



Carolina Power & Light Company

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DEC 29 1992

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Vice President
Nuclear Services Department

SERIAL: NLS-92-339

10 CFR 50.90

TSC 92TSB08

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
REQUEST FOR (PARTIAL) EXEMPTION TO 10 CFR 50, APPENDIX J
TYPE A LEAK RATE TESTING

Gentlemen:

INTRODUCTION:

Carolina Power & Light Company (CP&L) hereby requests an exemption from 10 CFR 50, Appendix J, Section III.A.5(b)(1) and (2), for the Brunswick Steam Electric Plant, Units 1 and 2. The referenced sections stipulate as found leakage limits for Type A leak rate testing for both reduced pressure tests and peak pressure tests. Specifically, for peak pressure testing, Section III.A.5.(b)(2) requires that:

"The leakage rate L_{am} shall be less than $0.75 L_a$. If local leakage measurements are taken to effect repairs in order to meet the acceptance criteria, these measurements shall be taken at a test pressure P_a ."

This exemption request seeks to change the acceptance criterion for as found Type A tests to be set at the same value as the maximum allowable leakage rate, L_a , or the corresponding L_t (for reduced pressure tests) for BSEP Units 1 and 2.

DISCUSSION:

Paragraph III.A.6(b) of Appendix J requires that if two consecutive periodic Type A tests fail to meet the applicable acceptance criteria in III.A.5(b), notwithstanding the periodic retest schedule in III.D, a Type A test shall be performed at each plant shutdown for refueling or approximately every 18 months, whichever occurs first, until two consecutive Type A tests meet the acceptance criteria in III.A.5(b), after which time the retest schedule specified in III.D may be resumed.

BSEP Unit 2 is currently in this "penalty" testing condition as required by Technical Specification 4.6.1.2(b). Unit 2 has failed the past four Type A tests. The primary reason for failing these integrated leakage rate tests is considered to be the leakage penalty additions from Type C testing, where leakage rates from Type C testing are added into the integrated Type A test results. Discussions of the 1986 and 1988 failed Type A tests for Unit 2 can be found in CP&L's letter to

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the NRC, dated May 23, 1989. The third Unit 2 failed test is discussed in NRC inspection reports 50-325/90-09 and 50-324 30-09, dated March 29, 1990; and the fourth Unit 2 failed test is discussed in NRC inspection reports 50-325/91-38 and 50-324/91-38, dated January 28, 1992.

The objective of Appendix J Type A testing is to determine both the as found containment leakage condition and the final as left condition, if repairs are made. The satisfactory completion of a Type A test ensures that the actual leakage rates (as left) do not exceed 75 per cent of those rates assumed by the accident analyses. After this part of the testing is completed, the as found condition of the containment is calculated to obtain an indication of the ability of the containment to remain leak-tight throughout the period between tests and for the purpose of determining the subsequent testing frequency.

The results of the Type A test are back-corrected using the "minimum pathway" leakage rate for each penetration. The difference between the local leakage measurements before and after the repair (to the leakage path) are added to the Type A results to determine the as found condition and possible as found Type A test failure, which could increase the future Type A test frequency as required by Section III.A.6 of Appendix J. This technique is known as the as found leakage savings additions. For a satisfactory Type A test, the corrected Type A results (the sum of the approximate local leakages and the Type A test results) must be less than 75 per cent of the maximum allowable leakage rate (La or Lt, as appropriate). It should be emphasized that this testing methodology remains unchanged by this amendment request. While the actions and surveillances also remain unchanged as a result of this request, the leakage limits in Surveillance Requirement 4.6.1.2 which refer to the as found limits would require revision to reflect the change from 0.75 La to La (and 0.75 Lt to Lt as well).

In proposing to use La or Lt as the acceptance criterion for the corrected as found leakage rate, it should be noted that La is the actual leakage rate used in the BEEP plant safety analysis to determine the offsite radiological consequences of an accident. The as left test limit of 0.75 La was specified in Appendix J in order to provide a margin of 0.25 La for possible deterioration of the containment leak-tightness between Type A tests. Since La is the actual number assumed in the offsite dose analysis, and the as found test measures leakage rate at the end of the period between tests so that the margin for deterioration is no longer needed, it is technically acceptable to use La (or Lt) as the as found Type A test acceptance criterion.

It is emphasized that in no instance will the plant be returned to service if the total Type A leakage is greater than 0.75 La or 0.75 Lt, as applicable (see Technical Specification 3.6.1.2 ACTIONS).

In addition, NRC Inspection Report Nos. 50-325/91-38 and 50-324/91-38, dated January 28, 1991, noted that CP&L would pursue an Appendix J exemption to the 0.75 La limit for as found leakage and acknowledged the following regarding BSEP's Type A integrated leak rate testing:

- The NRC and industry recognize that the appropriate as found limit should be La (0.5 wt. percent per day for Brunswick).
- In a proposed revision to Appendix J now under review by the NRC, the as found leakage limit has been changed to La.
- A number of plants, including the CP&L H. B. Robinson Plant, have been granted the La limit.

10 CFR 50.12 ANALYSIS:

Carolina Power & Light Company has reviewed this request and determined that the exemption should be granted pursuant to 10 CFR 50.12(a)(2)(ii), in that the application of the regulation in this particular instance is not necessary to achieve the underlying purpose of the rule.

The purpose of Type A testing is to measure and ensure that the leakage through the primary containment does not exceed the maximum allowable leakage. From the discussion section above, it is not necessary to maintain a margin for deterioration for leak-tightness between tests. As such, the maximum allowable leakage rate, L_a , is the correct value to use for the as found limit in Type A leak rate testing. This philosophy has been adopted by the Commission, as well as noted by the proposed rule in progress to Appendix J to incorporate the L_a value for the as found limit (see 51 FR 39540, dated October 1986). In addition, the accelerated leak rate testing frequency which BSEP Unit 2 is currently subjected to unduly stresses the primary containment and adds unnecessary time to the refueling outage, all of which could be minimized by using the L_a limit for as found leakage.

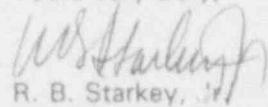
SUMMARY:

From the discussion and analysis presented above, it has been shown that the current as found leakage value of 0.75 L_a is overly conservative for use as the as found criterion in Type A test limits. This practice has resulted in unneeded containment leakage rate testing for Unit 2. This accelerated testing frequency results in a longer outage time, increased outage costs, and does not result in a significant safety benefit. In addition, Type A testing incurs drywell structural stresses which would be minimized without penalty testing each refueling outage.

From the discussion presented above, therefore, CP&L requests NRC approval of this exemption request by February 1, 1993.

Please refer any questions regarding this submittal to Mr. D. B. Waters at (919) 546-3678.

Yours very truly,


R. B. Starkey, Jr.

cc: Mr. S. D. Ebneter
Mr. R. H. Lo
Mr. R. L. Prevatte