

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)

Docket No. 50-325

CAROLINA POWER AND LIGHT)
COMPANY)

(Brunswick Steam Electric Plant,)
Unit 1))

ORDER CONFIRMING LICENSEE COMMITMENTS
ON PIPE CRACK RELATED ISSUES

I.

The Carolina Power & Light Company (CP&L or the licensee) is the holder of Facility Operating License No. DPR-71 which authorizes operation of the Brunswick Steam Electric Plant, Unit 1 (Brunswick Unit 1 or the facility) at steady state reactor power levels not in excess of 2436 megawatts thermal. The facility is a boiling water reactor located at the licensee's site in Brunswick County, North Carolina.

II.

During the current Brunswick Unit 1 refueling outage, augmented inservice inspection was performed on 36 austenitic stainless steel piping welds in the recirculation piping system and three welds in the residual heat removal (RHR) piping system. The results of ultrasonic test (UT) examinations indicated that a total of three welds in the recirculation piping system showed reportable linear indications of cracking. The three defective welds were all repaired by an overlay process. The overlay applied to the three defective welds was 0.4 to 0.7 inch thick and 3 to 6 inches long.

The licensee analyzed the three overlay repaired welds using the methodology provided in the new ASME Code Section XI IWB-3600. The estimated fatigue crack growth for the next five years in the repaired welds was determined to be negligible (less than 0.01 inches). The allowable crack depth for each overlay repaired weld was calculated to be larger than the original pipe wall thickness. The licensee concluded that the overlay repairs for the three defective welds are acceptable for five years. We have reviewed the licensee's analysis and agree with the conclusion regarding the acceptability of the overlay repairs based on the new code Section XI IWB-3600 evaluation.

The licensee also performed two other types of stress analyses on each of the three repaired welds, which are ASME Section III Code Stress analyses. The results of the licensee's analyses showed that all three overlay repaired welds will meet the ASME Section III Code requirements for at least a period of five years and provide a safety margin larger than that inherent in the code. The licensee also considered the shrinkage of weld overlay that will introduce an additional loading to the piping system. The subject shrinkage stress is small and is not expected to have any significant deleterious effect on the recirculation or RHR piping. We have reviewed Carolina Power & Light Company's submittals dated December 16, 1982 and May 16, 1983 regarding the actions taken or to be taken during this refueling outage and the description of the analyses and repairs of recirculation piping system welds in the Brunswick Unit 1 plant. We conclude that the Brunswick Unit 1 plant can be safely returned to power and operate in its present configuration for at least the next fuel cycle of operation.

III.

Although the conservative calculations discussed above indicate that the cracks will not progress to the point of leakage during the next fuel cycle, and very wide margins are expected to be maintained over crack growth which could compromise safety, uncertainties exist with regard to potential cracks in the welds that were not examined. Because of these uncertainties, we have required that monitoring in the containment building for unidentified leakage be modified to reflect new surveillance requirements; that plans for the inspection of piping during the next fuel cycle be submitted for staff review within thirty days of issuance of this order and that plans for inspection and/or modification of the recirculation and other reactor coolant pressure boundary piping systems during the next refueling outage be submitted for staff review at least three months before the start of the next refueling outage.

By letters dated June 24 and July 19, 1983 the licensee committed to improve leakage monitoring and early submittal of inspection and/or modification plans. Therefore, I have determined that the public health and safety requires that this commitment to improved leakage monitoring and early submittal of inspection and/or modification plans should be confirmed by an immediately effective Order.

IV.

Accordingly, pursuant to Sections 103, 161i, 161o and 182 of the Atomic Act of 1954, as amended, and the Commission's regulations in 10 CFR Parts 2 and 50, IT IS HEREBY ORDERED EFFECTIVE IMMEDIATELY THAT:

1. The licensee shall operate the reactor in accordance with requirements on coolant leakage as follows:
 - (a) Reactor Coolant System leakage shall be demonstrated to be within the limits of Technical Specification 3.4.3.2 and item (b) below by monitoring the drywell drain sump flow rates at least once per 4 hours.
 - (b) Increases in unidentified leakage shall not exceed a 2 gallon per minute increase within any 24 hour period following the first 24 hours that the reactor is in operational condition one (1).
 - (c) Technical Specification 3.4.3.1 requires the primary containment atmospheric particulate radioactivity monitoring system to be operable in operational conditions 1, 2, or 3. With the primary containment atmospheric particulate radioactivity monitoring system inoperable, grab samples of the containment atmosphere shall be obtained and analyzed at least once per 8 hours.
2. Plans for an additional inspection of recirculation piping welds of 20-inch diameter, or larger during the outage planned between November 1983 and March 1984 shall be submitted for staff review within thirty (30) days of issuance of this Order.
3. Plans for corrective actions and/or modification (including replacement), of the recirculation and other reactor coolant pressure boundary piping systems during the next refueling outage shall be submitted for NRC review at least three months before the start of the next refueling outage.

4. The Director, Division of Licensing, may in writing relax or terminate any of the above provisions upon written request from the licensee, if the request is timely and provides good cause for the requested action.

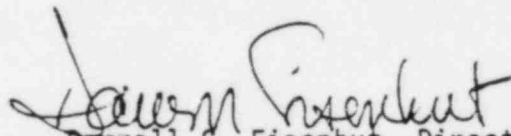
V.

The licensee may request a hearing within twenty (20) days of the date of publication of this Order in the Federal Register. Any request for a hearing shall be addressed to the Director, Office of Nuclear Reactor Regulation, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555. A copy shall also be sent to the Secretary of the Commission and the Executive Legal Director at the same address. A REQUEST FOR A HEARING SHALL NOT STAY THE IMMEDIATE EFFECTIVENESS OF THIS ORDER.

If a hearing is requested by the licensee, the Commission will issue an Order designating the time and place of any such hearing. If a hearing is held concerning this Order, the issue to be considered at the hearing shall be whether the licensee should comply with the requirements set forth in Section IV of this Order.

This Order is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Darrell G. Eisenhower, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland,
this 22nd day of July, 1983.