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AUTH.NAME AUTHOR AFFILIATION
ZIMMERMAN,S.R. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards revised Page 2 to 850114 submittal re elimination of postulated pipe breaks in RCS primary loop.

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APR 19 1985

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
UNIT NO. 1 - DOCKET NO. 50-400
ELIMINATION OF POSTULATED PIPE BREAKS
IN THE REACTOR COOLANT SYSTEM PRIMARY LOOP

Dear Mr. Denton:

In accordance with recent discussions between our staffs, Carolina Power & Light Company has revised page 2 of our previous submittal, NLS-84-517 dated January 14, 1985 on this subject. The attachment to this letter is a substitute page 2 for the January 14 letter with revision bars in the right-hand margin identifying the areas changed. The other pages of the January 14 letter and its enclosures remain as previously submitted.

If you have any questions on this subject, please contact David McCarthy at (919) 362-2410 or (919) 836-7715.

Yours very truly,

S. R. Zimmerman
Manager
Nuclear Licensing Section

SRZ/JDK/crs (1400NLU)

Enclosure

cc: Mr. B. C. Buckley (NRC)
Mr. G. F. Maxwell (NRC-SHNPP)
Dr. J. Nelson Grace (NRC-RII)
Mr. Keith Wichman (NRC-MTEB)
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Mr. J. L. Kelley (ASLB)

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Containing a Postulated Circumferential Through Wall Break") envelopes the site-specific parameters of the SHNPP Unit 1. The reports have been prepared in accordance with the NRC guidance delineated in Generic Letter 84-04 (which also documents the Staff's acceptance of WCAP-9558).

Scope of Exemption Request

Elimination of consideration of postulated circumferential and longitudinal breaks in the RCS primary loop piping would have the following effects on the Shearon Harris design:

- Eliminate the need to design for pipe whip, jet impingement, and the dynamic effects (including asymmetric effects) of reactor cavity pressurization and primary component subcompartment pressurization due to primary loop pipe breaks.

- Eliminate the need for pipe whip restraints (including shims) and jet impingement shields on primary loop piping associated with the primary loop pipe breaks defined in the Final Safety Analysis Report (FSAR).

- Eliminate primary loop loss-of-coolant accident (LOCA) dynamic effects and loading conditions on other structures including the primary system components, primary loop piping, maintenance access platforms, branch line piping, and branch line supports (branch line LOCA loads would be retained in the design basis).

Granting of the requested exemption would not affect the following:

- Emergency Core Cooling System (ECCS) design bases.

- Containment design bases.

- Equipment qualification bases.

- Engineered Safety Features systems response.

- Design of RCS heavy component supports.

Granting of this exemption will result in significant benefits in terms of cost savings attributable to construction/installation of restraints, shims, and deflectors, and will provide reduced occupational radiation exposure over the life of the unit. Removal of restraints (and shims) will allow for better insulation of the RCS piping thus helping to reduce containment heat loads. Further, restraint (and shim) removal will reduce personnel exposures due to future plant inspection and maintenance activities. Our savings estimates are presented in Enclosure 1.

Reference (2) indicates that the NRC acceptance of the leak-before-break concept on a case-by-case basis is predicated on the Applicant's leak detection capability to detect the leakage from the postulated through-wall crack utilizing the guidance of Regulatory Guide 1.45. The Shearon Harris Reactor Coolant Pressure Boundary Leakage Detection System has been designed consistent with the guidelines of Regulatory Guide 1.45 for detecting and monitoring leakage and is described in the FSAR Section 5.2.5. The specific reports (WCAP-10699 and WCAP-10700) show that there is a large margin between