



Carolina Power & Light Company

DEC 2 1986

SERIAL: NLS-86-416
86TSB20

Director of Nuclear Reactor Regulation
Attention: Mr. Dan Muller
BWR Project Directorate #2
Division of BWR Licensing
United States Nuclear Regulatory Commission
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO 1
DOCKET NO 50-325/LICENSE NO DPR-71
REQUEST FOR LICENSE AMENDMENT
STANDBY LIQUID CONTROL SYSTEM MODIFICATIONS

Dear Sir:

SUMMARY

In accordance with the Code of Federal Regulations, Title 10, Parts 50.90 and 2.101, Carolina Power & Light Company hereby requests a revision to the Technical Specifications (TS) for the Brunswick Steam Electric Plant, Unit No. 1. The proposed change to Section 3/4.1.5 revises the standby liquid control system (SLCS) pump relief valve setpoint and the sodium pentaborate solution concentration curve to satisfy the ATWS rule requirements specified in 10 CFR 50.62.

DISCUSSION

The purpose of this request is to revise the Brunswick-1 TS to reflect modifications being made to the plant during the upcoming Reload 5 outage. These modifications are being done to bring Brunswick-1 into compliance with the requirements of paragraph (c)(4) of 10 CFR 50.62 which states, in part:

Each boiling water reactor must have a standby liquid control system with a minimum flow capacity and boron content equivalent in control capacity to 86 gallons per minute of 13-weight percent sodium pentaborate solution.

As stated in our October 15, 1985 submittal, the Company evaluated several options by which the equivalent injection rate requirement could be met. Carolina Power & Light Company has determined that a two-pump operation with sodium pentaborate solution concentration maintained at greater than or equal to 13-weight percent is the preferred option. Since the ATWS function of the SLCS is a backup to other safety-related systems, new requirements due to ATWS modifications are not needed in the SLCS section of the Technical Specifications. This has been agreed to by the NRC in a letter from H. R. Denton to J. M. Fulton dated August 19, 1985. Only the areas of the TS which cover specific SLCS physical characteristics need to be revised as a result of 10 CFR 50.62.

The existing SLCS includes two positive displacement pumps connected in parallel. The SLCS pump motor control logic is currently configured such that only one of the two pumps may be operated at any time. Modifications will be made during the upcoming Reload 5 outage to permit two pump operation. To account for the higher system

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pressures associated with two-pump operation, the SLCS pump relief valve setpoint specified in Surveillance Requirement 4.1.5.c.3 will be increased from 1400 ± 50 psig to 1450 ± 50 psig. The Company contacted the manufacturer and determined that the relief valves are capable of operating at the proposed setpoint without damage or malfunction. The portions of the SLCS affected by the increased setpoint were evaluated and determined to be capable of performing at the increased pressure without compromising the system integrity or function. In addition, tests were performed on Brunswick-2 during the 1986 Reload 5 outage which verified that the SLCS is capable of operating under the increased pressures associated with two-pump operation.

Figure 3.1.5-1 has also been revised to set the lower limit for sodium pentaborate concentration at 13-weight percent. This is consistent with the requirements of paragraph (c)(4) of 10 CFR 50.62.

An administrative change has been made to Surveillance Requirement 4.1.5.c.2. The current requirement is to demonstrate that the minimum-flow requirement of 41.2 gpm at a pressure of greater than or equal to 1190 psig can be achieved. The revision specifies that this requirement is 41.2 gpm per pump, avoiding possible confusion under two pump operation. The 86 gallons per minute and 13-weight percent sodium pentaborate specified by paragraph (c)(4) of 10 CFR 50.62 are values used in NEDE-24222, "Assessment of BWR Mitigation of ATWS, Volumes I and II", December 1979, for BWR/5 and BWR/6 plants with a 251-inch inside diameter vessel. NEDE-24222 recognized that different values would be equivalent for smaller plants. NEDE-24222 states that a 66-gpm control liquid injection rate in a 218-inch inside diameter vessel, as is used at Brunswick, is equivalent to the 86-gpm injection rate for a 251-inch vessel. Maintaining the minimum-flow requirement of 41.2 gpm per pump ensures that an injection rate in excess of 66 gpm will be achieved during two-pump operation.

SIGNIFICANT HAZARDS ANALYSIS

The commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. Carolina Power & Light Company has reviewed this request and determined that:

1. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated because the ATWS function of the SLCS merely provides a backup to other safety-related systems. The effects of the increase in the SLCS Pump relief valve setpoint from $1400 \pm$ psig to 1450 ± 50 psig were evaluated, and it was determined that the system is capable of being operated at the increased pressure without compromising system integrity or function. The revision to Figure 3.1.5-1 ensures that the concentration of sodium pentaborate solution is maintained at or above 13-weight percent. This is in accordance with the requirements of 10 CFR 50.62. The change to Surveillance Requirement 4.1.5.c.2 is administrative in nature and, therefore, can not increase the probability of consequences of an accident previously evaluated.
2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated because neither the safety function performed by the SLCS or the operability of the SLCS is affected by the

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proposed TS revisions or the accompanying plant modifications. The proposed TS changes will ensure that the SLCS is maintained such that it is capable of fulfilling the operability requirements of 10 CFR 50.62.

3. The proposed amendment does not involve a significant reduction in a margin of safety. The proposed revisions are in accordance with the requirements of 10 CFR 50.62 and provide additional assurance that the SLCS is capable of safely shutting down the reactor should an ATWS event occur. The effects of the increase in the SLCS pump relief valve setpoint were evaluated, and it was determined that the system is capable of being operated at the increased pressure without compromising system integrity or function. The revision to Figure 3.1.5-1 ensures that the concentration of sodium pentaborate solution is maintained at or above 13-weight percent, which is more restrictive than the current specification. The revision to Surveillance Requirement 4.1.5.c.2 is administrative in nature and, therefore, cannot cause a decrease in the margin of safety. As such, the proposed amendment leads to an increase in the margin of safety.

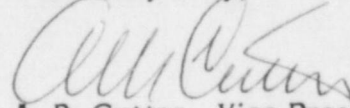
Based on the above, Carolina Power & Light Company has determined that the proposed amendment does not involve a significant hazards consideration.

ADMINISTRATIVE INFORMATION

The revised Brunswick-1 TS pages are provided in Enclosure 1. The Company has evaluated this request in accordance with the provisions of 10 CFR 170.12 and determined that a license amendment application fee is required. A check for \$150 is enclosed in payment of this fee. Carolina Power & Light Company requests issuance of this amendment by March 2, 1987, in order to support refueling of Brunswick-1.

Please refer questions regarding this submittal to Mr. Sherwood R. Zimmerman at (919) 836-6242.

Yours very truly,

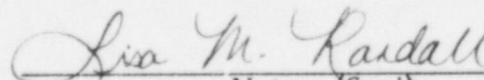


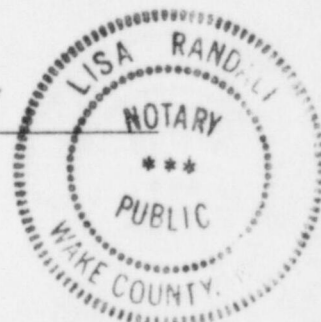
A. B. Cutter - Vice President
Nuclear Engineering & Licensing

MAT/bmc (5050MAT)

cc: Mr. W. H. Ruland (NRC-B&P)
Dr. J. Nelson Grace (NRC-RII)
Mr. E. Sylvester (NRC)
Mr. Dayne H. Brown

A. B. Cutter, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.


Notary (Seal)



My commission expires: 5-18-88