CP&L

Carolina Power & Light Company

MAR 0 5 1986

SERIAL: NLS-85-204

Director of Nuclear Reactor Regulation
Attention: Mr. D. B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing
United States Nuclear Regulatory Commission
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
REACTOR VESSEL MATERIAL SURVEILLANCE WITHDRAWAL SCHEDULE

Dear Mr. Vassallo:

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 Nos. 1 and 2. The proposed changes to TS Table 4.4.6.1.3-1 revise the reactor vessel material surveillance withdrawal schedule in accordance with the provisions of 10 CFR 50, Appendix H and ASTM E185-82, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels."

DISCUSSION

The purpose of the material surveillance program required by 10 CFR 50, Appendix H is to monitor changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region of light-water nuclear power reactors resulting from exposure of these materials to neutron irradiation and the thermal environment. Under this program, fracture toughness test data is obtained from material specimens exposed in surveillance capsules, which are withdrawn periodically from the reactor vessel. This data is to be used as described in 10 CFR 50, Appendix G, Sections IV and V.

The enclosed TS change is being made to incorporate applicable provisions of 10 CFR 50, Appendix H and ASTM E185-82. The proposed changes are made in accordance with 10 CFR 50, Appendix H, Paragraphs II.B.1 and II.B.3 and ASTM E185-82, Table 1.

BSEP-1 and BSEP-2 TS Table 4.4.6.1.3-1, Reactor Vessel Material Surveillance Withdrawal Schedule, is being revised to meet the requirements of Table 1 of ASTM E185-82 to the extent practicable for the configuration of the specimens. No capsules have been removed to this date; however, flux wires were removed from Capsule No. 3 in each unit after one cycle of operation.

At the time BSEP-1 and BSEP-2 were constructed, only three surveillance capsules were required by the regulations and the transition temperature shift was estimated to be less than 100°F. Current radiation damage trend curves and vessel fluence projections indicate a greater than 100°F transition temperature shift by the expiration of the operating license; therefore, an effort has been made to maximize information obtainable from the three capsules by revising the current specimen withdrawal schedule.

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The Company proposes the following revised schedule:

Unit 1

Remove the first capsule after approximately 8 effective full power years (EFPY).

Remove the second capsule after approximately 13 EFPY.

Maintain a third capsule as a standby.

Unit 2

Remove the first capsule after approximately 10 EFPY.

Remove the second capsule after 15 EFPY.

Maintain a third capsule as a standby.

Capsule No. 3, which contains the largest number of specimens, will be removed first so that the maximum amount of data will be available at the earliest possible time. Because of the similar design and operating features of BSEP-1 and BSEP-2, the proposed integrated withdrawal schedule will provide the capability to monitor material specimens exposed in the surveillance capsules at more frequent time intervals.

This withdrawal schedule expands the specimen irradiation time beyond that recommended by ASTM E185-82. Since the capsules are estimated to lag the maximum reactor vessel fluence, withdrawal of the capsules based on the current schedule may not yield a sufficiently informative shift in the transition temperature sufficient to aid in the ΔRT_{NDT} projections.

In order to ensure timely removal of the surveillance capsules, a change to BSEP-1 and BSEP-2 Surveillance Requirement 4.4.6.1.3 has been made stating that the cumulative effective full power years shall be determined at least once per 18 months.

SIGNIFICANT HAZARDS ANALYSIS

The Commission has provided standards for determining whether a significant hazards consideration exists (10 CFR 50.92(c)). 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 determined that the requested amendment:

(1) Does not involve a significant increase in the probability or consequences of an accident previously evaluated because the proposed changes to TS Table 4.4.6.1.3-1 incorporates the latest NRC guidelines relative to irradiation surveillance testing. These changes are being requested to make the license conform to changes in regulations. These changes do not affect previously analyzed events or any parameters associated with plant operation. Therefore, it is concluded that the changes proposed in this request will not increase the probability of occurrence of any accident previously evaluated.

(2) Does not create the possibility of a new or different kind of accident than previously evaluated because the proposed changes to TS Table 4.4.6.1.3-1 do not adversely affect the operability of safety-related equipment. It is concluded that the probability or consequences of equipment important to safety malfunctioning will not be increased. Therefore, the proposed changes do not create the possibility of a new or different kind of accident than already evaluated.

(3) Does not involve a significant reduction in a margin of safety because predictions of neutron radiation effects on pressure vessel steel were considered in the design of Brunswick's nuclear power reactors. This proposed surveillance capsule withdrawal schedule permits more accurate monitoring of long-term effects. Testing of the surveillance capsules will permit verification of the adequacy and conservatism of Brunswick's reactor vessels pressure/temperature operational limits.

The proposed surveillance capsule withdrawal schedule does not affect plant operation. It is intended to verify initial predictions of the surveillance material response to the actual radiation environment. Therefore, there is no significant reduction in a margin of safety as a result of this revision.

For the reasons stated above, CP&L has determined that the proposed amendment does not involve a significant hazards consideration.

ADMINISTRATIVE INFORMATION

The proposed TS pages are provided in Enclosures 1 and 2. A summary list of revisions is included with each set of TS pages for your convenience.

Carolina Power & Light 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. The Company requests issuance of this amendment by December 31, 1986.

Please refer any questions concerning this request to Mr. Sherwood R. Zimmerman at (919) 836-6242.

Yours very truly,

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

ABC/DJK/ljs (1589NLU)
Enclosures

cc: Dr. J. Nelson Grace (NRC-RII)
Mr. W. H. Ruland (NRC-BNP)
Mr. E. D. Sylvester (NRC)
Mr. D. 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.

Ruby R. Morgan
Notary (Seal)

My commission expires: 11/27/89

RUBY R. MORGAN
NOTARY
PUBLIC
WAKE COUNTY, N. C.