CP&L
Carolina Power & Light Company

SERIAL: LAP-83-549

NOV 30 1983

Director of Nuclear Reactor Regulation
Attention: Mr. D. B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing
United States Nuclear Regulatory Commission
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-324
LICENSE NO. DPR-62
INSPECTIONS OF BWR STAINLESS STEEL PIPING

Dear Mr. Vassallo:

SUMMARY

As requested by members of your staff, Carolina Power & Light Company (CP&L) submits the following information concerning additional evidence of potential intergranular stress corrosion cracking (IGSCC) indications detected during the performance of weld overlay repairs on Brunswick Steam Electric Plant Unit No. 2. This confirms information given to Messrs. Warren Hazelton (NRR), Jerry Blake (Region II), Marshall Grotenhuis (NRR), and Austin Hardin (Region II) in a conference call conducted on November 25, 1983.

DISCUSSION

On November 12, 1983, a pinhole indication was detected visually on the third layer of repair weld on joint 2-B32-12"-K3. The area of the indication was excavated to a depth of 1/16-inch below the base metal surface and the pinhole was still evident. Because there was no evidence of leakage or weld blowout, and because the indication was not evident on the repair layers, it was originally thought to be caused by a contaminant in the welding process. The location of the pinhole was not coincident with the location of the IGSCC indication detected by ultrasonic testing (UT), or any geometry indications. The excavation was welded out using a manual process.

On November 21, 1983 a round indication was detected visually on the third layer of the repair weld or joint 2-B32-12"-K2. The area of the indication was excavated to 1/16-inch below the surface of the base metal and the indication was still evident. After two repair attempts consisting of welding one layer, performing a penetrant test and grinding the layer off when the test failed, the indication was noted to be a 1/4-inch long axial linear indication. The indication was located over the original weld, at approximately the same location as the IGSCC indication detected by UT. The only geometry indication for that joint was the counterbore for the weld extending 360 degrees around the elbow. There was no evidence of leakage and the excavation was welded out using a manual process.

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On November 23, 1983, a blowout occurred while the first repair layer was being applied to joint 2-G31-6"-15. The area was excavated to 1/16-inch below the base metal surface and a pinhole indication was detected visually. The location of the blowout was not coincident with the location of the IGSCC indication, and there were no geometry indications for that joint. The excavation was welded out using a manual process. At that time, inquiries were made about the occurrence of blowouts and problems at other units that had performed overlay repairs, and we were informed that defects had occurred on the second and third repair layers that were attributed to through-wall IGSCC.

CONCLUSIONS

Carolina Power & Light Company believes that the indications described above result from through-wall defects. In the case of joint 2-B32-12"-K2, the indication was observed to be axial in orientation. In the case of joints 2-B32-12"-K3 and 2-G31-6"-15, the defects maintained a pinhole orientation when grinding into the base metal. This finding, in conjunction with the fact that no questionable geometry calls or IGSCC indications had been noted in the area of the pinholes, provides assurance that the pinholes are short axial through-wall cracks. The design of the current weld overlays is not affected by these cracks. A hydrostatic test in accordance with ASME Section XI will be performed on joint 2-G31-6"-15 prior to start-up. The other joints cannot be isolated from the reactor; therefore, an in-service leak test will be performed at normal operating pressure and temperature during start-up. The in-service leak test pressure is 23 psi less than the hydrostatic test pressure at operating temperature. The small difference in test pressures and the non-destructive examination performed on the overlays give adequate assurance of the integrity of the overlays.

If you have any questions concerning this information, please contact our staff.

Yours very truly,

P. W. Howe

P. W. Howe
Vice President
Brunswick Nuclear Project

WRM/ccc (8584WRM)

cc: Mr. D. O. Myers (NRC-BSEP)
Mr. J. P. O'Reilly (NRC-RII)
Mr. M. Grotenhuis (NRC)
Mr. W. Hazelton (NRC)