

November 29, 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 NO. 2 - SAFETY  
EVALUATION FOR PROPOSED ALTERNATIVE IN ACCORDANCE  
WITH 10 CFR 50.55a(a)(3)(i) FOR EXAMINATION PERCENTAGE  
REQUIREMENTS (TAC NO. MA9533)

Dear Mr. Keenan:

By letter dated August 8, 2000, as supplemented August 29, 2000, you requested that the NRC approve an alternative to the examination percentage requirements specified in Section IWB-2412 of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) at the Brunswick Steam Electric Plant, Unit 2. These examinations are required by Section XI of the ASME Code and applicable addenda as required by Section 50.55a(g) to Title 10 of the *Code of Federal Regulations* (10 CFR 50.55a(g)).

The staff has determined that you have provided an acceptable alternative to the examination percentage requirements in Section IWB-2414.

The NRC staff finds that authorization of your alternative examination would provide assurance of structural integrity and, therefore, an acceptable level of quality and safety. Accordingly, pursuant to 10 CFR 50.55a(a)(3)(i), your proposed alternative examination is authorized. The staff's Safety Evaluation is enclosed.

Please contact Donnie Ashley at (301) 415-3191 if you have any questions regarding this matter.

Sincerely,

**/RA by Robert Martin Acting For/**  
Richard P. Correia, Chief, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-324

Enclosure: As stated

cc w/encl: See next page

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**SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION**

**REGARDING RELIEF REQUEST RR-27 FOR THE**

**THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN**

**CAROLINA POWER & LIGHT COMPANY**

**BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2**

**DOCKET NO. 50-324**

1.0 INTRODUCTION

Inservice inspection (ISI) of Class 1, 2, and 3 components of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the Code) shall be performed in accordance with Section XI of the ASME Code and applicable addenda as required by Title 10 of the *Code of Federal Regulations*, Part 50, Section 50.55a(g) (10 CFR 50.55a(g)), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(3)(i) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the proposed alternatives would provide an acceptable level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection 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 before the start of the 10-year interval, subject to the limitations and modifications listed therein. For Brunswick Steam Electric Plant (BSEP), the applicable edition of Section XI of the ASME Code for the third 10-year ISI interval, which started on May 11, 1998, is the 1989 Edition with no addenda.

By letter dated August 8, 2000, as supplemented August 29, 2000, Carolina Power & Light Company (CP&L) submitted Relief Request (RR)-27 applicable to Class 1 piping welds, ASME Section XI, Categories B-J and B-F, at the BSEP, Unit 2. RR-27 stated that CP&L plans to implement a risk-informed inservice inspection (RI-ISI) program as an alternative to the current ISI program. BSEP, Unit 2, is performing inservice examinations in accordance with the schedule of Inspection Program B of IWA-2432. For Class 1 components, Table IWB-2412-1 for Inspection Program B requires a minimum of 16 percent of the required examinations in each category of welds to be completed during the first inspection period of the 10-year inspection interval. Pursuant to 10 CFR 50.55a(a)(3)(i), RR-27 seeks relief from the Table

IWB-2412-1 requirements for meeting the minimum examination percentages associated with Code Categories B-J and B-F during the first inspection interval of the third 10-year interval. CP&L excluded the augmented examinations required under Generic Letter (GL) 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping," for Category C, D, and E welds, from RR-27. The augmented examinations for resistant material welds (Category A) are included under RR-27 as they will be included in the RI-ISI program that is being developed. As discussed below, the NRC staff has reviewed and evaluated CP&L's proposed alternative pursuant to 10 CFR 50.55a(a)(3)(i).

## 2.0 EVALUATION

CP&L's relief request RR-27 proposes an alternative to the minimum examination percentages associated with ASME Class 1 Code Categories B-J and B-F for the first inspection period of the current 10-year inspection interval for BSEP, Unit 2. The NRC staff has evaluated the information provided by CP&L in support of the proposed alternative contained in RR-27. The information provided by CP&L and the NRC staff's disposition are presented below.

### 2.1 ASME Code Requirement

The 1989 Edition of the ASME Code, Section XI, requires that a minimum percentage of examinations in each category of welds be completed during each successive inspection period and inspection interval in accordance with Table IWB-2412-1 for Class 1 piping. For the first period of an inspection interval, the minimum examination requirement is 16 percent.

### 2.2 Licensee's Proposed Code Alternative

Pursuant to 10 CFR 50.55a(a)(3)(i), CP&L requested that the NRC staff approve an alternative to the Code-required minimum examination percentage for the first period of the third inspection interval (May 11, 1998, to May 11, 2008) for Class 1 piping examination Categories B-J and B-F.

In Section XI of the ASME Code, Table IWB-2412-1 requires completion of at least 16 percent examinations in the first inspection period for each category of weld. For BSEP, Unit 2, there are two refueling outages (B214R1 and B215R1) within the first period. During the first outage (B214R1), BSEP Unit 2 completed approximately 10 percent of the interval requirements for Category B-F welds and 9 percent of the interval requirements for Category B-J welds. In RR-27, CP&L requests not to perform the remaining examinations that would be needed to meet the ASME Code's required 16 percent during the next refueling outage (B215R1) scheduled to begin on February 24, 2001, because CP&L intends to develop and implement an alternative ISI program using a risk-informed approach.

### 2.3 Licensee's Basis for Relief Request

CP&L stated that:

In the *Federal Register* on August 16, 1995 (i.e., 60 FR 42622), the NRC published a policy statement which indicated that the use of probabilistic risk assessment (PRA) methods in nuclear regulatory activities should be increased to the extent supported by the state of the art in PRA methods and data and in a manner that complements the

NRC's deterministic approach. In support of the NRC policy for incorporating risk insights into the regulatory framework, Regulatory Guide 1.178, "An Approach For Plant-Specific Risk-Informed Decisionmaking Inservice Inspection of Piping," was published in July 1998. This Regulatory Guide provides guidance on approaches considered acceptable to the NRC in meeting the existing Section XI requirements for the scope and frequency of ISI programs. The Regulatory Guide indicates that until RI-ISI is approved for generic use, the NRC will consider approval, in accordance with 10 CFR 50.55a(a)(3)(i), of licensee requests to use risk-informed information to support change in nuclear power plant ISI programs.

Subsequently, in Information Notice 98-44, "Ten-Year Inservice Inspection (ISI) Program Update For Licensees That Intend To Implement Risk-informed ISI Of Piping," the NRC indicated that it will consider authorizing a delay of up to two years in the implementation of a 10-year ISI Program, for piping only, to allow licensees to develop and obtain approval for [an] RI-ISI Program using NRC-approved topical reports.

BSEP is currently in the first inspection period of the third 10-year inspection interval. The first inspection period ends on May 11, 2001. For BSEP, Unit No. 2, there are two refueling outages during the first inspection period: Refueling Outage 13 (i.e., B214R1) and Refueling Outage 14 (i.e., B215R1). During Refueling Outage 13 for BSEP, Unit No. 2, CP&L completed examinations of approximately 10 percent of the interval requirements for Category B-F welds and 9 percent of the interval requirements for Category B-J welds.

Because the first inspection period ends on May 11, 2001, to meet the period requirements of IWB-2412-1, the remaining Category B-J and B-F welds must be examined during the next BSEP, Unit No. 2 refueling outage (i.e., B215R1), currently scheduled for February-March 2001. This request for relief will eliminate the performance of piping weld examinations that may be no longer required under an RI-ISI program, with the resultant savings in radiation exposure and plant resources.

#### 2.4 Licensee's Proposed Alternative Examination

In accordance with 10 CFR 50.55a(3)(i), CP&L proposes an alternative to the ASME Code examination requirements for Class 1 piping welds. CP&L states that:

Carolina Power & Light (CP&L) Company is currently developing [an] RI-ISI Program using the guidance of ASME Section XI Code Case N-578, "Risk-Informed Requirements For Class 1, 2, and 3 Piping, Method B," for Code Category B-J and B-F piping welds. This RI-ISI Program is expected to result in a substantial reduction in the required number of piping weld examinations. The RI-ISI Program will be developed and submitted, prior to BSEP, Unit No. 2 Refueling Outage 14 (i.e., B215R1), for subsequent NRC review and approval. Upon approval of the RI-ISI Program submittal, examination of the reduced number of piping welds will be scheduled over the remainder of the outages in the third 10-year inspection interval. BSEP, Unit No. 2 will be in conformance with the minimum percentage of welds requiring inspection by the end of the second inspection period of the third 10-year inspection interval.

#### 2.5 NRC Staff Evaluation

The NRC staff has reviewed the information in CP&L's letters dated August 8 and August 29, 2000, regarding ISI RR-27, including CP&L's proposed alternative for the first inspection period of the third 10-year interval, pertaining to Class 1 piping welds. The ASME Code Section XI requires that at least 16 percent of these welds be examined during the first period of an inspection interval. During Refueling Outage 13 for BSEP, Unit No. 2, CP&L completed examinations of approximately 10 percent of the interval requirements for Category B-F welds and 9 percent of the interval requirements for Category B-J welds. For BSEP, Unit 2, this means that the remaining welds not examined from the first outage (B214R1) should be examined in the next outage 14 (B215R1) of the period.

In Information Notice (IN) 98-44, "Ten-Year Inservice Inspection (ISI) Program Update for Licensees that Intend to Implement Risk-Informed ISI of Piping," the NRC stated that for licensees that intend to implement an RI-ISI program for piping and do not have a pilot plant application currently being reviewed by the NRC staff, the staff will consider authorizing a delay of up to 2 years in the implementation of the next 10-year ISI program for piping only. The BSEP, Unit 2, ISI program for the second 10-year interval started on May 11, 1998. CP&L does not have a pilot plant application reviewed by the NRC staff. CP&L indicated that it will submit an RI-ISI program prior to the Refueling Outage B215R1 scheduled for February-March 2001. This proposal is within the 2-year delay period discussed in IN 98-44 for implementing the alternative program using RI-ISI methodology. CP&L further indicated that BSEP, Unit 2, will be in conformance with the minimum percentage of welds requiring inspection by the end of the second inspection period of the third 10-year interval. CP&L's request excludes the augmented examinations required under GL 88-01, for Category C, D, and E welds.

Recently completed weld examinations in this period of approximately 10 percent of the interval requirements for Category B-F welds and 9 percent of the interval requirements for Category B-J welds provide assurance of weld integrity. The RI-ISI program that will be developed is expected to result in substantial reduction in the required number of piping weld examinations, which will be spread over the remaining outages in the interval that began in May 1998. Deferral of the non-augmented examinations scheduled to be conducted in B215R1 will not have an impact upon CP&L's ability to complete the examinations determined to be necessary based upon the RI-ISI methodology. Furthermore, the RI-ISI program developed by CP&L will be reviewed by the NRC and will require NRC authorization before implementation. Therefore, the NRC staff finds that CP&L's proposed alternative in RR-27 provides an acceptable level of quality and safety.

### 3.0 CONCLUSION

On the basis of the information provided in CP&L's letter and relief request, and the target date established by CP&L to submit the alternative RI-ISI program, the NRC staff concludes that relief from performing Class 1 piping weld examinations during B215R1, as required by the ASME Code to meet the minimum percentage of examination, is acceptable. Accordingly, the staff authorizes RR-27, "Examination Category B-J , B-F Period Requirements," Revision 0, pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the request provides an acceptable level of quality and safety. By this Safety Evaluation, the NRC staff authorizes an alternative to the

minimum examination percentages associated with the Code Categories B-J and B-F welds for the first inspection period of the current inspection interval. This authorization does not apply to augmented piping examinations.

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Date: November 29, 2000

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