

CP&L

Carolina Power & Light Company

P.O. Box 1551 • Raleigh, N.C. 27602

MAY 8 1990

A. B CUTTER
Vice President
Nuclear Services Department

SERIAL: NLS-90-094
10CFR50.90
85TSB09

United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

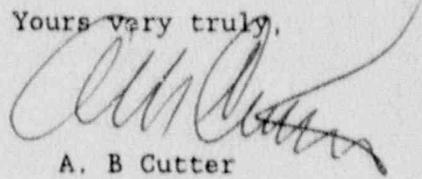
BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62
SUPPLEMENT TO REQUEST FOR LICENSE AMENDMENT
SERVICE WATER SYSTEM

Gentlemen:

On February 28, 1990 (NLS-90-043), Carolina Power & Light Company submitted a license amendment request for the Brunswick Steam Electric Plant (BSEP) Units 1 and 2. The proposed amendment revised Technical Specification Section 3.7.1.2 to clarify and expand the service water pump operability requirements. Based on subsequent reviews, CP&L has determined that an update to the February 28, 1990 submittal is necessary. The requested Technical Specification revision requires at least three operable nuclear service water pumps per site while the discussions in the letter and the bases pages were based on two operable nuclear service water pumps. This update corrects discrepancies between the letter, the proposed bases pages, and the proposed Technical Specification pages with regard to the number of nuclear service water pumps required to be operable. In addition, this updated submittal includes marked-up Technical Specification pages demonstrating how the inserts provided in Enclosures 3 and 4 of the February 28, 1990 submittal are to be incorporated. There are no technical changes to the proposed license amendment request resulting from this update.

For your convenience, Enclosures 1, 2, 3, and 4 of this submittal are provided to supersede, in their entirety, those provided in the February 28, 1990 submittal. Please refer any questions regarding this submittal to Mr. M. R. Oates at (919) 546-6063.

Yours very truly,

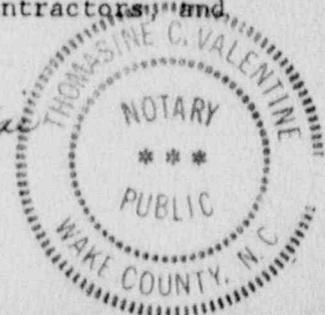


A. B. Cutter

ABC/MAT

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.

Thomasine C. Valentine
Notary (Seal)



My commission expires: 1-31-95

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Enclosures:

1. Basis for Change Request
2. 10 CFR 50.92 Evaluation
3. Technical Specification Pages - Unit 1
4. Technical Specification Pages - Unit 2

cc: Mr. Dayne H. Brown
Mr. S. D. Ebnetter
Mr. N. B. Le
Mr. W. H. Ruland

ENCLOSURE 1

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKETS 50-325 & 50-324
OPERATING LICENSES DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
SERVICE WATER SYSTEM

BASIS FOR CHANGE REQUEST

Proposed Change

The proposed amendment revises Technical Specification Section 3.7.1.2 to clarify and expand the service water pump operability requirements, thereby better reflecting the plant design. The current specification requires the service water system nuclear header to be operable with at least three operable service water pumps. The revised Specification will require both the nuclear and the conventional headers to be operable with two nuclear and two conventional service water pumps capable of supplying the headers when the unit is in OPERATIONAL CONDITIONS 1, 2, or 3. When the unit is in OPERATIONAL CONDITIONS 4 or 5 the number of required pumps 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. A change to the Bases for Technical Specification Section 3/4.7.1 reflecting the proposed amendment is included for your information.

Basis

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 selected vital equipment in the reactor building and diesel generator building and the conventional header normally supplies service water to the remaining vital equipment in the reactor building, turbine building, and balance of plant equipment in the other areas. Two nuclear service water pumps supply the nuclear header and three conventional service water pumps supply the conventional header for each unit. Cross-connect valves allow the conventional pumps to supply the nuclear header as conditions dictate. 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, Technical Specification 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 must be nuclear or conventional. The proposed change clarifies and expands on this requirement by specifying that when in OPERATIONAL CONDITIONS 1, 2, or 3, there must be 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 OPERATION CONDITIONS 4 or 5, two service water pumps powered from separate E-buses, capable of supplying the nuclear service water header, are required to be operable. The two operable pumps can consist of any combination of nuclear and/or conventional service water pumps, provided that there are at least three operable nuclear service water pumps per site. The reduced requirements of OPERATIONAL CONDITIONS 4 and 5 account for reduced core decay heat and conventional service water loads and the ability to supply the diesel generators from either unit's nuclear header.

During the initial stage of a DBA (0 - 10 minutes), the service water system provides lube water and service water cooling to the diesel generators. The service water system design allows either unit's nuclear header to supply diesel generator cooling water. Two pumps are necessary to supply sufficient flow to cool all four diesel generators under worst-case scenarios. Therefore, any combination of three operable nuclear service water pumps per site will meet the single failure criteria and assure diesel generator cooling. The proposed change requires two operable nuclear service water pumps associated with a unit in OPERATIONAL CONDITIONS 1, 2, or 3 and at least three operable nuclear service water pumps per site when one or both units are in OPERATIONAL CONDITIONS 4 or 5. Consequently, at least two nuclear service water pumps are always operable after a DBA to fulfill emergency diesel generator cooling requirements.

After the initial ten minutes of a DBA, additional loads require cooling water. These loads include RHR and CS pump room coolers, RHR service water heat exchangers, and RHR pump seal heat exchangers. Evaluations have determined that the RHR pumps seals, as well as the equipment in rooms serviced by the RHR and CS room coolers, remain within the manufacturers' temperature limits for the first ten minutes of a DBA. To meet the additional loads during the post-ten minute stage of a DBA, two service water pumps on the affected unit must be in service. In order to assure single failure criteria is met, the proposed Technical Specification change requires two operable conventional service water pumps per unit while in OPERATIONAL CONDITION 1, 2, or 3.

As discussed above, when in OPERATIONAL CONDITIONS 4 and 5, the reduced core decay heat load and the accessibility to the reactor building for manual operator action reduce the requirement for operable service water pumps after an accident/transient to one. Therefore, when in OPERATIONAL CONDITIONS 4 or 5, two operable service water pumps (any combination of nuclear and/or conventional) capable of supplying the nuclear header are required provided

that there are at least three operable nuclear service water pumps per site. Maintaining two operable service water pumps (nuclear and/or conventional) on the Unit while in OPERATIONAL CONDITIONS 4 or 5 assures long-term cooling can be supplied, even after application of the single failure criteria. Stipulating at least three operable nuclear service water pumps per site assures diesel generator cooling will be available following any DBA, regardless of which Unit suffers the accident/transient.

The allowed out of service times and compensatory measures established in the revised Action Statements are consistent with or more conservative than those of the existing Technical Specification 3.7.1.2. In particular, Action Statement a.2 for OPERATIONAL CONDITIONS 1, 2, and 3 requires the unit to be in HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours with no operable nuclear service water pumps. Analyses have been performed which demonstrate operation in OPERATIONAL CONDITIONS 1 through 3 with no operable nuclear service water pumps is acceptable provided that at least two nuclear service water pumps are operable on the opposite unit and two conventional pumps are operable on the affected unit. Specific Action statements and LCO time limits for this situation have not been developed since a more conservative Action Statement has been established in order to minimize the risk of personnel error in administering this situation.

ENCLOSURE 2

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKETS 50-325 & 50-324
OPERATING LICENSES DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
SERVICE WATER SYSTEM

10 CFR 50.92 EVALUATION

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 proposed license amendment request and determined that its adoption would not involve a significant hazards consideration. The bases for this determination are as follows:

Proposed Change

The proposed amendment revises Technical Specification Section 3.7.1.2 to clarify and expand the service water pump operability requirements, thereby better reflecting the plant design. The current specification requires the service water system nuclear header to be operable with at least three operable service water pumps. The revised Specification will require both the nuclear and the conventional headers to be operable with two nuclear and two conventional service water pumps capable of supplying the headers when the unit is in OPERATIONAL CONDITIONS 1, 2, or 3. When the unit is in OPERATIONAL CONDITIONS 4 or 5 the number of required pumps 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.

Basis

The change does not involve a significant hazards consideration for the following reasons:

1. The proposed change allows the use of the present plant design and capabilities to ensure that an adequate supply of water is available for cooling of the diesel generators and other vital equipment. The proposed change requires both the nuclear and the conventional headers to be operable with two nuclear and two conventional service water pumps capable of supplying the headers when the unit is in OPERATIONAL CONDITIONS 1, 2, or 3. This change results in four nuclear service water pumps operable whenever both units are at power. These expanded requirements fulfill single failure criteria and will ensure the

availability of service water for diesel generator cooling during the initial ten minute period of a design basis accident (DBA) and provide for sufficient service water capability for the post-ten minute period of a DBA. When the unit is in OPERATIONAL CONDITIONS 4 or 5 the number of required pumps drops to any combination of two nuclear and/or conventional service water pumps, provided that there are at least three operable nuclear service water pumps per site. Maintaining two operable service water pumps (nuclear and/or conventional) on the Unit while in OPERATIONAL CONDITIONS 4 or 5 assures long-term cooling can be supplied, even after application of the single failure criteria. Stipulating at least three operable nuclear service water pumps per site assures diesel generator cooling will be available following any DBA, regardless of which Unit suffers the accident/transient.

The allowed out of service times and compensatory measures established in the revised Action Statements are consistent with those of the existing Technical Specification 3.7.1.2.

Based on this reasoning, the Company has determined that the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The service water system is designed to provide lubrication and cooling of equipment during normal operations and under accident conditions. The system can also be cross-connected to the RHR system during emergencies to provide core flooding capabilities. The service water system aids in mitigation of an accident, but does not act as an initiator of an accident sequence. The proposed change does not affect the ability of the service water system to perform its intended function. The requested amendment will assure that the service water system will be available to provide an adequate supply of cooling water for both normal and emergency operation. Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.
3. The proposed change clarifies and expands the service water pump operability requirements to better reflect plant design. These expanded requirements will ensure the availability of service water for diesel generator cooling during the initial ten minute period of a DBA and provide for sufficient service water capability for the post-ten minute period of a DBA. The proposed change will provide a higher level of assurance of service water system availability for both normal operations and accident conditions. Therefore, the proposed change does not involve a significant reduction in the margin of safety.