



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 146 TO FACILITY OPERATING LICENSE NO. DPR-71
AND AMENDMENT NO. 177 TO FACILITY OPERATING LICENSE NO. DPR-62
CAROLINA POWER & LIGHT COMPANY, et al.
BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
DOCKET NOS. 50-325 AND 50-324

1.0 INTRODUCTION

By letter dated February 28, 1990, as supplemented May 8, 1990, September 21, 1990, and September 27, 1990, Carolina Power & Light Company (the licensee), requested amendments to Facility Operating License Nos. DPR-71 and DRP-62 for the Brunswick Steam Electric Plant, Units 1 and 2 (Brunswick). The September 21, 1990, and September 27, 1990, submittals forwarded updated Technical Specifications (TS) pages and did not change the initial determination of no significant hazards consideration as published in the Federal Register. The proposed amendments would revise the TS to require both the nuclear and the conventional service water headers to be operable with two nuclear and two conventional service water pumps capable of supplying the headers in OPERATIONAL CONDITION 1, 2, or 3. When the unit is in OPERATIONAL CONDITION 4 or 5, the number of the applicable unit pumps required drops to any combination of two nuclear and/or conventional service water pumps powered from separate emergency buses provided that there are at least three operable nuclear service water pumps per site.

2.0 EVALUATION

The service water system provides water for lubrication and cooling of selected equipment in the turbine building, reactor building, diesel generator building, chlorination system, circulating water system, and screen wash system. The service water system is subdivided into two major headers which are normally operated independently. The nuclear header supplies service water to the nuclear or vital equipment in the reactor building and diesel generator building and the conventional header normally supplies service water to conventional equipment in the turbine building and other areas. Two nuclear service water pumps supply the nuclear header for each unit. Cross-connect valves allow the conventional service water pumps to supply the nuclear header as conditions dictate. Three conventional service water pumps supply the conventional header for each unit. The two types of pumps are identical except that the nuclear service water pumps are capable of starting automatically during a design basis accident (DBA) while the conventional service water pumps must be started manually under these conditions. The diesel generators, which are the only common service water load between the two units, can receive

cooling water from the nuclear header of either unit. Either of the conventional or nuclear headers, or a combination of the two, can provide water to other loads including the residual heat removal (RHR) system room coolers, the RHR pump seal heat exchangers, the core spray (CS) pump room coolers, and the RHR service water cooling system. The service water system can also be cross-connected to the RHR system during emergencies to provide core flooding capabilities.

Presently, TS Section 3.7.1.2 requires each unit to have three service water pumps operable to supply the service water nuclear header. It does not specify whether these pumps need to be nuclear or conventional. Therefore, the licensee proposed in the amendment that when in OPERATIONAL CONDITIONS 1, 2, and 3, the applicable unit must have at least two operable nuclear service water pumps and two operable conventional service water pumps capable of supplying the nuclear and conventional service water headers. When the unit is in OPERATIONAL CONDITION 4 or 5, two service water pumps of the applicable unit powered from separate emergency buses and capable of supplying the nuclear service water header are required. The two operable pumps can consist of any combination of nuclear and/or conventional service water pumps. Additionally, at least three operable site nuclear service water pumps are required. The reduced requirements of OPERATIONAL CONDITIONS 4 and 5 account for the reduced heat and conventional service water loads and the ability to supply the diesel generators from either unit's nuclear headers.

The licensee has stated that the proposed changes in the TS Section 3.7.1.2 will allow the use of the present plant design and the capabilities to ensure that an adequate supply of water will be available for cooling of the diesel generators and other vital equipment during normal and emergency conditions. The proposed changes provide for both the nuclear and the conventional headers to be operable with two nuclear and two conventional service water pumps of the unit capable of supplying the headers when the unit is in OPERATIONAL CONDITION 1, 2, or 3. These requirements meet single failure criteria and ensure the availability of service water for diesel generator cooling during the initial ten minute period of a design basis accident (DBA) and provide sufficient service water capability for the post-ten minute period of a DBA. When the unit is in OPERATIONAL CONDITION 4 or 5, the number of the applicable unit pumps required drops to any combination of two nuclear and/or conventional service water pumps, provided that there are at least three operable site nuclear service water pumps. Maintaining two operable service water pumps while in OPERATIONAL CONDITIONS 4 and 5 assures single failure criteria are met; and stipulating at least three operable site nuclear service water pumps assures that diesel generator cooling will be available following any DBA, regardless of which unit is affected by an accident or a transient.

The staff has reviewed the allowed out of service times and compensatory measures established in the revised Action Statement and finds them to be consistent with those of existing TS 3.7.1.2.

On the basis of the above evaluation, the staff concludes that the proposed changes in the TS Section 3.7.1.2 and its associated bases for the Brunswick Units 1 and 2 assures that the service water system will be available to provide an adequate supply of cooling water for both normal and emergency conditions and, therefore, is acceptable.

3.0 ENVIRONMENTAL CONSIDERATIONS

These amendments change a requirement with respect to installation or use of a facility component located within the restricted areas as defined in 10 CFR Part 20 and change the surveillance requirements. The staff has determined that these amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released off site and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration, and there has been no public comment on such finding. Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

4.0 CONCLUSION

The Commission made a proposed determination that these amendments involve no significant hazards consideration which was published in the Federal Register (55 FR 18410) on May 2, 1990, and (55 FR 32323) on August 3, 1990, and consulted with the State of North Carolina. No public comments or requests for hearing were received, and the State of North Carolina did not have any comments.

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: October 11, 1990

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