



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

APPENDIX J REVIEW

PILGRIM NUCLEAR POWER STATION

DOCKET NO. 50-293

1.0 INTRODUCTION

Appendix J to 10 CFR Part 50, relative to primary reactor containment leakage testing for water-cooled power reactors, was published on February 14, 1973. By a generic letter dated August 7, 1975 (1), the NRC requested the Boston Edison Company (BECo/licensee) to review its containment leakage testing program at Pilgrim for compliance with the requirements of Appendix J. BECo responded to that request on October 10, 1975 (2). Subsequently, NRC staff positions were developed relative to Appendix J and those positions were applied during our reviews of the October 10, 1975 submittal and BECo's subsequent submittals (3,4,7) in response to our requests for additional information (5,6).

2.0 EVALUATION

The licensee's submittals (2,3,4,7) were reviewed by the Franklin Research Center (FRC), our consultant, which reported its findings and the bases for them in Technical Evaluation Report (TER) No. C5257-40 dated May 5, 1981 (8). A draft copy of that TER was provided to BECo on April 28, 1981 (9), and the licensee responded with clarifying information on September 15, 1981 (10). This information was also reviewed by FRC and the results of its evaluation are provided in TER C-5257-548 dated April 12, 1982 (11).

The NRC staff has reviewed the FRC evaluations and concurs in the findings in TER C5257-40, as modified and supplemented in TER C5257-548.

Based on our review of the attached technical evaluation reports, we conclude that:

- (1) The licensee's testing of TIP ball valves satisfies the requirements of Appendix J with regard to the TIP penetrations. An exemption from the requirements is therefore unnecessary.
- (2) The licensee's interpretation of the discussion in TER C5257-40 regarding the conservative assumption to be applied when correcting integrated leakage rates for the "as is" condition is correct. The conservative assumption need not be applied when it can be proven and documented that leakage is internal to the containment. An exemption from the Appendix J requirements is unnecessary.

- (3) Testing of the main steam isolation valves at 23 psig by pressurizing between the inboard and outboard valves is acceptable. An exemption for Appendix J requirements is necessary and should be authorized.
- (4) Valves in lines terminating below the level of the suppression pool do not require Type C testing; therefore, an exemption from Appendix J requirements is unnecessary.
- (5) The intent of Appendix J is satisfied and no exemption is required where the following valves of penetration X-9A are Type C tested, provided that valves 301-99, 1201-81, and 1201-82 are exposed to test pressure:

Feedwater valves 6-58A and 6-62A
RCIC valve AO-1301-50
CRD valve 301-95
RWCU valve MO-1201-80

- (6) Testing of standby liquid control squib valves 1106A and B in lieu of check valve 1101-5 is acceptable because the intent of Appendix J is achieved and because this testing more closely approximates potential accident leakage. An exemption from the requirements of Appendix J is unnecessary.
- (7) Type C testing of the motor-operated isolation valves of the core spray system (MO-1400-24A and B and -25A and B) is an acceptable substitute for testing the core spray check valves, provided that emergency procedures require shutting the isolation valves upon determination of the absence of flow in either portion of the system and that the system is periodically tested for integrity. An exemption from the requirements is unnecessary.
- (8) Reverse direction Type C testing of containment isolation gate valves is acceptable where these valves are Type A tested in the direction of accident pressure and the other isolation valves in each line are Type C tested in the direction of accident pressure. This situation applies to approximately 11 gate valves. An exemption from requirements of Appendix J is unnecessary.
- (9) Containment airlocks should be tested in accordance with the October 22, 1980 revision of Section III.D.2 of Appendix J. The licensee initially requested an exemption from testing the airlocks every six months at a pressure not less than Pa (45 psig). However, the licensee subsequently informed the staff that the plant procedures now include such testing. An exemption is unnecessary.

3.0 Conclusions

Leakage rate testing of the main steam isolation valves at 23 psig is acceptable and an appropriate exemption from Appendix J requirements should be issued. All of the other BECo exemption requests have either been withdrawn or they have been found unnecessary.

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Dated:

References

1. NRC generic letter to licensees regarding implementation of Appendix J to 10 CFR Part 50, August 5, 1975.
2. Letter responding to NRC from Boston Edison Company (J.E. Howard), October 10, 1975.
3. Letter from Boston Edison Company (J.E. Howard) providing additional information to NRC (D.L. Ziemann), January 27, 1976.
4. Letter from Boston Edison Company (J.E. Howard) providing additional information to NRC (D.L. Ziemann), June 4, 1976.
5. Letter from NRC (D.L. Ziemann) to Boston Edison Company (J.E. Larson), July 23, 1976.
6. Letter from NRC (T.M. Novak) to Boston Edison Company (G.C. Andognini), August 12, 1980.
7. Letter from Boston Edison Company (A.V. Morisi) providing additional information to NRC (T.A. Ippolito), October 27, 1980.
8. Franklin Research Center Technical Evaluation Report, TER-C5257-40, May 5, 1981.
9. Letter from NRC (T.A. Ippolito) to Boston Edison Company (A.V. Morisi), enclosing Safety Evaluation Report and draft Technical Evaluation Report, April 28, 1981.
10. Letter from Boston Edison Company (A.V. Morisi) providing further information to NRC (T.A. Ippolito), September 15, 1981.
11. Franklin Research Center Technical Evaluation Report, TER-C5257-548, April 12, 1982.