AND SAFETY ANALYSIS  
OF PROPOSED CHANGE NPF-38-76

This is a request to revise Technical Specification 3.1.2.9, Boron Dilution.

Existing Specifications

See Attachment A

Proposed Specifications

See Attachment B

Description

The proposed change would revise Technical Specification 3.1.2.9, Boron Dilution. This Technical Specification is designed to ensure sufficient time (30 minutes for mode 6, 15 minutes for modes 3-5 per Standard Review Plan Section 15.4.6, Chemical and Volume Control System Malfunction that Results in a Decrease in Boron Concentration in the Reactor Coolant) exists to prevent a loss of shutdown margin should an inadvertent boron dilution event occur. The proposed change to this specification is as follows:

1. Revise LCO 3.1.2.9b. The proposed change would add a LCO for mode 4 as well as simplify the mode 5 requirements. These changes are requested as a result of a conservative re-analysis of the boron dilution event discussed below. In addition, LCO 3.1.2.9c was incorporated into LCO 3.1.2.9b.
2. All references to LCO 3.1.2.9c will be deleted.
3. The proposed change would add a statement to surveillance requirement 4.1.2.9.3. Isolation of the primary water flow path may be required when one or both boron dilution alarms are inoperable (see LCO 3.1.2.9a). However, Surveillance 4.1.2.9.3 requires that the isolation of the flow path should be verified at least once per 24 hours. A statement to clarify this ambiguity is being proposed.
4. The proposed change would eliminate the mode 5 and 6 requirements in surveillance 4.1.2.9.4. The deletion of this statement will make this surveillance consistent with the proposed change to LCO 3.1.2.9b.
5. The proposed change would revise the monitoring frequencies for backup boron dilution detection specified in Tables 3.1-1 through 3.1-5. See the discussion below.

### Background

A recent analysis at Waterford 3 indicated that when using the Shutdown Cooling System for core decay heat removal, an assumption of complete mixing within the Reactor Coolant System (RCS) may be inappropriate for certain restricted operating conditions. To the extent the scenario is credible, this would tend to result in higher rates of reduction of coolant boron concentration within the core during an inadvertent injection of unborated water into the RCS (i.e., a boron dilution event).

The analysis indicated that there may be conditions during modes 4 and 5 where zero flow may exist through both steam generators or through only one steam generator. This condition may occur during a RCS cooldown using the Shutdown Cooling System if the steam generator secondary side temperature becomes greater than RCS temperature. For such a scenario, flow through a steam generator makes a transition from forward flow to reverse flow and may include a short period of stagnant flow. A second scenario may occur near the end of a long outage where core decay heat levels are low and may be unable to provide sufficient driving head to move water through the steam generators. In both cases, the net result is to reduce the effective RCS volume available for mixing by the amount of water in the steam generators. The above concerns do not apply if one or more reactor coolant pumps are in operation.

Based on the traditional approach to boron dilution analyses, the guidance of the SRP, and Generic Letter 85-05 LP&L does not feel that a requirement exists to consider the above scenario for the Technical Specifications or Chapter 15 of the FSAR. Nonetheless, in taking a conservative approach to plant safety, a Technical Specification change is being proposed to take into account the effects of a reduced active RCS volume.

The results of this analysis show that, for Cycle 3, the current LCO and monitoring frequencies in Tables 3.1-1 through 3.1-5 of Technical Specification 3.1.2.9 may not be sufficient for the operator to recognize a decrease in boron concentration and take appropriate corrective action without a total loss of shutdown margin. The proposed change, therefore, will change LCO 3.1.2.9b as well as Tables 3.1-1 through 3.1-5 to ensure compliance with SRP 15.4.6. To address this concern prior to the approval of the proposed change, procedure OP-903-001, Tech Spec Surveillance Logs, will be changed to require unborated primary makeup to the RCS be isolated in modes 4 and 5.

### Safety Analysis

The proposed change described above shall be deemed to involve a significant hazards consideration if there is a positive finding in any of the following areas:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequence of any accident previously evaluated?

Response: No

As mentioned above, a re-analysis of the boron dilution event at Waterford 3 was performed using a very conservative minimum mixing water volume. The proposed change will modify Technical Specification 3.1.2.9 to ensure that the minimum time intervals for operator action are available (30 minutes for mode 6, 15 minutes for modes 3-5) based on the new boron dilution analysis.

In addition, the proposed change will also add a LCO for mode 4 as well as modify the LCO for mode 5 operation. These changes are consistent with the boron dilution event analysis discussed above. These changes will ensure that enough time exists to prevent a total loss of shutdown margin should an inadvertent boron dilution event occur. Therefore, the proposed change will not result in a significant increase in the probability or consequences of any accident previously evaluated.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

There has been no physical change to plant systems, structures or components nor will the proposed change affect the ability of any of the safety-related equipment required to mitigate anticipated operational occurrences or accidents. The proposed change will ensure enough time exists to prevent a total loss of shutdown margin should an inadvertent boron dilution event occur. Thus, operation of the facility in accordance with the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No

The intent of Technical Specification 3.1.2.9 is to ensure that enough time exists to prevent a loss of shutdown margin should an inadvertent boron dilution event occur. The proposed change will ensure that there is sufficient time for the operator to recognize a decrease in boron concentration and take appropriate corrective action without total loss of shutdown margin. Thus, operation of the facility in accordance with the proposed change will not result in a significant reduction in the margin of safety.

Safety and Significant Hazards Determination

Based on the above Safety Analysis, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10CFR50.92; and (2) there is a reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (3) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC Final Environmental Statement.

ATTACHMENT A