

July 12, 2000

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 NOS. 1 AND 2 - EVALUATION
OF RELIEF REQUEST CIP-11, IMPLEMENTATION OF SUBSECTIONS IWE
AND IWL OF ASME SECTION XI FOR CONTAINMENT INSPECTION
(TAC NOS. MA7780 AND MA7781)

Dear Mr. Keenan:

By letter dated October 28, 1998, you proposed several alternatives to the requirements of Subsection IWE of Section XI of the ASME Code for the Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. The NRC issued its Safety Evaluation of the alternatives in a letter dated August 10, 1999, that denied, in part, Relief Request CIP-11. By letter dated December 20, 1999, you requested the staff to reconsider the denial of Relief Request CIP-11 with respect to the ASME Code, Examination Category E-A, Item E1.20, "Visual Examinations for the Containment Vent System."

Based on our review of the information you provided for the containment vent system in Relief Request CIP-11, the staff concludes that your proposed alternative will provide an acceptable level of quality and safety. Therefore, the proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i).

Please contact Allen Hansen at (301) 415-1390 if you have any questions regarding this matter.

Sincerely,

/RA/

Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management

Docket Nos. 50-324 and 50-325

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR RELIEF CIP-11

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

CAROLINA POWER & LIGHT COMPANY

DOCKET NUMBERS 50-325 AND 50-324

1.0 INTRODUCTION

In the *Federal Register* dated August 8, 1996 (61 FR 41303), the U.S. Nuclear Regulatory Commission (NRC) amended its regulations to incorporate by reference the 1992 Edition with 1992 Addenda of Subsections IWE and IWL of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code. Subsections IWE and IWL provide the requirements for inservice inspection (ISI) of Class CC (concrete containment), and Class MC (metallic containment) of light-water cooled power plants. The effective date for the amended rule was September 9, 1996, and it requires the licensees to incorporate the new requirements into their ISI plans and to complete the first containment inspection by September 9, 2001. However, a licensee may propose alternatives to, or submit a request for relief from, the requirements of the regulation pursuant to 10 CFR 50.55a(a)(3) or (g)(5), respectively.

By letter dated October 28, 1998 (Reference 1), Carolina Power and Light Company (CP&L), the licensee, proposed several alternatives to the requirements of Subsection IWE of Section XI of the ASME Code for its Brunswick Steam Electric Plant (BSEP), Unit Nos. 1 and 2. The NRC issued its Safety Evaluation of the alternatives in a letter dated August 10, 1999 (Reference 2) that denied, in part, Relief Request CIP-11. By letter dated December 20, 1999 (Reference 3), the licensee requested the staff to reconsider the denial of Relief Request CIP-11 with respect to the ASME Code, Examination Category E-A, Item E1.20, "Visual Examinations for the Containment Vent System." NRC's findings with respect to authorizing or denying the proposed alternative are discussed in this evaluation.

2.0 EVALUATION OF RELIEF REQUEST CIP-11

2.1 Code Requirements

ASME Code, Section XI, Table IWE-2500-1, Examination Category E-A (Item Numbers E1.12 and E1.20) requires a visual (VT-3) examination of the accessible surface areas of the containment vessel during the inspection interval.

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2.2 Specific Relief Requested

Relief is requested from performing the ASME Code-required visual examination (VT-3) on the accessible surface areas of the containment vessel.

2.3 Background

CIP-11 requested relief from the ASME Code, Section XI, Subsection IWE, Table IWE-2500-1, Examination Category E-A, Items Nos. E1.12 and E1.20, which requires a visual (VT-3) examination of the accessible surface areas of the containment vessel during the inspection interval. As an alternative, CP&L proposed: (1) the performance of a general visual examination of the accessible surface areas of the containment during the first containment inspection interval, (2) performance of a detailed visual examination when evidence of degradation is detected by the examiners, (3) preparation of an engineering evaluation approved by a Registered Professional Engineer evaluating the suspect area if a detailed visual examination could not be performed, (4) having a Registered Professional Engineer periodically witness the performance of the examinations, and (5) examining the accessible surface areas of the containment vent system once per inspection period.

In its Safety Evaluation dated August 10, 1999 (Reference 2), the staff denied the use of general inspection for (1) the wetted surfaces of submerged areas of the containment vessel pressure-retaining boundary, and (2) vent system in boiling-water reactors (BWRs) (Relief Request CIP-11).

2.4 Basis of Request for Reconsideration

CP&L's original request proposed, as an alternative to the VT-3 examination at the end of the 10-year interval, a visual examination of the accessible surface areas of the vent system once per inspection period (that is, three examinations during the 10-year inspection interval). In contrast, the examination schedule in ASME Code Examination Category E-A, Item E1.20 only requires a visual examination to be performed once during the 10-year inspection interval.

In its December 20, 1999, submittal, the licensee described the BSEP containment vent system and its connection between the drywell and the wetwell (that is, the torus). The BSEP containment vents, vent header, and a major portion of each of the downcomers are not submerged. Therefore, these portions of the vent system are not locations susceptible to the degradation mechanisms that could occur in the submerged areas of the torus. These non-submerged areas of the vent system are accessible for performance of a general visual examination.

CP&L has concluded that performance of a general visual examination of the accessible (that is, non-submerged) portions of the containment vent system during each inspection period will result in detection, evaluation, and correction of any potential degradation of the accessible surface areas. Under the proposed alternative, CP&L will perform the VT-3 examination of the submerged surface areas of the vent system (that is, the submerged portions of the downcomers) in accordance with the examination schedule in Examination Category E-A, Item E1.20 (that is, at the end of the ten-year interval). On this basis, CP&L requested the NRC to reconsider the denial of Relief Request CIP-11 as it applies to the accessible (that is, non-submerged) portions of BSEP containment vent system.

2.5 Staff Evaluation of CIP-11

In its August 10, 1999, Safety Evaluation (Reference 2), the staff concluded:

Although the staff finds that a general visual examination is generally sufficient to examine accessible surface areas of the containment vessel, the staff finds that Items E1.12 (accessible surface areas of the containment vessel pressure retaining boundary) and E1.20 (accessible surface areas of the vent system in BWRs) include wetted surfaces of submerged areas and flow channeling devices within containment vessels. These areas are key locations susceptible to degradation mechanisms that could impair the leaktight integrity of the containment. The general visual examination proposed by the licensee does not provide the same requirements for the qualification of examining personnel as those specified for VT-3. It is also unclear whether the general visual examination is sufficient to detect the degradation mechanisms in these highly susceptible areas of degradation. Thus, the staff is unable to conclude that an acceptable level of safety is provided in the use of a general visual examination in lieu of a VT-3 examination for these susceptible areas of the containment.

Therefore, Relief Request No. CIP-11 is denied for (1) the wetted surfaces of submerged areas of the containment vessel pressure retaining boundary and (2) vent system in BWRs.

In its letter dated December 20, 1999 (Reference 3), the licensee requested the staff to reconsider the denial of Relief Request CIP-11 with respect to the ASME Code Examination Category E-A, Item E1.20 visual examinations for the containment vent system. The licensee's basis for requesting relief is that the containment vents, vent header, and a major portion of each of the downcomers are not submerged. Therefore, these portions of the vent system are not susceptible to the degradation mechanisms that could occur in the submerged areas of the torus, and are accessible for performing a general visual examination. The staff finds that a general visual examination provides a sufficient method to examine accessible surface areas of the containment vessel not likely to experience accelerated degradation or aging. The staff concludes that, because the containment vent system is not submerged, it is not susceptible to accelerated degradation mechanisms. Therefore, the general visual examination proposed by the licensee for the containment vent system will provide an acceptable level of quality and safety for examining the accessible surface areas. On this basis, the staff concludes that the licensee's alternative inspection approach is authorized pursuant to 10 CFR 50.55a(a)(3)(i).

3.0 CONCLUSION

Based on review of the information provided for the containment vent system in Relief Request CIP-11, the staff concludes that the licensee's proposed alternative will provide an acceptable level of quality and safety. Therefore, the proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i).

4.0 REFERENCES

1. Letter from CP&L to NRC, "Request to Use Alternatives to the ASME Boiler and Pressure Vessel Code, Section XI for Containment Inspection," dated October 28, 1998.
2. Letter from NRC to CP&L, "Evaluation of Relief Requests CIP-1 to CIP-18 - Implementation of Subsections IWE and IWL of ASME Section XI for Containment Inspection for Carolina Power and Light Company's Brunswick Steam Electric Plant, Units 1 and 2," dated August 10, 1999.
3. Letter from CP&L to NRC, "Evaluation of Containment Inspection Program Relief Request CIP-11, Brunswick Steam Electric Plant, Units 1 and 2," dated December 20, 1999.

Principal Contributor: T. Cheng

Date: July 12, 2000

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Brunswick Steam Electric Plant
Units 1 and 2

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