



Carolina Power & Light Company
P.O. Box 10429
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MAY 1 9 1995

SERIAL: BSEP 95-0187
10 CFR 50.55a

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

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-324/LICENSE NO. DPR-62
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 Nuclear Regulatory Commission (NRC) Generic Letter 90-05, for the Brunswick Steam Electric Plant, Unit 2. The request for relief applies to temporary non-code repairs to two (2) through-wall leaks identified on the vital header supply line from the Service Water System nuclear and conventional header. The detailed request for relief is provided in Enclosure 1.

Please refer any questions regarding this submittal to Mr. G. Honma at (910) 457-2741.

Sincerely,

R. P. Lopriore
Manager—Regulatory Affairs
Brunswick Nuclear Plant

WRM/wrm (U:\RC\LICENSIN\95-0187.WP)

Enclosure

cc (with enclosure):

Mr. S. D. Ebner, Regional Administrator, Region II
Mr. D. C. Trimble, NRR Project Manager - Brunswick Units 1 and 2
Mr. C. A. Patterson, NRC Senior Resident Inspector - Brunswick Units 1 and 2
The Honorable H. Wells, Chairman - North Carolina Utilities Commission
Mr. Billy Walker, Assistant Director - Boiler & Pressure Vessel Division

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ENCLOSURE 1

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-324
OPERATING LICENSE NO. DPR-62
ASME BOILER AND PRESSURE VESSEL CODE, SECTION XI
IN-SERVICE INSPECTION PROGRAM RELIEF REQUEST
SERVICE WATER PIPING NON-CODE REPAIR

Unit:	2
Components:	Service Water Line 2-SW-117-6-157 Service Water Line 2-SW-110-6-157
System:	Service Water System
Class:	3
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 the pipe elbow-to-flange weld upstream of valve 2-SW-V116 and the pipe elbow-to-flange weld upstream of valve 2-SW-V110 in accordance with NRC Generic Letter 90-05 until the next scheduled outage exceeding thirty days.
Basis For The Proposed Alternative	<p>On April 14, 1995, a through-wall leak was identified on line 2-SW-117-6-157 (vital header supply from the service water system nuclear header). The through-wall leak is located in the pipe elbow-to-flange weld upstream of the 2-SW-V116 valve. Line 2-SW-117-6-157 is part of a moderate energy system and is classified as ASME Class 3.</p> <p>The area in the vicinity of the through-wall leak was examined immediately upstream of valve 2-SW-V116. Thickness measurements were determined by ultrasonic examination (UT) in a 360 degree band around the weld in 0.25-inch increments incorporating the leak. Additional measurements were taken in the area of the leak at</p>

0.25-inch increments up to 2 inches above the weld and 1 inch below the weld, approximately $\pm 2\frac{1}{4}$ inches about the leak, yielding an area of examination of 13.5 square inches.

Carolina Power & Light Company has performed an evaluation of the 2-SW-117-6-157 flaw using the "through-wall flaw" approach identified in NRC Generic Letter 90-05. Specifically, the flaw was evaluated for stability using the linear elastic fracture mechanics approach. The Unit 2 leak was compared to a previous through-wall leak at the same location in Unit 1. The code required minimum wall thickness, t_{min} , was determined and, from this, the flaw length determined. The stress, S , at the flawed location was determined as stipulated in NRC Generic Letter 90-05 and found to be approximately equal to the stresses used in the previous Unit 1 evaluation and meets the acceptance criteria contained in NRC Generic Letter 90-05. On this basis, the evaluation concluded that the 2-SW-117-6-157 flaw is stable. The structural integrity of the thinned pipe until the next refueling outage, which was previously evaluated, is still considered valid.

Augmented inspections using the UT method of five (5) susceptible and accessible locations were performed. During review of the augmented inspection data on April 27, 1995, a through-wall leak was identified on line 2-SW-110-6-157 (vital header supply from the service water system conventional header). The through-wall leak is located in the pipe elbow-to-flange weld upstream of the 2-SW-V110 valve. The through-wall leak location was one of the five areas included in the first augmented inspection scope. Line 2-SW-110-6-157 is also part of a moderate energy system and is classified as ASME Class 3. The remaining components within these augmented inspections were found to be acceptable.

The area in the vicinity of the through-wall leak was examined immediately upstream of valve 2-SW-V110. Thickness measurements were determined by UT in 360 degree bands around the weld at approximately 1 inch increments and a more

refined examination in the vicinity of the leak at 0.25 inch increments.

The flaw on line 2-SW-110-6-157 was evaluated for structural integrity using the methodology outlined in NRC Generic Letter 90-05. Specifically, the flaw was evaluated for stability by using the linear elastic fracture mechanics approach for a "Through Wall Flaw". The code required minimum wall thickness, t_{min} , was determined and from this the flaw length determined. The stress, S , at the flawed location was determined as stipulated in NRC Generic Letter 90-05. On this basis, the evaluation concluded that the flaw on line 2-SW-110-6-157 was stable and that the component can remain in service until the next scheduled outage exceeding 30 days.

As required by Generic Letter 90-05, an additional sample of the same size was performed. The second augmented inspection was performed using the UT method, and the inspection results were evaluated as acceptable.

The overall degradation of the affected portion of the Service Water System has been assessed and evaluated as acceptable. The integrity of the temporary non-code repairs will continually be assessed, as required by NRC Generic Letter 90-05, to ensure structural integrity of the affected components is maintained until the code repairs are completed.

ENCLOSURE 2

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
NRC DOCKET NOS. 50-325 AND 50-324
OPERATING LICENSE NOS. DPR-71 AND DPR-62
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 Company in this document. Any other actions discussed in the submittal represent intended or planned actions by Carolina Power & Light Company. 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 Nuclear Plant of any questions regarding this document or any associated regulatory commitments.

Commitment	Committed date or outage
1. Perform repair in accordance with the ASME Code, Section XI of the through-wall leak on the pipe elbow-to-flange weld upstream of valve 2-SW-V116.	Next outage exceeding 30 days or B212R1.
2. Perform repair in accordance with the ASME Code, Section XI of the through-wall leak on the pipe elbow-to-flange weld upstream of valve 2-SW-V110.	Next outage exceeding 30 days or B212R1.