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COPY

November 29, 1978

Mr James G Keppler
Office of Inspection and Enforcement
Region III
US Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT -
SCHEDULE FOR PERFORMANCE OF REACTOR
CONTAINMENT INTEGRATED LEAK RATE TEST

The purpose of this letter is to document a November 20, 1978 telephone conversation with D Hunter of your staff. In this conversation, the schedule for performing the next Big Rock Point containment integrated leak rate test was discussed. The next test is scheduled for late 1980 or early 1981 as discussed in Appendix 3 to Special Report No 27, "Reactor Containment Building Integrated Leak Rate Test," which was submitted to the Director of Nuclear Reactor Regulation on February 3, 1978. A copy of this appendix is attached for your convenience.

Mr Hunter stated that the schedule identified in the attached appendix had been discussed within your staff and that it had been agreed that this schedule was in conformance with 10 CFR 50, Appendix J, and the Big Rock Point Technical Specifications.

David A Bixel (Signed)

David A Bixel
Nuclear Licensing Administrator

CC: Director, Office of Nuclear Reactor Regulation
Director, Office of Inspection and Enforcement

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APPENDIX 3

TECHNICAL JUSTIFICATION FOR NEXT SCHEDULED ILRT BEING IN 1980-1981

The purpose of this analysis is to provide technical justification for the next proposed containment integrated leakage rate test. The proposed date is about 3-1/2 years after the September, 1977, ILRT, which is late 1980 or early 1981. The basis for this analysis is 10CFR50, Appendix J and the last two containment ILRTs results (1974 and 1977).

In Section A.6.b of Appendix J, it states:

> "If two consecutive periodic type A tests fail to meet the applicable acceptance criteria in III-A.5 (b), not withstanding the periodic retest schedule of III.D, a Type A test shall be performed at each plant shutdown for refueling or approximately 18 months"

NOTE: III.A.5.b is: Acceptance criteria - (1) Reduced pressure tests. The leakage rate Ltm shall be less than 0.75 Lt. 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 Pt.

(2) Peak pressure tests. The leakage rate* Lam shall be less than 0.75 La. 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 Pa.

AND III.D is: Periodic retest schedule - 1. Type A test. (a) After the preoperational leakage rate tests, a set of three Type A tests shall be performed at approximately equal intervals during each 10-year service period. The third test of each set shall be conducted when the plant is shutdown for the 10-year plant in-service inspections.

(b) Permissible periods for testing. The performance of Type A tests shall be limited to periods when the plant facility is non-operational and secured in the shutdown condition under the administrative control and in accordance with the safety procedures defined in the license.

Special Report No. 27
Reactor Containment Building Integrated Leak Rate Test
Appendix 3 (contd)

During the last two containment leak rate tests, the excessive leakage rates encountered were due to a single component (1974 - supply ventilation butterfly valve; 1977 - feedwater check valve) which was then repaired and test results proven acceptable.

In the 1974 ILRT, a leakage rate of .309%/day was experienced during the first hold test. This leakage rate is almost double the Technical Specification limit of .175%/day. Quoting from page 4 and 5 of the 1974 ILRT Report:

> "Upon investigation for the source of the high measured leakage rate, it was discovered that the 24-inch butterfly valve on the supply ventilation line into the containment building was leaking at the containment-side flange. This valve had been installed during the shutdown prior to conducting the leak rate test. An estimate of the leakage rate was made by collimating the air flow through a one-inch diameter (I.D.) pipe and measuring the velocity profile across the pipe. The leakage rate through the flange was estimated to be 0.292%/day. Hence, essentially all of the leakage measured during the first hold test was through the supply vent butterfly valve containment side flange.
>
> Bolts were tightened around the flange and the leakage stopped. The containment pressure was increased to approximately 8 inches of H_2O above the reference system and conditions were allowed to stabilize for four hours prior to initiation of the second hold test."

This portion of the 1974 test report related the fact that the 24-inch supply ventilation butterfly valve containment side flange was leaking through at the rate which was observed in the first hold test. Thus, by tightening down on the bolts around the flange, the leakage stopped. (Note the resultant containment leakage rate of .075%/day was still within the .75 L_a limit.) The valve had been installed during the same outage the integrated leakage rate test was performed. The ILRT essentially acted as an installation acceptance test for the valve, especially the containment side flange.

The 1977 containment integrated leak rate test was the first containment test that was in full compliance with 10CFR50, Appendix J. Draining and venting of several systems to attempt a close approximation of system status after an accident was performed in preparation for the test. The feedwater system was one system in which a leakage path was found.

The leakage path was through two feedwater check valves. The feedwater system was then isolated and after the completion of the test, the leakage rate through the check valve was determined, utilizing the pressurized containment as a source of air. The check valve leakage was measured with a gas flow meter attached to the feedwater line to obtain the magnitude of the leakage.

The feedwater line leakage path was detected approximately half way through the controlled leakoff portion of the ILRT. Examination of test results at that time indicated a leakage rate greater than expected in the controlled leakoff portion.

In turn, investigation of the leakage resulted in the conclusion that the feedwater check valve was leaking through. The feedwater line was then isolated. Thus, the initial hold test was considered invalid and corrective action was taken to continue with the containment testing.

In conclusion, as a result of the excessive leakage rate encountered, due to the feedwater check valves, and the evidence presented above, this ILRT is considered to be the first ILRT failure. Thus, if the ILRT in 1980-81 results in unacceptable results, then III.A.6(b) applies.