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# EVALUATION OF THE CONTAINMENT LEAK TESTING PROGRAM FOR THE OCONEE NUCLEAR STATION, UNIT NOS. 1, 2, AND 3

## INTRODUCTION

By our letter, dated August 4, 1975, the Duke Power Company (DPC) was requested to review the Oconee Nuclear Stations in terms of the current containment leak testing program, and the associated Technical Specifications, for compliance with the requirements of Appendix J to 10 CFR 50. As part of this request, DPC was to determine the planned actions and the associated schedule for attaining conformance with the above cited regulation.

Appendix J to 10 CFR 50 was published on February 14, 1973. Since many operating nuclear plants had either received an operating license or were in advanced stages of design or construction at that time, some plants may not now be in full compliance with the requirements of this regulation. Therefore, beginning in August 1975, requests for review of the extent of compliance with the requirements of Appendix J were made of each licensee. Following the initial responses to these requests, NRC staff positions were developed which would provide assurance that the objectives of the testing requirements of the regulation were satisfied. These staff positions have since been applied in our review of the submittal filed by the Oconee licensee and the results are reflected in the following evaluation.

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EVALUATION

Section III.D.2 of Appendix J requires that airlocks be leak tested at six month intervals. However, airlocks which are opened during such intervals are to be leak tested after each opening.

In a submittal dated September 5, 1975, DPC indicated that:

(a) the personnel hatch and emergency hatch outer door seals are being tested at four month intervals, except when the hatches are not opened during that interval; and

(b) in no case shall the test intervals be longer than 12 months.

DPC has requested an exemption from the requirements of Appendix J to allow a continuation of the current airlock leak testing frequency. However, DPC has not provided sufficient justification to support the difference between its proposed airlock leak testing frequency and that required by Appendix J.

In order to assure that the testing of air locks on all operating reactors be dealt with in an equitable manner we have prepared and set forth in Attachment A what the staff considers to be acceptable approaches. Enclosed is a copy of Attachment A which may be of assistance in preparing responses to the above comments.

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ATTACHMENT A

CONTAINMENT AIRLOCKS

Appendix J to 10 CFR 50 requires that reactor containment airlocks be leak tested at the peak calculated accident pressure (Pa) at six - month intervals. Further, should the air locks be opened during such intervals, the airlocks will be leak tested after each opening. Appendix J calls out these specific requirements for airlocks, because they represent a potentially large leakage path that is more subject to human error than other isolation barriers.

The objectives of the airlock leak testing requirements are (1) that the six month test will provide an integrated leakage rate for the entire airlock assembly, including electrical and mechanical penetrations, the airlocks cylinder, hinge assemblies, welded connections, and other potential leakage paths; and (2) that the "after each opening" test will provide a means of assuring that the door seals have not been damaged or seated improperly during airlock use.

For those operating facilities that were designed and constructed prior to the issuance of Appendix J, consideration has been given to the alternatives to the specific testing requirements which will meet the provisions of Appendix J. Listed below are a number of guidelines which may be useful when considering or revising current airlock leak testing programs.

1. At six month intervals, the entire airlock assembly shall be leak tested at the peak pressure, Pa. If the test pressure will lift the inner airlock door off its seat, strongbacks or other mechancial devices should be used so that meaningful test results can be obtained at Pa.

2. Should the airlock be opened during the interval between the six month tests, the airlock door seals shall be leak tested within 72 hours of every first of a series of openings. This relaxation in the "after each opening" test requirement of Appendix J recognizes that a significant amount of time is required to conduct these intermediate tests in relation to the frequency of use of the airlock. These tests would be conducted whenever containment integrity is required.

3. For those plants which require the use of strongbacks or clamps to leak test the door seals at a pressure Pa, a lower pressure (e.g., manufacturer's recommended pressure, which would not require the use of such clamping devices) should be used to conduct the intermediate tests. The results of leakage tests at the lower pressure shall be conservatively extrapolated to a leakage rate at the accident pressure Pa to determine acceptability.

4. In lieu of the intermediate tests, an acceptable alternative would be the use of a continuous monitoring system. As in the case of reduced pressure intermediate tests, it must be demonstrated that the leakage rate using a continuous pressurized monitoring system is sufficiently sensitive, and can and will be conservatively extrapolated to the leakage rate that would be experienced under accident conditions (i.e., at a pressure of Pa).