



Carolina Power & Light Company
PO Box 10429
Southport, NC 28461-0429

JUN 05 1997

SERIAL: BSEP 97-0236

U. S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 1
DOCKET NO. 50-325/LICENSE NO. DPR-71
ASME BOILER AND PRESSURE VESSEL CODE, SECTION XI
IN-SERVICE INSPECTION PROGRAM RELIEF REQUEST
SERVICE WATER PIPING NON-CODE REPAIR

Gentlemen:

The purpose of this letter is to request relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, in accordance with 10 CFR 50.55a(g)(6)(i) and NRC Generic Letter 90-05, "Guidance For Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping," for the Brunswick Steam Electric Plant, Unit No. 1. The request for relief applies to a temporary non-code repair for the Service Water (SW) system. The detailed request for relief is provided in Enclosure 1. A list of regulatory commitments contained in this letter is provided in Enclosure 2.

Please refer any questions regarding this submittal to Mr. Mark Turkal, Supervisor - Licensing at (910) 457-3066.

Sincerely,

Keith R. Jury
Manager — Regulatory Affairs
Brunswick Steam Electric Plant

MAT/mat

Enclosures

1. Relief Request
2. List of Regulatory Commitments

9706160364 970605
PDR ADDCK 05000325
PDR



100053

1/1
A047

pc (with enclosures):

U. S. Nuclear Regulatory Commission, Region II
ATTN.: Mr. Luis A. Reyes, Regional Administrator
Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, GA 30303

U. S. Nuclear Regulatory Commission
ATTN: Mr. C. A. Patterson, NRC Senior Resident Inspector
8470 River Road
Southport, NC 28461

U. S. Nuclear Regulatory Commission
ATTN.: Mr. David C. Trimble, Jr. (Mail Stop OWFN 14H22)
11555 Rockville Pike
Rockville, MD 20852-2738

The Honorable J. A. Sanford
Chairman - North Carolina Utilities Commission
P.O. Box 29510
Raleigh, NC 27626-0510

Division of Boiler and Pressure Vessel
North Carolina Department of Labor
ATTN: Mr. Jack Given, Assistant Director of Boiler & Pressure Vessels
4 West Edenton Street
Raleigh, NC 27601-1092

ENCLOSURE 1

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 1
DOCKET NO. 50-325
OPERATING LICENSE NO. DPR-71
ASME BOILER AND PRESSURE VESSEL CODE, SECTION XI
IN-SERVICE INSPECTION PROGRAM RELIEF REQUEST
SERVICE WATER PIPING NON-CODE REPAIR

Unit:	1
Components:	Service Water Weld Number Nuc-SW-10 (Line Number 1-SW-103-30-157)
System:	Service Water
Class:	3
Impactical Code Requirement:	The American Society of Mechanical Engineers (ASME) Code, Section XI, 1980 Edition through the 1981 Addenda, paragraph IWA-4000 states: "Repairs shall be performed in accordance with the Owner's Design Specification and Construction Code of the component or system."
Proposed Alternative:	Perform a temporary non-code repair on weld number Nuc-SW-10 in accordance with NRC Generic Letter 90-05 until the next scheduled outage exceeding thirty days (but no later than the next scheduled refueling outage).
Basis For The Proposed Alternative:	<p>On May 7, 1997, a through-wall leak was identified on weld number Nuc-SW-10. Weld number Nuc-SW-10 is located on a 2-inch branch connection off the Nuclear Header (Line number 1-SW-103-30-157). Line number 1-SW-103-30-157 is part of a moderate energy system and is classified as ASME Class 3. Completion of a code repair of the flaw would require isolation of the nuclear service water header and shut down of the unit; therefore, code repair of the flaw during plant operation is impractical.</p> <p>The 2-inch branch connection was examined by the ultrasonic examination (UT) method. The flawed area was described as an area $\frac{5}{8}$ inch by</p>

½ inch that exhibits a wall thickness of 0.1 inch. The defect is very small, as observed by the low rate of leakage (approximately one drop every two hours). However, Carolina Power & Light (CP&L) Company was unable to specifically locate and characterize the flaw using UT examination methods.

Because the flaw could not be characterized, CP&L could not perform an evaluation of weld number Nuc-SW-10 using either of the two approaches described in NRC Generic Letter 90-05 (e.g., the "through-wall" approach and the "wall thinning" approach).

The following describes the flaw evaluation that was performed. As noted above, the flaw was described as an area ⅝ inch by ½ inch that exhibits a wall thickness of 0.1 inch. The defect is very small, as observed by the low rate of leakage. Per Brunswick Plant Specification 248-117, Revision 3, the maximum design pressure for this piping is 150 psi. For a 2 inch nominal diameter carbon steel pipe, the minimum wall thickness is computed by:

$$\begin{aligned} t_{\min} &= P d_o / 2 (S_e + P_y) \\ &= 150 \times 2.375 / 2(15000 + (150 \times .4)) \\ &= 0.012" \end{aligned}$$

Mechanical loads are not significant since the connection is essentially a weld-on-let welded directly to a blind flange that is tapped for instrumentation. Based on the above, the evaluation concluded that the flawed area located on weld number Nuc-SW-10 is acceptable for structural operability and the leak flow does not pose an operability concern. The flaw is not expected to propagate to a larger size. For these reasons, weld number Nuc-SW-10 is acceptable for continued operation until the next scheduled outage longer than thirty days in duration.

In addition to the evaluation, augmented inspections using the UT method of five (5) susceptible and accessible locations were performed. The results of these examinations were evaluated and found to be acceptable as no other flaws were identified.

As stipulated by NRC Generic Letter 90-05, until the code repair is completed, the integrity of the flawed area will be assessed at least every 3 months using a nondestructive examination technique. In addition, as stipulated by NRC Generic Letter 90-05, a qualitative assessment of leakage through the flawed area will be performed at least every week to determine any degradation of structural integrity until the code repair is completed.

In conclusion, the overall degradation of the affected portion of the Service Water System has been assessed and evaluated as acceptable.

ENCLOSURE 2

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 1
NRC DOCKET NO. 50-325
OPERATING LICENSE NO. DPR-71
ASME BOILER AND PRESSURE VESSEL CODE, SECTION XI
IN-SERVICE INSPECTION PROGRAM RELIEF REQUEST
SERVICE WATER PIPING NON-CODE REPAIR

LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by Carolina Power & Light (CP&L) Company in this document. Any other actions discussed in the submittal represent intended or planned actions by CP&L. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Manager — Regulatory Affairs at the Brunswick Steam Electric Plant of any questions regarding this document or any associated regulatory commitments.

Commitment	Committed date or outage
1. As stipulated by NRC Generic Letter 90-05, assess the integrity of the flawed area located on weld number Nuc-SW-10 using a nondestructive examination technique.	At least every 3 months until completion of a code repair.
2. As stipulated by NRC Generic Letter 90-05, perform a qualitative assessment of leakage through the flawed area located on weld number Nuc-SW-10 to determine any degradation of structural integrity.	At least every week until completion of a code repair.
3. Perform a repair in accordance with the ASME Code, Section XI of the flawed area of Unit No. 1 weld number Nuc-SW-10 (line number 1-SW-103-30-157).	Next scheduled outage exceeding 30 days duration or B113R1.