



Progress Energy

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SERIAL: BSEP 04-0129

10 CFR 50.12

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
Docket Nos. 50-325 and 50-324/License Nos. DPR-71 and DPR-62
Application For Exemption to Appendix J of 10 CFR 50

Gentlemen:

Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), requests an exemption to Appendix J of 10 CFR Part 50, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. Specifically, PEC requests that leakage from the main steam isolation valves (MSIVs) be exempted from inclusion in the Type A overall containment integrated leak rate test results, as required by 10 CFR 50, Appendix J, Paragraph III.A.

The enclosure to this letter provides a detailed justification and evaluation of the proposed exemption. The proposed exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Furthermore, special circumstances are present that warrant the granting of this exemption.

A Type A containment leakage test will be performed during the next BSEP, Unit 2 refueling outage, which is currently scheduled to begin March 5, 2005. PEC requests the proposed exemption be granted prior to the start of this Unit 2 refueling outage in order to eliminate the unnecessary requirement, as is currently mandated by the existing regulation, to include MSIV leakage in assessing overall integrated containment leakage.

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Please refer any questions regarding this submittal to Mr. Leonard R. Beller, Supervisor – Licensing and Regulatory Programs, at (910) 457-2073.

Sincerely,

A handwritten signature in black ink that reads "Leonard R. Beller". The signature is fluid and cursive. Below the signature, the word "For" is written in a smaller, simpler font.

Edward T. O'Neil
Manager - Support Services
Brunswick Steam Electric Plant

WRM/wrm

Enclosure: Application For Exemption to Appendix J of 10 CFR 50

cc (with enclosure):

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Carolina Power & Light Company, now doing business as Progress Energy Carolinas, Inc. (PEC), requests an exemption to Appendix J of 10 CFR Part 50, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. Specifically, PEC requests that leakage from the main steam isolation valves (MSIVs) be exempted from inclusion in the Type A overall containment integrated leak rate test results, as required by 10 CFR 50, Appendix J, Paragraph III.A.

I. Applicable Rule

The pertinent applicable rule is 10 CFR 50, Appendix J, Option B, Paragraph III.A, which states, in part:

Type A tests to measure the containment system overall integrated leakage rate must be conducted under conditions representing design basis loss-of-coolant accident containment peak pressure.

Paragraph II of 10 CFR 50, Appendix J, Option B defines the overall integrated leakage rate as the total leakage rate through all tested leakage paths, including containment welds, valves, fittings, and components that penetrate the containment system.

II. Requested Exemption

PEC requests an exemption from the requirements of 10 CFR 50, Appendix J, Option B, Paragraph III.A, to allow exclusion of MSIV leakage from the overall integrated leakage rate measured when performing a Type A test.

III. Justification

On May 30, 2002 (Reference 1), the NRC issued Amendment Nos. 221 and 246 to the Facility Operating Licenses for the BSEP, Units 1 and 2, respectively. These amendments revised the Technical Specifications to replace the accident source term used in loss-of-coolant accident (LOCA), main steam line break (MSLB) accident, and control rod drop accident (CRDA) design basis analyses with an alternate source term (AST) in accordance with 10 CFR 50.67, "Accident Source Term." On March 14, 2002 (Reference 2), the NRC issued Amendment Nos. 218 and 214 for BSEP, Units 1 and 2, revising the facility Technical Specifications to replace the accident source term used in the fuel handling accident (FHA) design basis accident analyses with an alternate source term in accordance with 10 CFR 50.67.

Under the pre-AST design basis accident radiological consequence analyses, MSIV leakage was added to the overall containment integrated leakage rate, as measured by the Type A test specified in 10 CFR 50, Appendix J, Option B. By Reference 3, BSEP

Units 1 and 2 were authorized to use the Option B provisions of 10 CFR Part 50, Appendix J.

Under the AST design basis accident radiological consequence analyses, as approved in Reference 1, MSIV leakage has been accounted for separately from the overall containment integrated leakage. Specifically, the AST design basis accident analyses use the main steam piping, main steam drain lines, and main condenser as an alternate means for MSIV leakage treatment. Under the pre-AST design basis, certain main steam and main steam line drain piping, as well as the main condenser, were not classified as seismic category I components. As part of the AST analyses, the main steam, main steam line drain piping, and main condenser that comprise the alternate leakage treatment pathway were demonstrated to be seismically rugged and thus capable of performing as an MSIV leakage treatment system. PEC has satisfied the Operating License Conditions that were issued as part of the AST license amendments. These license conditions required completion of seismic verification walkdowns and modifications for the alternate leakage treatment pathway prior to implementing the AST license amendments.

Section 3.0 of the safety evaluation for the AST license amendments documented the NRC's review of the alternate leakage treatment pathway. Based on the information reviewed, the NRC concluded that the main steam system piping and components which comprise the alternate leakage treatment system are seismically rugged and thus able to perform the safety function of an MSIV leakage treatment system. Section 3.2.1.4 of the NRC's Safety Evaluation reviewed radiological modeling and consequences of MSIV leakage. The section discussed MSIV leakage, as a pathway that bypasses the secondary containment, and accepted the credit for release holdup and plate-out of post-accident fission product releases in the main steam piping and main condenser that comprise the alternate leakage treatment pathway.

Based on the above information, the NRC has already reviewed and accepted that MSIV leakage for design basis accident analyses has been accounted for separately from the overall leakage associated with the primary containment boundary. As such, the requirement of 10 CFR 50, Appendix J, Option B, Paragraph III.A, that MSIV leakage be included as part of the Type A test results, is not necessary to achieve the underlying purpose of the rule; that is, ensuring the actual radiological consequences of design basis accidents remain below those analyzed as demonstrated through the measured containment leakage test.

IV. Authorized By Law

The proposed exemption is authorized by law, and has been previously granted to other licensees. For example, Reference 4 from the NRC granted this exemption to the Tennessee Valley Authority for the Browns Ferry Nuclear Plant, Units 2 and 3.

V. No Undue Risk to Public Health and Safety

The proposed exemption presents no undue risk to public health and safety. MSIV leakage for the BSEP, Units 1 and 2 design basis accident analyses has been accounted for separately from the overall leakage associated with the primary containment boundary. As such, the inclusion of MSIV leakage as part of the Type A test results is not necessary to ensure the actual radiological consequences of design basis accidents remain below those previously evaluated and accepted. The exemption will not result in any change to the previously evaluated consequences associated with design basis accidents. As such, the proposed exemption presents no undue risk to public health and safety.

VI. Consistent with Common Defense and Security

With regard to the "common defense and security" standard, the grant of the requested exemption is consistent with the common defense and security of the United States. The Commission's Statement of Considerations in support of the exemption rule note with approval the explanation of this standard as set forth in Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), LBP-84-45, 20 NRC 1343, 1400 (October 29, 1984). There, the term "common defense and security" refers principally to the safeguarding of special nuclear material, the absence of foreign control over the applicant, the protection of Restricted Data, and the availability of special nuclear material for defense needs. The granting of the requested exemption will not affect any of these matters and, thus, such grants are consistent with the common defense and security.

VII. Special Circumstances Are Present

Special circumstances are present which warrant issuance of this requested exemption. These special circumstances are discussed in accordance with the classification contained in 10 CFR 50.12(a)(2):

- (ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.

The underlying purpose of the rule is to ensure the actual radiological consequences of design basis accidents remain below those previously evaluated and accepted, as demonstrated by the actual, periodic measurement of containment leakage. Although Type A leakage test is defined as a measurement of the overall primary containment leak rate, the continued inclusion of the MSIV leakage measurements in the Type A test leakage results would result in the double counting of the MSIV leakage in assessing the actual overall leakage of the containment. As such, this exemption addresses a special circumstance in which application of the regulation requiring the inclusion of MSIV leakage in the Type A containment leakage testing results is not necessary to achieve the underlying purpose of the regulation.

VIII. Environmental Impact

The proposed exemption has been analyzed and determined not to cause additional construction or operational activities which may significantly affect the environment. The proposed exemption does not result in an increase in any adverse environmental impact previously evaluated, does not result in a change in effluents or power levels, and does not affect any matter not previously reviewed by the NRC which may have a significant adverse environmental impact.

The proposed exemption does not alter the land use for the plant; any water uses or impacts on water quality; or, air or ambient air quality. The proposed exemption does not affect the ecology of the site and vicinity and does not affect the noise emitted by the station. Therefore, the proposed exemption does not affect the analysis of environmental impacts described in the environmental report.

References:

1. Letter from Brenda L. Mozafari (U.S. NRC) to J. S. Keenan (Carolina Power & Light Company), "Brunswick Steam Electric Plant, Units 1 and 2 - Issuance of Amendment Re: Alternative Source Term," May 30, 2002, ADAMS Accession Number ML021480483.
2. Letter from Allen G. Hansen (U.S. NRC) to J. S. Keenan (Carolina Power & Light Company), "Brunswick Steam Electric Plant, Units 1 and 2 - Issuance of Amendments to Implement Technical Specification Task Force Traveler Item 51, Revision 2 (TAC Nos. MB2570 and MB2571)," March 14, 2002, ADAMS Accession Number ML020790479.
3. Letter from David C. Trimble (U.S. NRC) to W. R. Campbell (Carolina Power & Light Company), "Issuance of Amendment No. 181 to Facility Operating License No. DPR-71 and Amendment No. 213 to Facility Operating License No. DPR-62 Regarding 10 CFR Part 50, Appendix J, Option B - Brunswick Steam Electric Plant, Units 1 and 2 (BSEP 95-0316) (TAC Nos. M93679 and M93680)," February 1, 1996.
4. Letter from William O. Long (U.S. NRC) to J. A. Scalice (Tennessee Valley Authority), "Browns Ferry Nuclear Plant, Units 2 and 3 - Issuance of Exemption from 10 CFR Part 50, Appendix J (TAC Nos. MA6815 and MA6816)," ADAMS Accession Number ML993340068.