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 CUTTER, A. B. Carolina Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
 DENTON, H. R. Office of Nuclear Reactor Regulation, Director (post 851125)

SUBJECT: Requests permanent exemption to provisions of 10CFR50, App. J, Paragraph III.D.2(b)(ii) re leak rate testing of containment. Justification encl.

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Carolina Power & Light Company

SERIAL: NLS-86-110

JUN 2 1986

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
REQUEST FOR EXEMPTION TO 10 CFR 50, APPENDIX J

Dear Mr. Denton:

Per NRC staff request and consistent with the NRC's Standard Technical Specifications for Westinghouse Pressurized Water Reactors (NUREG-0452), Carolina Power & Light Company (CP&L) requests a permanent exemption to the provisions of 10 CFR 50, Appendix J, paragraph III.D.2(b)(ii).

Pursuant to 10 CFR 50.12, attached is the CP&L justification for this exemption. The attachment provides the information required by 10 CFR 50.12, including a description of the issue and the basis upon which the NRC may grant the exemption.

If you have any questions, please contact Mr. Gregg A. Sindors at (919) 836-8168.

Yours very truly,

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

ABC/GAS/ccc (3635GAS)

Attachment

cc: Mr. B. C. Buckley (NRC)
Mr. G. F. Maxwell (NRC-SHNPP)
Dr. J. Nelson Grace (NRC-RII)
Mr. Travis Payne (KUDZU)
Mr. Daniel F. Read (CHANGE/ELP)
Mr. R. A. Benedict
Mr. T. S. Moore (ASLAB)
Wake County Public Library

Mr. Wells Eddleman
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Dr. Richard D. Wilson
Mr. G. O. Bright (ASLB)
Dr. J. H. Carpenter (ASLB)
Mr. J. L. Kelley (ASLB)
Dr. R. L. Gotchy (ASLAB)
Mr. H. A. Wilber (ASLAB)

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SHEARON HARRIS NUCLEAR POWER PLANT (SHNPP)
JUSTIFICATION FOR EXEMPTION FROM 10 CFR 50 APPENDIX J

PARAGRAPH III.D.2(b)(ii)

The NRC may grant exemptions from 10 CFR 50 requirements, pursuant to 10 CFR 50.12(a), which are (1) "authorized by law, will not present an undue risk to public health and safety, and are consistent with common defense and security," and (2) if any of six enumerated categories of special circumstances are present. Two special circumstances categories (ii and iii) are applicable to this exemption request; each is discussed below.

An exemption to the provisions of Appendix J to 10 CFR 50, Paragraph III.D.2(b)(ii) is authorized by law will not present an undue risk to public health and safety, and is consistent with common defense and security. Compliance with 10 CFR 50.12(a)(1) is achieved by verifying that containment integrity is maintained through an alternate method of testing the air locks. The alternate method of testing (discussed below) is endorsed by the NRC in the Standard Technical Specifications for Westinghouse Pressurized Water Reactors (NUREG-0452).

Special Circumstances Exemption Criterion (ii). Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.

The underlying purpose of Paragraph III.D.2(b) of Appendix J to 10 CFR 50 is to verify that containment integrity is maintained. This regulation details three explicit air lock testing requirements which are further required to be in the Technical Specifications. With one exception, Technical Specification 4.6.1.3.a, b.1, and b.2 correspond to the Appendix J requirements.

Technical Specification 4.6.1.3.b.1 requires that the containment air locks be demonstrated operable by conducting a leak test every six months, when containment integrity is required, by pressurizing the interior of the air lock to P_a (the calculated peak containment internal pressure under design basis accident conditions, 41 psig for SHNPP) and verifying that the leakage rate is within its limit. This is in compliance with 10 CFR 50 Appendix J, Paragraph III.D.2(b)(i).

Paragraph II.D.2(b)(iii) of Appendix J to 10 CFR 50 requires air locks to be tested within three days after being opened (or at least once every three days when the air lock is being used and more frequent for multiple entries every three days) specifies that air lock seal tests satisfy the three day test requirements. Technical Specification 4.6.1.3.a corresponds to and complies with this requirement of Appendix J.

Paragraph III.D.2(b)(ii) of Appendix J to 10 CFR 50 requires that "Air locks opened during periods when containment integrity is not required by the plant's Technical Specification shall be tested at the end of such periods at not less than P_a ." In lieu of this requirement, Technical Specification 4.6.1.3.b.2 requires that an overall air lock leakage test be conducted at P_a when maintenance has been performed on the air lock that could affect the air lock sealing capability. The Standard Technical Specifications contain a footnote stating that this requirement is an exemption to Appendix J of 10 CFR 50.

The periodic six month test of paragraph III.D.2(b)(i) of Appendix J to 10 CFR 50 and the three day test requirement of paragraph III.D.2(b)(iii) of Appendix J to 10 CFR 50 provide assurance that the air lock is properly engaged and sealed. The air lock will not leak excessively just because it has been opened. Potential for leakage occurs after maintenance which could affect the ability of the air lock to seal has been performed on the air lock. An exemption from paragraph III.D.2(b)(ii) of Appendix J to 10 CFR 50 is requested since the present Technical Specifications provide equivalent protection of containment integrity. The Commission has granted this exemption on other plants with designs similar to SHNPP and it is consistent with current regulatory practice and policy.

Special Circumstances Exemption Criterion (iii). Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by other similarly situated.

The existing air lock doors are so designed that a full pressure test at P_a of an entire air lock can only be performed after strong backs (structural bracing) have been installed on the inner door. This is due to the fact that the pressure exerted on the inner door during the test is in a direction opposite to that of force experienced during a postulated accident and the locking mechanisms are not designed to withstand such reverse forces associated with pressures on the order of P_a . Installing strong backs, performing the test, and removing the strong backs is a cumbersome process requiring approximately 24 hours per air lock (there are two air locks), during which access through the air lock is prohibited. The basic design of the SHNPP containment permits frequent access in order to perform required surveillance and maintenance activities. The combination of installing the strongbacks and restricting access to containment during testing creates an undue hardship.

If literal compliance with the applicable provisions of Appendix J discussed above were mandated, either a cumbersome and unwarranted test method must be used or a major design change would be required in order to permit the inner door to withstand full containment pressure in the test direction without strong backs. If design changes were mandated, a corresponding delay in commercial operation of SHNPP would be required to implement the change. Any delay in the commercial operation of SHNPP would cause the cost of the unit to increase by a very significant amount.

If full compliance with the Appendix J testing requirement is undertaken using the current design, then periodically over the life of the plant a cumbersome and lengthy test must be undertaken on one or both containment air locks. During these tests, the plant must be shut down since Appendix J requires the test at the end of each period during which containment integrity is not required and during which the air lock has been opened. These tests would extend the duration of each outage by a half day or more over the life of the plant, the duration of the tests, and consequent extension of outage time would be substantial.