



**Carolina Power & Light Company**

Robinson Nuclear Plant  
3581 West Entrance Road  
Hartsville SC 29550

Serial: RNP-RA/00-0139

**AUG 10 2000**

United States Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261/LICENSE NO. DPR-23

REQUEST FOR RELIEF FROM ASME BOILER AND PRESSURE VESSEL  
CODE, SECTION XI, REGARDING AUSTENITIC WELD EXAMINATION  
REQUIREMENTS FOR REACTOR PRESSURE VESSEL, PIPING, AND WELDS

Ladies and Gentlemen:

This letter requests relief in accordance with 10 CFR 50.55a(a)(3) from the requirements of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components." The relief request involves the implementation schedule required for ASME B&PV Code, 1995 Edition, with 1996 Addenda, Section XI, Appendix VIII Supplement 2, "Qualification Requirements for Wrought Austenitic Piping Welds," specimen requirements for welds examined from the outside surfaces and the use of a length sizing acceptance criteria of 0.75 inch Root Mean Square (RMS) error for indications detected during Supplement 4, "Qualification Requirements for the Clad/Base Metal Interface of Reactor Vessel," qualifications for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2.

Relief is requested from the specimen qualification for ASME B&PV Code, Section XI, 1995 Edition, with 1996 Addenda, Appendix VIII, Supplement 2 specimen requirements for welds examined from the outside surfaces, after May 22, 2000, as stated in 10 CFR 50.55a(g)(6)(ii)(C). As an alternative to conducting Appendix VIII, Supplement 2 exams from the outside surface, CP&L is requesting the exams be conducted in conjunction with the Reactor Pressure Vessel (RPV) Ten Year Inservice Inspection (ISI) examination from the inside surfaces of the welds during Refueling Outage 20 currently scheduled for April 2001.

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The proposed alternative qualifications will allow access to the weld circumference in conjunction with the nozzle to shell and dissimilar metal weld qualifications without causing hardship and unusual difficulty associated with the high occupational does expected from the external examination qualifications.

Relief is also requested to allow the use of a length sizing acceptance criteria of 0.75 inch RMS error per ASME Code Case N-622, "Ultrasonic Examination of RPV and Piping, Bolts, and Studs" as an alternative to the length sizing requirements of ASME Section XI, 1995 Edition, with 1996 Addenda, Appendix VIII, Supplement 4, Subparagraph 3.2(b), "Sizing Acceptance Criteria."

HBRSEP, Unit No. 2 is currently in its Third Ten Year ISI, which began on February 19, 1992. This relief, if approved, will be implemented during the HBRSEP, Unit No. 2 Third Ten Year Inservice Inspection Interval. This relief is requested to be approved by February 1, 2001.

If you have any questions concerning this matter, please contact Mr. H. K. Chernoff.

Sincerely,



R.L. Warden

Manager - Regulatory Affairs

PMY/pmy  
Attachment

c: Mr. L. A. Reyes, NRC, Region II  
Mr. R. Subbaratnam, NRC, NRR  
NRC Resident Inspector, HBRSEP

## H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

### RELIEF REQUEST No. 29 - RELIEF FROM APPENDIX VIII, SUPPLEMENT 2 IMPLEMENTATION REQUIREMENTS AND USE OF CODE CASE N-622 LENGTH SIZING CRITERIA FOR SUPPLEMENTS 4 AND 6 QUALIFICATIONS.

#### **Code Requirements for Which Relief is Requested**

10 CFR 50.55a(g)(6)(ii)(C) requires implementation of Appendix VIII to ASME B&PV Code, 1995 Edition, with 1996 Addendum on an accelerated basis. Appendix VIII, Supplements 2 and 3 is required to be implemented by May 22, 2000, and Supplements 4 and 6 by November 22, 2000.

ASME Boiler and Pressure Vessel Code (B&PV), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components", 1995 Edition with 1996 Addenda, requires that Austenitic welds be examined using personnel, procedures and equipment qualified to the requirements of Appendix VIII, Supplement 2, "Qualification Requirements for Wrought Austenitic Piping Welds."

#### **Specific Relief Requested**

Relief is requested from the specimen qualification required for ASME B&PV Code, Section XI, Appendix VIII, Supplement 2 for welds examined from the outside surfaces, after May 22, 2000, as stated in 10 CFR Part 50.55a(g)(6)(ii)(C).

Relief is also requested to use a length sizing acceptance criteria of 0.75 inch Root Mean Square (RMS) error for indications detected during ASME B&PV Code, Section XI, Appendix VIII, Supplement 4 qualifications.

#### **Alternate Examinations**

##### *Specimen Qualification*

Relief is requested from implementing ASME B&PV Code, Section XI, Appendix VIII, Supplement 2 specimen qualifications from the outside surfaces of the welds adjacent to, or attaching to, the Reactor Pressure Vessel (RPV) nozzles through Refueling Outage (RO)-20, which is currently scheduled for April 2001. This relief will allow using the specimen qualifications that are performed from the inside surface in conjunction with the approved nozzle to shell and dissimilar metal weld qualifications, which are not required to be implemented until November 22, 2002<sup>1</sup>, to be accomplished together.

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<sup>1</sup> NRC Letter dated October 19, 1992, "H.B. Robinson Steam Electric Plant, Unit No. 2 -Relief Requests for Third Ten-Year Interval Inservice Inspection Plan (TAC No. M81310)"

### *Length Sizing Criteria*

As an alternative to the length sizing requirements of ASME B&PV Code, Section XI, 1995 Edition, 1996 Addenda, Appendix VIII, Supplement 4, Subparagraph 3.2(b), a length sizing acceptance criteria of 0.75 inch RMS error per ASME Code Case N-622, "Ultrasonic Examination of RPV and Piping, Bolts, and Studs," is proposed to be used.

### **Basis for Relief**

#### *Specimen Qualification*

10 CFR 50.55a(g)(6)(ii)(C) requires the implementation of the ASME B&PV Code, Section XI, 1995 Edition, with 1996 Addenda, Appendix VIII, Supplement 2 for examinations performed after May 22, 2000. Supplement 2 addresses qualifications for manual and automated ultrasonic examination of austenitic piping welds from the outside surfaces. When the Performance Demonstration Initiative (PDI)<sup>2</sup> proposed an alternative implementation schedule during the public comment period for the rule change, it did not consider the examinations of Category B-J; safe end-to-piping weld examinations conducted from the inside surface. Qualifications for piping examinations from the outside surface were initiated in 1994. Examinations from the inside surface were considered in the design and fabrication of piping samples; however, it was the intention of PDI to complete the piping qualifications that are performed from the inside surface in conjunction with the nozzle to shell and dissimilar metal weld qualifications, which are not required to be implemented until November 22, 2002. The safe end-to-piping and nozzle to safe end examinations are normally performed using automated RPV examination tools. A stand-alone qualification for the safe end-to-piping welds would require additional flawed piping samples, which are not currently available<sup>3</sup>.

In addition, while it is possible to gain access to a limited percentage of the subject welds through the sand plugs at HBRSEP, Unit No 2, to conduct the exams from the outside surface, the proposed alternative qualifications will allow access to the weld circumference in conjunction with the nozzle to shell and dissimilar metal weld qualifications without causing hardship and unusual difficulty associated with the high occupational doses expected from the external examination qualifications. Activities associated with manual exams performed from the outside surface would include sand plug removal, insulation removal, weld surface preparation, liquid penetrant examination, UT examination, re-insulation and installation of the sand plugs. As an alternative to conducting Appendix VIII exams from the outside surface, Carolina Power & Light (CP&L) is requesting to conduct the exams in conjunction with the RPV Ten Year examination from the inside surfaces of the welds during RO-20 currently scheduled for April 2001.

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<sup>2</sup> The PDI is an industry organization comprised of U.S. nuclear utilities that was formed to provide efficient and technically sound implementation of ASME B&PV Code, 1995 Edition, 1996 Addenda, Section XI, Division 1, Appendix VIII.

<sup>3</sup> Summary of Conference Call on January 12, 2000, With PDI Representatives, D. G. Naujock, Metallurgist, NDE & Metallurgy Section, to Edmund J. Sullivan, Chief NDE & Metallurgy Section, Chemical Engineering Branch, Division of Engineering, U.S. NRC, March 6, 2000.

HBRSEP, Unit No 2 has previously been granted relief to perform the surface and volumetric examinations on ASME Section XI Category B-J Item No. B9.11 welds using ultrasonics from the inside surface in conjunction with the Third Ten Year ISI Interval RPV examination<sup>3</sup>. In addition, HBRSEP, Unit # 2, was granted permission to defer of Category B-A, B-D, B-F, and B-N-1 examinations to coincide with the 10 year RPV ISI examination at the end of the third interval<sup>4</sup>.

### *Length Sizing Criteria*

10 CFR 50. 55a(g)(6)(ii)(C) requires the implementation of the ASME B&PV Code, Section XI, 1995 Edition, 1996 Addenda, Appendix VIII, Supplements 4 and 6. The required implementation date for Supplements 4 and 6 is November 22, 2000.

The length sizing acceptance criteria in this edition of Supplement 4 is not in agreement with the PDI value used to qualify RPV inspection procedures and personnel. This difference was resolved in Code Case N-622. In the statement of considerations for the revised 10 CFR 50.55a, dated September 30, 1999, an NRC assessment of the PDI program in 1995 was discussed. As a part of this assessment, they reviewed exceptions to the ASME Code, which were parts of the PDI Program. The Assessment report states that that NRC does not take exception to the 0.75-inch RMS error length sizing tolerance and agreed that this version (of the PDI program) will provide reasonable assurance of detecting the flaws of concern in ferritic vessels and piping. Conversations between NRC Staff and representatives from (PDI) were held On January 12, 2000<sup>3</sup>. In this conversation, it was acknowledged that the 0.75-inch RMS length sizing criteria should have been addressed in the modifications provided for Supplements 4 Appendix VIII in 10 CFR 50.55a(b)(2)(xv)(C). It was also stated that this would be corrected in future revisions.

### **IMPLEMENTATION SCHEDULE**

This relief, if approved, will be implemented prior to RO-20, scheduled to begin in April of 2001. This relief is requested to be approved by February 1, 2001.

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<sup>3</sup> Ibid.

<sup>4</sup> NRC Letter dated April 8, 1999, "Approval for the Third 10-Year Interval Inservice Inspection Program Plan Request for Relief for H. B. Robinson Steam Electric Plant, Unit 2 (TAC No MA3481)