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NRC PDR

July 2, 1984

Docket No. 50-293

Mr. William D. Harrington
Senior Vice President, Nuclear
Boston Edison Company
800 Boylston Street
Boston, Massachusetts 02199

Local PDR
ORB#2 Rdg
DEisenhut
ORAB
SNorris
PLeech
OELD
EJORDAN
JNGrace
TBarnhart (4)
ACRS (10)
OPA, CMiles
SECY
RDiggs

Dear Mr. Harrington:

SUBJECT: APPENDIX J REVIEW FOR PILGRIM NUCLEAR POWER STATION

The Commission has issued the enclosed Exemption from certain requirements of Section 50.54(o) and Appendix J to 10 CFR Part 50 for the Pilgrim Nuclear Power Station in response to your letter dated October 10, 1975, as supplemented by letters dated January 27, 1976; June 4, 1976; October 27, 1980; and September 15, 1981.

This Exemption, which is being forwarded to the office of the Federal Register for publication, permits testing the main steam isolation valves at a pressure of 23 psig. All of the other exemption requests in your submittals have either been withdrawn by you or they have been found unnecessary. The bases for our findings are contained in the enclosed Safety Evaluation.

As indicated in our letter of April 26, 1981, the Technical Specification changes proposed in your submittals of January 27, 1976 and June 4, 1976 to ensure compliance with the regulation should be updated and resubmitted. Please reply accordingly within 90 days of receipt of this letter.

Sincerely,

Original signed by:
Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Enclosures:
Exemption
Safety Evaluation
Technical Evaluation Reports

*See previous concurrence

DL:ORB#2	DL:ORB#2	CSB	DL:ORB#2	OELD	AD-OR:DL	D:D
SNorris;jk*	PLeech*	WButler*	DVassallo*	*	GLainas*	DEisenhut
05/17/84	05/14/84	05/18/84	05/18/84	05/24/84	05/29/84	07/2/84

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Mr. William D. Harrington
Boston Edison Company
Pilgrim Nuclear Power Station

cc:

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On October 10, 1975, the Boston Edison Company submitted its evaluation of the Pilgrim Nuclear Power Station with respect to the requirements of Appendix J and that submittal was supplemented by letters dated January 27, 1976; June 4, 1976; and October 27, 1980. In these submittals, BECo requested that certain test methodology, components, and penetrations be exempted from Appendix J requirements.

The Franklin Research Institute (FRC), as a consultant to NRC, reviewed the licensee's submittals and prepared a Technical Evaluation Report (TER) which recommended that the exemption request relative to testing the main steam isolation valves be granted. The NRC staff has reviewed the bases and findings in the TER and concurs with FRC's recommendation.

The exemption found to be necessary concerns the requirement in Section III.C.2 of Appendix J that Type C testing be performed at the calculated peak containment internal pressure (Pa) related to the design basis accident. The licensee proposes to test the main steam isolation valves (MSIVs) at 23 psig instead of 45 psig (Pa) on the following basis: The main steam system design in most operating BWR plants, including Pilgrim, necessitates leak testing of the MSIVs by pressurizing the pipes between the inboard and outboard valves. The MSIVs are angled in the main steam lines in the direction of flow to afford better sealing upon closure. However, a test pressure of Pa acting on the inboard valve in the opposite direction is sufficient to lift the valve disc off its seat and

results in excessive leakage into the reactor vessel. That would be a meaningless test. The proposed test calls for a test pressure of 23 psig to avoid lifting the inboard valve disc. The total observed leakage through both the inboard and outboard valves is then conservatively assigned to the penetration.

On the basis of the review results provided in the Staff's Safety Evaluation, the staff concludes that testing the MSIVs at 23 psig is acceptable.

III.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, an exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest. Therefore, the Commission hereby approves the exemption request as follows:

Exemption is granted from the requirements of Section III.C.2 of Appendix J pertaining to the Type C testing of the main steamline isolation valves at a test pressure of Pa. Testing them at a reduced pressure of 23 psig is acceptable due to the unique design of the valves.

Environmental Assessment

Pursuant to 10 CFR 51.30, the staff concludes as follows regarding the listed factors:

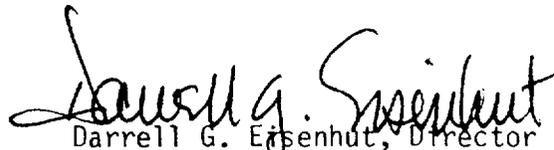
- (1) (i) The need for the proposed action is described above;

- (ii) The alternative to the exemption would be to require literal compliance with Appendix J, Section III.C.2. Such an action would not enhance the protection of the environment and would be adverse to the public interest generally;
 - (iii) The issuance of the exemption, or its denial, would not affect the environmental impact of the facility;
- (2) The NRC staff reviewed the licensee's request and did not consult other agencies or persons.

Based on the above assessment, the NRC staff concludes, pursuant to 10 CFR 51.32, that the issuance of the exemption will have no significant impact on the environment.

For further details with respect to this action, see the Commission's related Safety Evaluation, which is available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C., and at the Plymouth Public Library, North Street, Plymouth, Massachusetts 02360.

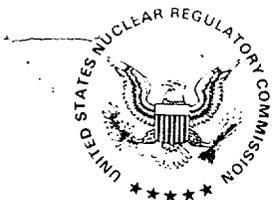
FOR THE NUCLEAR REGULATORY COMMISSION



Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
This 2nd day of July, 1984

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.

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- (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 A0-1301-50
CRD valve 301-95
RWCU valve M0-1201-80

- (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 (M0-1400-24A 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.

Principal Contributors: Peter Hearn and Paul Leech

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.