April 8, 1987

Docket No. 50-261

Mr. E. E. Utley, Senior Executive Vice President
Power Supply and Engineering & Construction
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602

Dear Mr. Utley:

SUBJECT: 10 CFR 50, APPENDIX J, TEST PROGRAM EXEMPTION, H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 (TAC NO. 53336)

We have reviewed your exemption request submitted by letter dated June 30, 1983. In order to complete our review, we require additional information from you (enclosed). Please have your staff negotiate a schedule for response to the enclosed items with your Project Manager.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P. L. 96-511.

Sincerely,

/s/

Glode Requa, Project Manager
PWR Project Directorate #2
Division of PWR Licensing-A
Office of Nuclear Reactor Regulation

Enclosure:
As Stated

cc's: See Next Page

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REQUEST FOR ADDITIONAL INFORMATION
CONTAINMENT LEAKAGE RATE TESTING PROGRAM
H.B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2
Docket No.: 50-261

Reference: Letter from S.R. Zimmerman (CP&L) to S.A. Varga (NRC), "10 CFR 50, Appendix J Testing Program," dated June 30, 1983

1). Concerning the two specific Type A (containment integrated leakage rate) test exemption requests (Enclosure 1 to Ref.), the staff considers that the first may be acceptable if its intent can be clarified, and that the second is unacceptable.

(a). The first exemption request may be acceptable; its intent is not clear to the staff. In order for your approach to be acceptable, the locally measured "as found" leakage rates of penetrations isolated during a Type A test should be added to the Type A test results (i.e. 95% upper confidence limit); when the total exceeds the acceptance criterion of Appendix J, then this should constitute an "as found" Type A test failure. A similarly determined "as left" Type A result must also meet the acceptance criterion of Appendix J before the plant may leave cold shutdown and restart.

Provide a clarification of this exemption request. A revised basis is needed for the staff to approve the request.

(b). The second exemption request has merit, but is too vague and general to be acceptable before the particulars of testing failures are known. A proposed corrective action plan cannot be accepted by the staff until its details are described, which cannot be done until actual test failures are experienced. It is especially inappropriate to grant an exemption from the requirement for increased Type A testing frequency (after two consecutive test failures) before the failures have occurred, the reasons for the failures have been revealed, and a corrective action plan has been defined.

It is also inappropriate to change the acceptance criteria of Appendix J to 10 CFR 50 by exemption, from 0.75La to La or from 0.75Lt to Lt, before there is any need for such exemption. If a test fails, then an exemption may be considered, based on the particulars of the case.

2). Personnel air lock testing:

(a). Confirm that the test pressure for the six month tests required by Section III.D.2.(b)(i) of Appendix J is not less than Pa.

(b). It is stated that air lock testing is performed in accordance with Sections III.D.2.(b)(i) and (iii) of Appendix J. Describe the testing which is done to satisfy the requirements of Section III.D.2.(b)(ii) of Appendix J.

(c). Section III.D.2.(b)(iv) requires the acceptance criteria for all types of air lock leakage rate testing to be stated in the plant Technical Specifications (TS). If the testing required by Section III.D.2.(b)(iii) is not performed at Pa, the test pressure must also be stated in the TS. Describe the TS sections that contain these criteria; if certain criteria are not stated in the TS as required, propose appropriate revisions to the TS.

3). Section IV.C. of the referenced letter states that continuous testing is performed on components served by the Penetration Pressurization System (PPS). Describe the actions required by the plant TS or license to maintain this condition; that is, those actions required if the PPS becomes inoperable.

4). Section V.B. of the referenced letter states that "Periodic Test 2.6" contains the acceptance criteria for leakage rate tests performed on valves by the Isolation Valve Seal Water (IVSW) system. However, Section III.C.3. of Appendix J requires that the leakage rates of the valves not exceed those specified in the TS or associated bases. Provide the appropriate specific values (and their bases) and confirm that they are specified in the TS or associated bases. If they are not, propose appropriate revisions to the TS.

5). Justify not venting penetrations P-35 and P-36 (containment air sample in and out) outside containment during Type A tests.

6). A number of containment isolation valves do not undergo Type C (local) testing at H.B. Robinson, Unit 2. The following sections request additional information concerning the bases for not performing these tests:

(a). Certain valves in penetrations P-3, P-6, P-66, and P-72 are not Type C tested because, the licensee states, the categories of Section II.H. of Appendix J do not apply to the valves in question. This justification is also used as one of several reasons for not testing valves in penetrations P-16, P-17, P-25, P-26, P-27, P-34A, P-34B, P-34C, P-34D, P-43, P-49, P-50, P-51, P-52, P-53/53A, P-54/54A, P-55/55A, and P-56/56A.

This is not adequate justification. The purpose of Type C testing is to measure the leakage through containment penetrations that may potentially leak containment atmosphere out of the containment during a LOCA. Section II.H. of Appendix J defines Type C tests as <u>including</u> certain categories of containment isolation valves; it does not, however, constitute a complete list.

Section III.A.1.(d) of Appendix J also specifies certain valves that are subject to Type C testing. These are valves in lines that are:

(1). Part of the reactor coolant pressure boundary and are open directly to the containment atmosphere under post-accident conditions and become an extension of the containment boundary;

(2). Portions of closed systems inside containment that penetrate containment and rupture as a result of a LOCA; or

(3). Not vented during Type A tests because they are in systems required to be operating during the test to maintain the plant in a safe condition.

These requirements, in part, implement the objective to test potential containment atmosphere leak paths.

Provide additional or revised justification for excluding Type C testing of valves in the penetrations listed above.

(b). The valves in penetrations P-16 and P-17 (RHR system) are not Type C tested because, the licensee states, the system is in service during a LOCA and is a closed system outside containment, therefore not constituting a potential leak path.

Appendix J does not attempt to account for what may happen to leakage after it has leaked out of the containment; therefore, a closed system outside containment provides no benefit for this evaluation.

Provide assurance that the RHR system will maintain these penetrations water-filled and pressurized during a LOCA; for example, provide the following:

(1). The design criteria for the pump(s) and associated piping between the water source and the containment penetrations; i.e., Quality Group or Safety Class; seismic design category; protection against missiles, pipe whip, and jet forces; ability to withstand LOCA transient; protection against high energy line break outside containment when required to function; and design class of power supply to pump motors.

(2). A description of the water source and the available post-accident inventory (if the water inventory is limited, the valves will require periodic leakage testing with water to demonstrate that sufficient water is available to provide a sealing function for 30 days after onset of an accident).

(3). A single failure analysis of active components to determine the capability to maintain pressure head on the containment penetrations. For example, if one pump failed to operate, discuss whether a head of water could still be applied to the containment penetrations in question; if cross-tie lines would be required to deliver water from one pump train to another to maintain pressure on the penetrations, discuss the operator actions that would be necessary to open valves in the cross-tie lines, and whether electrical power would be available to open the valves (e.g., in case of diesel generator failure).

(4). A description of the containment isolation valve type and orientation in the lines in question, and the capability of the sealing water from the pumps to preclude containment atmosphere leakage from the valve stems and packing. That is, discuss whether a water head acting against the valve disk side which faces outward will preclude air inside containment from leaking out past the valve stem or packing.

(5). The water pressure which will be maintained at the penetrations under the above conditions.

c). Certain valves in penetrations P-18, P-23, P-25, P-26, and P-27 are not Type C tested because, the licensee states, other valves in the same penetrations are served by the Isolation Valve Seal Water (IVSW) system.

Provide a single active failure analysis that demonstrates that the untested valves will not be solely relied upon to isolate the containment.

For example, show for each penetration that, if a valve or valves (should a common mode failure such as a failed diesel generator affect a group of valves) served by the IVSW fail open, that this would not leave only untested, unsealed valves isolating the penetration. Consider also possible failures of the IVSW itself.

d). The valves in penetrations P-21, P-22, and P-49 through P-56A (service water system) are not Type C tested because, the licensee states, they are part of closed systems inside containment that are not postulated to rupture during a LOCA; the service water system penetrations are also said to be in service during a LOCA.

In order to demonstrate that these closed systems would remain intact during a LOCA, provide the design criteria of the systems; i.e., Quality Group or Safety Class; seismic design category; protection against missiles and pipe whip; and ability to withstand a LOCA transient. Also verify that the systems do not communicate with either the reactor coolant system or the containment atmosphere.

e). Certain valves in penetrations P-16, P-17, P-43, and P-49 through P-56A (service water system) are not Type C tested, the licensee states, in part because the associated systems are in service during a LOCA.

In order to demonstrate that these systems would remain in service during a LOCA, provide the information requested in 6.(b)(1) through 6.(b)(5) above. This information is not necessary for the service

water system if it can be adequately demonstrated that the service water system is a qualified closed system inside containment (see 6.(d) above).

f). The valves in penetrations P-34A, P-34B, P-34C, and P-34D are not Type C tested because, the licensee states, they do not constitute potential leakage paths. This simple statement is not supported. Provide additional detailed justification.