

March 25, 2003

Mr. J. S. Keenan
Vice President
Brunswick Steam Electric Plant
Carolina Power & Light Company
Post Office Box 10429
Southport, North Carolina 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2 - ISSUANCE OF
AMENDMENT REGARDING REVISION OF SAFETY LIMIT MINIMUM
CRITICAL POWER RATIO (TAC NO. MB6670)

Dear Mr. Keenan:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 254 to Facility Operating License No. DPR-62 for Brunswick Steam Electric Plant, Unit 2. The amendment changes the Technical Specifications (TS) in response to your submittal dated November 7, 2002, as supplemented February 17, 2003.

The amendment revises the Safety Limit Minimum Critical Power Ratio (SLMCPR) values contained in TS 2.1.1.2, and revises the SLMCPR values from 1.09 to 1.11 for two recirculation loop operation, and from 1.10 to 1.13 for single recirculation loop operation.

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's bi-weekly Federal Register Notice.

Sincerely,

/RA/

Brenda L. Mozafari, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-324

Enclosures:

1. Amendment No. 254 to License No. DPR-62
2. Safety Evaluation

cc w/enclosures: See next page

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ADAMS Accession No.: ML 030870244(Letter)

**No substantial changes to SE.

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DATE	3/7/03	3/7/03	3/24/03	3/21/03	2/28/03

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CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 254
License No. DPR-62

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by Carolina Power & Light Company (the licensee), dated November 7, 2002, as supplemented February 17, 2003, 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. DPR-62 is hereby amended to read as follows

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 254, are hereby incorporated in the license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented prior to startup for Unit 2 Cycle 16 operation.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Allen G. Howe, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 25, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 254

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

Replace the following page of the Appendix "A" Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains a marginal line indicating the area of change.

Remove Page

Insert Page

2.0-1

2.0-1

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 254 TO FACILITY OPERATING LICENSE NO. DPR-62
CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2
DOCKET NO. 50-324

1.0 INTRODUCTION

By letter dated November 7, 2002 (Reference 1), as supplemented by letter dated February 17, 2003 (Reference 2), Carolina Power & Light Company (CP&L, the licensee) proposed changes to the Technical Specifications (TS) for the Brunswick Steam Electric Plant, Unit 2 (BSEP2). The proposed changes include revising the Safety Limit Minimum Critical Power Ratio (SLMCPR) values in TS 2.1.1.2 for BSEP2 Cycle 16 operation based on a maximum power level of 2923 megawatts thermal (MWt), which is 120 percent of the original licensed power level. The BSEP2 Cycle 16 core has 560 fuel assemblies, of which there are 238 fresh GE14 fuel bundles, 220 once-burned GE14 fuel bundles, and 102 twice-burned GE13 fuel bundles. The revision of these values requires analysis to ensure Generic Design Criterion (GDC) 10 of Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 regarding acceptable fuel design limits is maintained.

The February 17, 2003, supplemental letter contained clarifying information only and did not change the initial no significant hazards consideration determination or expand the scope of the initial *Federal Register* notice (67 FR 75869).

2.0 REGULATORY EVALUATION

The NRC staff finds that the licensee identified the applicable regulatory requirements in Section 5.2 of its November 7, 2002, submittal. The regulatory requirements that the NRC staff considered in its review of the application are in 10 CFR 50.36, "Technical Specifications," which provides the regulatory requirements for the content required in a licensee's TS revision of the SLMCPR values. Revision of these SLMCPR values requires analysis to ensure that compliance with GDC 10 of Appendix A to 10 CFR Part 50, regarding acceptable fuel design limits, is maintained.

3.0 TECHNICAL EVALUATION OF TS 2.1.1 - REACTOR CORE SAFETY LIMITS

The licensee requested a change to the BSEP2 TS in accordance with 10 CFR 50.90. The proposed revision of the TS is described below.

The licensee proposed to change the SLMCPR values in TS 2.1.1.2 for BSEP2 Cycle 16 operation from 1.09 to 1.11 for two recirculation loop operation and from 1.10 to 1.13 for single recirculation loop operation with the reactor vessel steam dome pressure greater than or equal to 785 psig and core flow greater than or equal to 10 percent of rated core flow.

The licensee described the approved methodologies used to calculate the SLMCPR value for the proposed TS change in the submittal. The Cycle 16 SLMCPR analysis was performed by Global Nuclear Fuel - Americas, LLC (GNF-A) using plant- and cycle-specific fuel and core parameters, and NRC-approved methodologies including NEDC-32505P, Revision 1 (R-Factor Calculation Method for GE11, GE12, and GE13 Fuel), NEDE-10958-A (GETAB), NEDC-32601P (Methodology and Uncertainties for Safety Limit MCPR Evaluations), NEDC-32694P (Power Distribution Uncertainties for Safety Limit MCPR Evaluation), and Amendment 25 to NEDE-24011-P-A (GESTAR II).

The NRC staff reviewed the licensee's application dated November 7, 2002, and the response to the NRC staff's Request for Additional Information (RAI) dated February 17, 2003, including the detailed summary results of the analysis for BSEP2 Cycle 16 operation in Table 1 of Enclosure 2 (Reference 1) to determine whether the proposed changes to BSEP2 Cycle 16 SLMCPR values were justified.

The NRC staff has reviewed the justification for the changes to the SLMCPR from 1.09 to 1.11 for two recirculation loop operation and from 1.10 to 1.13 for single recirculation loop operation using the approach stated in Amendment 25 to GESTAR II. The NRC staff has also reviewed: (1) a possible impact on SLMCPR values with respect to power shape during BSEP2 Cycle 16 operation; and (2) the cause of the large increase of SLMCPR values in relation to the major core design difference between Cycle 15 and Cycle 16. The licensee explained in Reference 2 that: (1) the licensee's analysis has appropriately considered any potential penalties, given the power shape throughout the cycle; and (2) operation in Cycle 16 will be at a thermal power 365 MWt higher than that of Cycle 15, and to attain the extra energy the licensee will use a larger batch size, higher batch enrichment, and flatter radial power distribution relative to Cycle 15. The NRC staff finds the justification for the proposed Cycle 16 SLMCPR values acceptable because: (1) the most conservative result was chosen to provide operating margin at the uprated power level; and (2) NRC-approved methodologies are used to perform the calculation for the SLMCPR values.

Based on the results of the review, the NRC staff finds that the SLMCPR analysis for BSEP2 Cycle 16 operation uses appropriate plant- and cycle-specific parameters in conjunction with the approved method, and is acceptable. The proposed Cycle 16 SLMCPR values will ensure that 99.9 percent of the fuel rods in the core will not experience boiling transition, which satisfies the requirements of GDC 10 regarding acceptable fuel design limits. The NRC staff has also concluded that the justification for analyzing and determining the SLMCPR value of 1.11 for two recirculation loop operation and of 1.13 for single recirculation loop operation is acceptable for BSEP2 Cycle 16 since approved methodologies are used. Also, the licensee's analysis has appropriately considered any potential penalties, given the power shape throughout the cycle.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of North Carolina official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATIONS

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 (67 FR 75869). 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.

6.0 REFERENCES

1. Letter (BSEP 02-0174, TSC-2002-10) from John S. Keenan to USNRC, "Brunswick Steam Electric Plant, Unit 2, Docket No. 50-324/License No. DPR-62, Request for License Amendment Regarding Technical Specification 2.1.1.2, Reactor Core Safety Limits Minimum Critical Power Ratio Safety Limit," November 7, 2002.
2. Letter (BSEP 03-0036) from John S. Keenan to USNRC, "Brunswick Steam Electric Plant, Unit No. 2, Docket No. 50-324/License No. DPR-62, Response to Request for Additional Information Regarding Technical Specification 2.1.1.2, Reactor Core Safety Limits Minimum Critical Power Ratio Safety Limit," February 17, 2003.

Principal Contributor: T. Huang

Date: March 25, 2003

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