UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE TESTING PROGRAM REQUEST FOR RELIEF

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

1.0 INTRODUCTION

The Code of Federal Regulations, 10 CFR 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (the Code) and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to Sections (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a. In proposing alternatives or requesting relief, the licensee must demonstrate that: (1) the proposed alternatives provide an acceptable level of quality and safety; (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety; or (3) conformance is impractical for its facility. NRC guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides alternatives to the Code requirements determined acceptable to the staff without further NRC review. Implementation of the GL 89-04 positions is subject to inspection.

Section 10 CFR 50.55a authorizes the Commission to approve alternatives and to grant relief from ASME Code requirements upon making the necessary findings. The NRC staff's findings with respect to authorizing alternatives and granting or not granting the relief requested as part of the licensee's IST program are contained in this Safety Evaluation.

In a letter dated June 7, 1995, Carolina Power & Light Company (CP&L) submitted a relief request for three manually-operated valves in the residual heat removal (RHR) and spent fuel pool cooling systems at the Brunswick Steam Electric Plant, Units 1 and 2. This relief request was revised by CP&L via a letter dated August 15, 1995. This relief request is applicable to the second ten-year interval IST program for the Brunswick plants which began on July 10, 1986, and ends July 10, 1997. The Brunswick IST program is based on the requirements of Section XI of the ASME Code, 1980 Edition, through the Winter 1981 Addenda.

2.0 EVALUATION OF VALVE RELIEF REQUEST, RHR AND FUEL POOL COOLING VALVES

The licensee requests relief from the test frequency requirement of ASME Code, Section XI, Article IWV-3400 for three manual valves in the RHR (E11) and fuel

pool cooling (G41) systems (i.e., E11-V40, G41-F004, and G41-F016). These manual valves are ASME Code Section XI, Category B valves that have an active safety function (required to change position) to provide supplemental cooling to the spent fuel pool.

IWV-3411, "Test Frequency" states that Category A and B valves shall be exercised at least once every 3 months, except as provided by IWV-3412(a), IWV-3415, and IWV-3416. IWV-3412(a) states:

> Valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation. If only limited operation is practical during plant operation, the valve shall be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns. Full-stroke exercising during cold shutdowns for all valves not full-stroke exercised during plant operation shall be on a frequency determined by the intervals between shutdowns as follows: for intervals of 3 months or longer, exercise during each shutdown; for intervals less than 3 months, full-stroke exercise is not required unless 3 months have passed since the last shutdown exercise.

IWV-3415 and IWV-3416 are applicable to "fail-safe valves" and "valves in systems out of service" and are not applicable to this relief request.

CP&L requested an expedited review of this relief request in order to minimize further personnel exposure during the performance of these quarterly tests.

2.1 Basis for Relief

The licensee states:

> As required by ASME Code, Section XI, Article IWV-3400, Carolina Power & Light Company (CP&L) performs a full-stroke exercising of the above identified valves on a quarterly frequency. These manual valves are located in an area with a significant background radiation level (approximately 300 millirem per hour while the unit is in operation). Approximately 40 millirem of personnel exposure is received during the performance of this surveillance test for each unit during each calendar quarter. The total site personnel exposure received while performing this surveillance is approximately 320 millirem per year. Therefore, exercising of these valves creates a hardship to CP&L in the area of site personnel exposure.
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> The alternate testing of these valves is acceptable since the safety function for these valves would be required when the unit is in Operational Condition 4 (Cold Shutdown) or 5 (Refueling). In accordance with the Brunswick Plant's Updated Final Safety Analysis Report (UFSAR) and Operating Procedures (OP), the supplemental fuel pool cooling safety function of the Residual Heat Removal System can only be employed in Operational Conditions 4 (Cold Shutdown) or 5 (Refueling). As such,

operational readiness of these valves need only be verified when the plant is in such operating conditions.

The above-referenced valves are not associated with the safety function to use the Residual Heat Removal System as the seismic makeup to the Fuel Pool Cooling System. Those valves associated with this safety function are unaffected by this relief request.

2.2 Alternate Testing

The licensee proposes to:

Perform full-stroke exercising of the manual valves prior to placing the system into service. In addition, full-stroke exercising of these manual valves will be performed on a cold shutdown frequency as defined in NUREG-1482, Section 3.1.1.1.

2.3 Evaluation

As stated in Section 2.5.1 of NUREG-1482, the need to keep personnel radiation exposure as low as reasonably achievable (ALARA) may present an adequate justification for granting relief from, or authorizing an alternative to, Code testing requirements (i.e., in this case, the Code-required test frequency). ALARA is part of an overall program as required by 10 CFR 20.1101, including activities such as IST. The NRC has not established ALARA "predetermined acceptable limits" for deferring an IST activity. ASME Section XI Code Case N-444 gives guidance on documenting ALARA as justification for alternative examinations and tests. CP&L has complied with the guidance contained in that Code case.

The staff agrees with the licensee that exercising these three manually-operated valves at power creates a hardship to CP&L in the area of site personnel exposure. The licensee's proposed alternative (i.e., to test these valves before supplemental fuel pool cooling is needed and during cold shutdown conditions) is reasonable and consistent with the intent of the Code.

3.0 CONCLUSION

The staff concludes that compliance with the Code requirements for testing of the three manually-operated valves in the RHR and fuel pool cooling system would result in a hardship without a compensating increase in the level of quality and safety. Accordingly, the licensee's proposed alternative to the Code testing frequency requirement (test the valves before supplemental fuel pool cooling is needed and during cold shutdown conditions) for manual valves E11-V40, G41-F004, and G41-F016 is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

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