

March 26, 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 NOS. 1 AND 2 - REQUEST FOR RELIEF FROM THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN REQUEST FOR RELIEF RR-31 (TAC NOS. MB5631 AND MB5632)

Dear Mr. Keenan:

In a letter dated July 16, 2002, as supplemented February 11, 2003, Carolina Power & Light Company (CP&L, the licensee) submitted Relief Request RR-31 for the third 10-year interval inservice inspection program for the Brunswick Steam Electric Plant (BSEP), Units 1 and 2. In Relief Request RR-31, the licensee proposed an alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code (Code), Section XI, Appendix VIII, Supplement 11 requirements. In lieu of the Code requirements, the licensee proposed using the qualification process as administered by the Electric Power Research Institute Performance Demonstration Initiative for weld overlay qualifications. The proposed alternative is for the third 10-year interval, which began on May 11, 1998, and ends on May 10, 2008.

The NRC staff, with technical assistance from its contractor, Pacific Northwest National Laboratory (PNNL), has reviewed and evaluated the information provided in Relief Request RR-31 and the associated proposed alternative testing method against the requirements of the ASME B&PV Code, 1989 Edition, which was referenced in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a. The NRC staff has found the licensee's request to use the proposed alternative acceptable. Pursuant to 10 CFR 50.55a(a)(3)(i), Relief Request RR-31 is authorized based on the alternative providing an acceptable level of quality and safety.

The NRC staff's evaluation and conclusions are contained in the Safety Evaluation (SE) provided in the enclosure. The evaluation provided by PNNL is the Technical Letter Report provided as an attachment to the SE.

J. S. Keenan

- 2 -

If you have any questions regarding this issue, please contact Ms. Brenda Mozafari at 301-415-2020 or by e-mail at [blm@nrc.gov](mailto:blm@nrc.gov).

Sincerely,

*/RA/*

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

Docket Nos. 50-325 and 50-324

Enclosure: Safety Evaluation

J. S. Keenan

- 2 -

If you have any questions regarding this issue, please contact Ms. Brenda Mozafari at 301-415-2020 or by e-mail at blm@nrc.gov.

Sincerely,

/RA/

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

Docket Nos. 50-325 and 50-324

Enclosure: Safety Evaluation

cc w/encl: See next page

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**Attachment: ML030860823**

**\*No substantial changes to SE**

**ADAMS ACCESSION NO. ML030860525**

**Package: ML0308**

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FOR

THIRD 10-YEAR INTERVAL INSERVICE INSPECTION

REQUEST FOR RELIEF RR-31

FOR

BRUNSWICK ELECTRIC PLANT, UNITS 1 AND 2

CAROLINA POWER & LIGHT COMPANY

DOCKET NOS. 50-325 AND 50-324

1.0 INTRODUCTION

The staff of the U.S. Nuclear Regulatory Commission (NRC), with technical assistance from its contractor, Pacific Northwest National Laboratory (PNNL), reviewed and evaluated the information submitted by Carolina Power & Light Company (CP&L, the licensee) in a letter dated July 16, 2002. The licensee proposed an alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, Appendix VIII, Supplement 11, "Qualification Requirements for Full Structural Overlaid Wrought Austenitic Piping Welds," requirements at Brunswick Steam Electric Plant (BSEP), Units 1 and 2. In lieu of the Code requirements, the licensee proposed using the qualification process as administered by the Electric Power Research Institute (EPRI) Performance Demonstration Initiative (PDI) for weld overlay qualifications. In a telephone discussion with the NRC staff on December 17, 2002, the NRC staff requested that CP&L provide additional information regarding the relief request. The information requested was the same information requested of Southern Nuclear Operating Company (SNC) for the Edwin I. Hatch Nuclear Plant and referenced in the SNC response dated October 4, 2002 (ADAMS Accession Number ML0228200260). The licensee provided a response to each RAI question in a letter dated February 11, 2003.

2.0 REGULATORY REQUIREMENTS

Inservice inspection (ISI) of the ASME Code Class 1, 2, and 3 components is performed in accordance with Section XI of the ASME B&PV Code and applicable addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). The requirements of 10 CFR 50.55a(a)(3) state that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if: (i) the proposed alternatives

would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable Code of record for the third 10-year ISI for BSEP, Units 1 and 2, is the 1989 Edition of the ASME Code, Section XI and the 1995 Edition with 1996 Addenda of Appendix VIII of Section XI of the ASME Code.

### 3.0 TECHNICAL EVALUATION

The U.S. nuclear utilities created the PDI to implement performance demonstration requirements contained in Appendix VIII of Section XI of the Code. To this end, PDI has developed a program for qualifying equipment, procedures, and personnel in accordance with the ultrasonic testing criteria of Appendix VIII, Supplement 11. Prior to the Supplement 11 program, EPRI was maintaining a performance demonstration program for weld overlay qualification under the Tri-party Agreement.<sup>1</sup> Instead of having two programs with similar objectives, the NRC staff recognized the PDI program for weld overlay qualifications as an acceptable alternative to the Tri-party Agreement.<sup>2</sup>

The PDI program does not fully comport with the existing requirements of Supplement 11. PDI presented the differences at public meetings in which the NRC participated.<sup>3,4</sup> The differences are in flaw location within test specimens and fabricated flaw tolerances. The changes in flaw location permitted using test specimens from the Tri-party Agreement, and the changes in fabricated flaw tolerances provide ultrasonic testing acoustic responses similar to the responses associated with an intergranular stress corrosion crack. Based on the discussion at these

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- 1 The Tri-party Agreement is between NRC, EPRI, and the Boiling Water Reactor Owners Group (BWROG), "Coordination Plan for NRC/EPRI/BWROG Training and Qualification Activities of NDE (Nondestructive Examination) Personnel," July 3, 1984.
  - 2 Letter from William H. Bateman to Michael Bratton, "Weld Overlay Performance Demonstration Administered by PDI as an Alternative for Generic Letter 88-01 Recommendations," January 15, 2002. **(ADAMS Accession Number: ML020160532)**
  - 3 Memorandum from Donald G. Naujock to Terence Chan, "Summary of Public Meeting Held January 31 - February 2, 2002, with PDI Representatives," March 22, 2001. **(ADAMS Accession Number: ML010940402)**
  - 4 Memorandum from Donald G. Naujock to Terence Chan, "Summary of Public Meeting Held June 12 through June 14, 2001, with PDI Representatives," November 29, 2001. **(ADAMS Accession Number: ML013330156)**

public meetings and the review presented in the technical letter report (TLR) (Attachment), the NRC staff determined that the PDI program provides assurance of an acceptable level of quality and safety.

The NRC staff adopts PNNL's TLR with its evaluations and recommendations of the proposed alternative.

#### 4.0 CONCLUSION

The NRC staff adopts the evaluations and recommendations for authorizing alternatives contained in the TLR prepared by PNNL.

The NRC staff has determined that the licensee's proposed alternative (RR-31) to use the PDI program for weld overlay qualifications as described in the submittal as supplemented, in lieu of Supplement 11 to Appendix VIII of Section XI of the Code, will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative in Relief Request RR-31 is authorized for the third 10-year ISI interval at BSEP, Units 1 and 2.

All other requirements of the ASME Code, Section XI for which relief has not been specifically requested remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Attachment:  
Technical Letter Report

Principal Contributor: D. G. Naujock

Date: March 26, 2003

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Carolina Power & Light Company

Brunswick Steam Electric Plant  
Units 1 and 2

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