

September 30, 1997

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

SUBJECT: ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT -
EXEMPTION ALLOWING USE OF AN ALTERNATE METHOD FOR DETERMINING
REACTOR VESSEL PRESSURE AND TEMPERATURE LIMITS - BRUNSWICK STEAM
ELECTRIC PLANT, UNITS 1 AND 2, (BSEP 95-0371) (TAC NOS. M97938 AND
M97939)

Dear Mr. Hinnant:

Enclosed is a copy of the Environmental Assessment and Finding of No
Significant Impact related to your application for exemption dated August 15,
1997. The proposed exemption would allow Carolina Power & Light Company
(CP&L) to use the 1992 Edition of the American Society of Mechanical Engineers
(ASME) Boiler and Pressure Vessel Code, Section XI, Appendix A, as an
alternative to the 1989 Edition of the ASME Code, Section XI, Appendix G, for
determination of reactor pressure vessel pressure and temperature
requirements.

The assessment is being forwarded to the Office of the Federal Register for
publication.

Sincerely,

Original signed by:

David C. Trimble, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-325
and 50-324

Enclosure:
Environmental Assessment

cc w/enclosure: See next page
FILENAME - G:\BRUNSWIC\BR97938.ENV *See previous concurrence

OFFICE	PM:PD21	LA:PD21*	PGE*	OGC*	D:PD-21
NAME	DTrimble	EDunnington			JLyons
DATE	9/29/97	09/23/97	09/24/97	09/26/97	09/29/97
COPY	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO

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Mr. C. S. Hinnant
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cc:

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UNITED STATES NUCLEAR REGULATORY COMMISSION
CAROLINA POWER & LIGHT COMPANY
DOCKET NOS. 50-325 AND 50-324
BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
ENVIRONMENTAL ASSESSMENT AND FINDING OF
NO SIGNIFICANT IMPACT

The U. S. Nuclear Regulatory Commission (the Commission or NRC) is considering issuance of an exemption from the requirements of 10 CFR Part 50, Appendix G, to Carolina Power & Light Company (CP&L or licensee) for the Brunswick Steam Electric Plant, Units 1 and 2 (BSEP1&2), located in Brunswick County, North Carolina.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

In accordance with 10 CFR 50.60, "Acceptance criteria for fracture prevention measures for lightwater nuclear power reactors for normal operation," BSEP1&2 must meet the fracture toughness requirements for the reactor coolant pressure boundary set forth in Appendix G to 10 CFR Part 50. Proposed alternatives to those requirements may be used when an exemption is granted by the Commission.

10 CFR Part 50, Appendix G, "Fracture Toughness Requirements," specifies fracture toughness requirements for ferritic materials of pressure-retaining components of the reactor coolant pressure boundary to provide adequate margins of safety during any condition of normal operation, including anticipated operational occurrences and system hydrostatic tests, to which the pressure boundary may be subjected over its service lifetime. Pressure-

temperature (P-T) limits and minimum temperature requirements for reactor pressure vessels (RPVs) are set forth in 10 CFR 50, Appendix G, which incorporates, by reference, P-T limits specified in Appendix G of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI. 10 CFR 50, Appendix G, Section IV.A.2.b, requires that the P-T limits identified in 10 CFR 50, Appendix G, as "ASME Appendix G limits" must be at least as conservative as limits obtained by following the methods of analysis and the margins of safety of the ASME Code, Section XI, Appendix G. 10 CFR 50, Appendix G, Section I, states that "If no edition or addenda are specified, the ASME Code edition and addenda and any limitations and modifications thereof, which are specified in 10 CFR 50.55a, are applicable." With respect to P-T limits, 10 CFR 50, Appendix G, does not specify the edition or addenda of the ASME Code; therefore, the editions and addenda of the ASME Code, Section XI, referred to in 10 CFR 50, Appendix G, are those specified in 10 CFR 50.55a, which include addenda through the 1988 Addenda and editions through the 1989 Edition.

The proposed exemption would allow CP&L to use the 1992 Edition of the ASME Code, Section XI, Appendix A, as an alternative to the 1989 Edition of the ASME Code, Section XI, Appendix G, for determination of BSEP1&2 RPV P-T requirements. The licensee provided information in its application for exemption that demonstrates the equivalency of the proposed alternative method for determining RPV P-T limits to that specified in the 1989 Edition of the ASME Code, Section XI, Appendix G.

The licensee's exemption request and the bases therefore are contained in a CP&L letter dated August 15, 1997. The exemption request is associated with a CP&L application for license amendments for BSEP1&2 dated

January 7, 1997, as supplemented on July 25, 1997, and September 15, 1997. That application, which was noticed in the *Federal Register* on March 12, 1997 (62 FR 11485), will-

(1) correct an error involving a transposition of P-T curves between BSEP1&2.

(2) replace the current BSEP1&2 RPV hydrostatic test P-T curves for 8, 10, and 12 effective full power years (EFPY) with new 14 and 16 EFPY curves.

The Need for the Proposed Action:

CP&L has proposed an alternative to the requirements of 10 CFR 50, Appendix G. In accordance with 10 CFR 50.60(b), an exemption must be granted by the Commission before the proposed alternative may be used by the licensee. The alternative, and thus the exemption, is needed because CP&L identified typographical errors in equations contained in both the 1989 and 1992 Editions of the ASME Code, Section XI, Appendix G. The alternative of using the 1992 Edition of the ASME Code, Section XI, Appendix A in the determination of P-T limits avoids the problem presented by the typographical errors and achieves a level of safety commensurate to that provided by use of the 1989 Edition of the ASME Code, Section XI, Appendix G. Furthermore, the alternative provides a more efficient means for the licensee to determine the P-T limits for the BSEP1&2 RPVs.

Environmental Impacts of the Proposed Action:

The Commission has completed its evaluation of the proposed exemption. The exemption would authorize use of an alternative means for determining RPV P-T limits that is equivalent to that provided by 10 CFR 50, Appendix G and provides a commensurate level of safety.

The proposed action will not increase the probability or consequences of accidents, no changes are being made in the types of any effluents that may be released offsite, and there is no significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the Commission concludes that there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological impacts, the proposed action involves features located entirely within the restricted area, as defined in 10 CFR Part 20. It does not affect nonradiological plant effluents and has no other environmental impact. Accordingly, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed action.

Accordingly, the Commission concludes that there is no significant environmental impact associated with this action.

Alternatives to the Proposed Action:

Since the Commission has concluded there is no significant environmental impact associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated. As an alternative to the proposed action, the staff considered denial of the proposed action. Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the Final Environmental Statement for the BSEP dated January 1974.

Agencies and Persons Consulted:

In accordance with its stated policy, on September 24, 1997, the staff consulted with the North Carolina State official, Mr. J. James, of the North Carolina Department of Environment, Commerce and Natural Resources, Division of Radiation Protection, regarding the environmental impact of the proposed action. The State official had no comments.

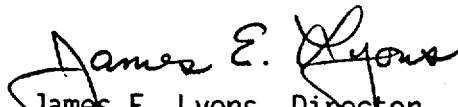
FINDING OF NO SIGNIFICANT IMPACT

Based upon this environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated August 15, 1997, which is available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC, and at the local public document room located at the University of North Carolina at Wilmington, William Madison Randall Library, 601 College Road, Wilmington, North Carolina 28403-3297.

Dated at Rockville, Maryland, this 30th day of September, 1997.

FOR THE NUCLEAR REGULATORY COMMISSION



James E. Lyons, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

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~~Robert Fisher~~

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