Progress Energy

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United States Nuclear Regulatory Commission
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

SUPPLEMENT TO REQUEST FOR RELIEF FROM ASME BOILER AND PRESSURE VESSEL CODE, SECTION XI, FOR THE FOURTH TEN-YEAR INSERVICE INSPECTION PROGRAM INTERVAL (RELIEF REQUEST NO. RR-22)

Ladies and Gentlemen:

Carolina Power and Light Company, also known as Progress Energy Carolinas, Inc. (PEC), has previously submitted a request for relief, on the basis that ASME, Section XI, Appendix VIII, contains no supplement for demonstrating Bottom-Mounted Instrument (BMI) penetrations Ultrasonic Testing (UT) procedures. That relief request was provided to the NRC for review in a letter dated June 7, 2010. That relief request was submitted pursuant to 10 CFR 50.55a(a)(3)(i), as an alternative method that provides an acceptable level of quality and safety. A supplement to the relief request was submitted by letter dated June 14, 2010, which revised the regulatory basis for the request to 10 CFR 50.55a(a)(3)(ii), which states, "compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety."

Additionally, the basis for hardship associated with performing these inspections in accordance with the currently applicable code requirements is considered to include the inability to perform the visual examinations in accordance with Table 1 of Code Case N-722, Item No. B15.80, Reactor Pressure Vessel bottom mounted instrument penetrations. The inability to perform the visual examinations occurred due to the presence of corrosion products and boric acid residue that were determined to be caused by leakage of boric acid flowing from the reactor cavity. The condition of cavity leakage had been previously identified.

The presence of the corrosion products and boric acid residue observed during the visual examination was described as follows: The residue is broad and diffuse and has the appearance of a film with no significant dimension. There are no formations of popcorn, stalactites, balls, or spaghetti that would indicate an active boric acid leak from the penetration.

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A visual examination was performed on all 50 BMI penetrations. However, the existence of the corrosion products and boric acid residue resulted in the masking of 16 of the 50 BMI penetrations, such that a UT examination was required. Conservatively, the UT was performed on all 50 BMI penetrations.

The demonstrations of the ultrasonic testing techniques, as described in the relief request submitted by letter dated June 7, 2010, were performed for flaw detection in the tube material and did not include demonstration of flaw detection in the J-groove weld. Examination of the J-groove weld would constitute a hardship as significant research and development would be required. The current industry demonstrations as presented in MRP-166 did not include demonstrations for the J-groove weld.

The following information was provided regarding examination of that area of the BMI penetrations:

- The technique also produces a strong back wall reflection that is monitored for evidence of disruption caused by OD [outer diameter] initiating flaws. This disruption is also evident in the data display unless the probe is positioned over the J-groove weld. In this case the display is reviewed for evidence of diffracted signals from flaws in this region.

- Guidance is provided for discrimination between PWSCC type flaw responses and responses from welding fabrication flaws. Flaw response characteristics, flaw orientation, and flaw location relative to the J-groove weld fusion line are used to discriminate between fabrication flaws and service induced flaws. Flaws that disrupt the lateral wave or backwall responses are reported. Flaws in the tube wall adjacent to the J-groove weld are also recorded and dispositioned as either welding fabrication flaws or service related flaws.

If you have any questions concerning this matter, please contact me at (843) 857-1626.

Sincerely,

R.A. Castell for

Curt Castell
Supervisor – Licensing/Regulatory Programs

CAC/rac

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