

July 11, 2001

MEMORANDUM TO: Biweekly Notice Coordinator

FROM: Donnie J. Ashley, Project Manager, Section 2 /RA/
Project Directorate II
Division of Licensing Project Management

SUBJECT: REQUEST FOR PUBLICATION IN BI-WEEKLY FR NOTICE - NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES, PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION, AND OPPORTUNITY FOR A HEARING (TAC NOS. MB2321 AND MB2322)

Carolina Power & Light Company, et al., Docket Nos. 50-325 and 50-324,

Brunswick Steam Electric Plant, Units 1 and 2, Brunswick County, North Carolina

Date of amendments request: June 26, 2001

Description of amendments request: The proposed amendments would revise the Technical Specifications to support a modification that would install a digital Power Range Neutron Monitoring (PRNM) system. The modification would supersede plant modifications previously installed in support of Carolina Power & Light Company's implementation of Enhanced Option I-A, and will allow full implementation of the Boiling Water Reactor Owners Group (BWROG) Option III Reactor Stability Long-Term Solution.

Basis for proposed no significant hazards consideration determination: As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. The proposed license amendments do not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change will replace the currently installed and NRC approved Enhanced Option I-A long-term stability solution, which prohibits operation in areas with the potential for instability, with an NRC approved Option III long-term stability solution. The PRNM hardware meets the General Design Criteria (GDC) 10 and 12 requirements by automatically detecting and suppressing design basis thermal-hydraulic oscillations prior to exceeding the fuel Minimum Critical Power Ratio (MCPR) Safety Limit. The accident probability will not change since the

instability is suppressed prior to exceeding the MCPR Safety Limit, the solution has defense-in-depth features, and is of robust design. In addition, the PRNM system does not interact with equipment whose failure could cause an accident, and compliance is retained for regulatory criteria established for PRNM system and associated plant equipment. Scram setpoints in the PRNM system will be established so that analytical limits are met. The reliability of the new system will meet or exceed that of the existing system and, as a result, the scram reliability will be equal to or better than the existing system. No new challenges to safety-related equipment will result from the PRNM system.

Proper operation of the PRNM system does not affect any fission product barrier or Engineered Safety Feature. Thus, the proposed change cannot change the consequences of any accident previously evaluated. As stated above, the PRNM system meets the requirements of GDC 10 and 12 by automatically detecting and suppressing design basis thermal-hydraulic oscillations prior to exceeding the fuel MCPR Safety Limit.

Based on the above, the operation of the new PRNM system and replacement of the currently installed Enhanced Option I-A stability solution with the Option III Oscillation Power Range Monitor (OPRM) function will not increase the probability or consequences of an accident previously evaluated.

2. The proposed license amendments will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The components of the PRNM system will be supplied to equivalent or better design and qualification criteria than is currently required for the plant. Equipment that could be affected by the PRNM system has been evaluated. No new operating mode, safety-related equipment lineup, accident scenario, system interaction, or equipment failure mode was identified. Therefore, the PRNM system will not adversely affect plant equipment.

The current plant design using the Enhanced Option I-A long-term stability solution depends on prohibited operating regions with an automatic scram if the exclusion region of the power/flow map is entered and an automatic rod block if the restricted region of the power/flow map is entered. The current design also relies on operator action to manually scram the plant if automatic monitoring of neutron flux through the period based detection system (PBDS) provides an instability alarm when in a region that has a potential for instability. The modification implementing PRNM replaces these automatic and manual requirements with a fully automatic detect and suppress capability to assure that instability events that occur will be terminated before the MCPR Safety Limit is exceeded. The "scram and rod block enforced" restrictions on the operating region are relaxed. Potential failures in the OPRM Upscale function could result in either failure to take the required mitigating action or an unintended reactor scram, which are the same potential effects of failure of the currently installed Enhanced Option I-A functions.

The PRNM modification and associated changes to the Technical Specifications involve equipment that is designed to detect the symptoms of certain events or accidents and initiate mitigating actions. The worst [case] failure of the equipment involved in the modification is a failure to initiate mitigating action (i.e., scram or rod block), but no failure can cause an accident of a new or different kind than any previously evaluated.

Based on the above, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed license amendments do not involve a significant reduction in a margin of safety.

The current safety analyses assume that the existing Enhanced Option I-A related Technical Specification requirements are adequate to prevent an instability event. PBDS is provided as part of the design to detect and suppress an instability event as a defense-in-depth feature. As a result, there is currently no impact on the MCPR Safety Limit identified for an instability event.

The Option III OPRM trip function is being implemented to fully automate the detection, via direct measurement of neutron flux, and subsequent suppression, via scram, of an instability event prior to exceeding the MCPR Safety Limit. Other OPRM trip features (i.e., Growth and Amplitude Algorithms) are provided as part of a robust design and defense-in-depth feature for unanticipated oscillations. Currently, the MCPR Safety Limit is not challenged by an instability event since the event is prevented by automatic means or mitigated by automatic and manual means via the Enhanced Option I-A functions. In both methods the margin of safety associated with the MCPR Safety Limit is maintained.

Other changes such as setpoint revisions, removing the Average Power Range Monitor Downscale function from the Reactor Protection System trip logic, removing the number of operable Local Power Range Monitors from the automatic trip logic, and lengthening the Surveillance Requirement frequencies are shown to be acceptable, as documented in licensing topical report (LTR) NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC-PRNM) Retrofit Plus Option III Stability Trip Function," October 1995, and LTR NEDC-32410P-A Supplement 1, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC-PRNM) Retrofit Plus Option III Stability Trip Function," November 1997. Both of these LTRs have been reviewed and approved by the NRC.

Based on the above, the proposed change will not involve a significant reduction in the margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff

proposes to determine that the amendment request involves no significant hazards consideration.

Attorney for licensee: William D. Johnson, Vice President and Corporate Secretary, Carolina Power & Light Company, Post Office Box 1551, Raleigh, North Carolina 27602

NRC Section Chief: Patrick M. Madden, Acting

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