



**APR 13 2011**

SERIAL: BSEP 11-0037

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Subject: Brunswick Steam Electric Plant, Unit No. 2  
Renewed Facility Operating License No. DPR-62  
Docket No. 50-324  
Reactor Pressure Vessel Shell-to-Flange Weld Analytical Evaluation

Ladies and Gentlemen:

In accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, IWB-3610(e), Carolina Power & Light Company (CP&L), now doing business as Progress Energy Carolinas, Inc., requests NRC review and approval of the analytical evaluation for an indication identified in the Brunswick Steam Electric Plant (BSEP), Unit No. 2 reactor pressure vessel (RPV) shell-to-flange weld.

The indication identified in the RPV shell-to-flange weld (i.e., an ASME Examination Category B-A component, as defined in Table IWB-2500-1, Item No. B1.30) did not meet the acceptance standards of IWB-3510 and Table IWB-3410-1, and was therefore evaluated in accordance with IWB-3132.3 and IWB-3600. Based on the results of the IWB-3600 analytical evaluation, a copy of which is enclosed, the RPV shell-to-flange weld has been accepted for continued service.

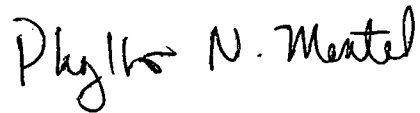
Unit 2 is currently in the fourth 10-year inservice inspection (ISI) interval. The applicable ISI code of record for the fourth 10-year ISI interval for Unit 2 is the 2001 Edition of the ASME Code, Section XI, with 2003 Addenda. For the ultrasonic examinations, the ASME Code, Section XI, Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems," of the 2001 Edition is implemented, as required and modified by 10 CFR 50.55a(b)(2)(xv).

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No regulatory commitments are contained in this letter. Please refer any questions regarding this submittal to Mr. Lee Grzeck, Acting Supervisor - Licensing/Regulatory Programs, at (910) 457-2487.

Sincerely,

A handwritten signature in black ink that reads "Phyllis N. Mentel". The signature is written in a cursive style with a large, stylized 'P' and 'M'.

Phyllis N. Mentel  
Manager - Support Services  
Brunswick Steam Electric Plant

WRM/wrm

Enclosure: Report No. 1100470.401, Rev. A, "Brunswick Steam Electric Plant Unit 2  
Reactor Pressure Vessel Flaw Evaluation," Structural Integrity Associates,  
Inc.

cc (with enclosure):

U. S. Nuclear Regulatory Commission, Region II  
ATTN: Mr. Victor M. McCree, Regional Administrator  
245 Peachtree Center Ave, NE, Suite 1200  
Atlanta, GA 30303-1257

U. S. Nuclear Regulatory Commission  
ATTN: Mr. Philip B. O'Bryan, NRC Senior Resident Inspector  
8470 River Road  
Southport, NC 28461-8869

U. S. Nuclear Regulatory Commission **(Electronic Copy Only)**  
ATTN: Mrs. Farideh E. Saba (Mail Stop OWFN 8G9A)  
11555 Rockville Pike  
Rockville, MD 20852-2738

Chair - North Carolina Utilities Commission  
P.O. Box 29510  
Raleigh, NC 27626-0510

Mr. Jack M. Given, Jr., Bureau Chief  
North Carolina Department of Labor  
Boiler Safety Bureau  
1101 Mail Service Center  
Raleigh, NC 27699-1101

Report No. 1100470.401, Rev. A,  
"Brunswick Steam Electric Plant Unit 2  
Reactor Pressure Vessel Flaw Evaluation,"  
Structural Integrity Associates, Inc.