



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 90 TO FACILITY OPERATING LICENSE NO. DPR-39
AND AMENDMENT NO. 89 TO FACILITY OPERATING LICENSE NO. DPR-48

COMMONWEALTH EDISON COMPANY

ZION NUCLEAR POWER STATION, UNITS 1 AND 2

DOCKET NOS. 50-295 AND 50-304

1.0 INTRODUCTION

By letters dated January 30, 1985, (R. N. Cascarano, Nuclear Licensing Administrator, to H. R. Denton, NRR) and July 8, 1985 (P. C. LeBlond, Nuclear Licensing Administrator to H. R. Denton, NRR) Commonwealth Edison Company requested amendments to Facility Operating Licenses No. DPR-39 and No. DPR-48 for the Zion Nuclear Plant, Units No. 1 and 2. This Safety Evaluation addresses the portions of the requested changes modifying Technical Specification (TS) requirements governing containment leak rate testing and containment airlocks.

A Notice of Consideration of Issuance of Amendment to License and Proposed No Significant Hazards Consideration Determination and Opportunity for Hearing related to the requested action was published in the Federal Register on April 23, 1985 (50 FR 16001). No requests for hearing and no public comments were received.

2.0 EVALUATION

The proposed wording of paragraphs 3.10.1 and 4.10.1 was reviewed against the requirements of 10 CFR 50, Appendix J regarding test pressure, acceptance criteria, and test frequency and, with the exception of paragraph 4.10.1.A.1.b, are found acceptable. Paragraph 4.10.1.A.1.b limits the containment integrated leak rate test data reduction techniques to the mass point method. Paragraph III A.3 of Appendix J requires that all Type A tests be conducted in accordance with ANSI N45.4-1972. ANSI N45.4-1972 does not authorize the use of the mass point technique. In addition, paragraph 7.6 of the ANSI Standard requires that the test period be at least 24 hours; however, the staff has previously approved the use of the Bechtel Topical Report BN-TOP-1, Revisior 1, which when properly followed allows for Type A tests of less than 4 hours duration. The staff approved Bechtel Topical Report does not allow the use of the mass point technique of data reduction either; therefore, while the staff has no concerns regarding the use of the mass point

technique as a backup measure to reduce test data, it has advised the licensee that the proposed TS paragraph is unacceptable. The licensee chose not to resubmit the paragraph in the July 8, 1985 submittal. Since present regulations adequately cover the allowable methods of data reduction for both > 24 hours and < 24 hours containment integrated leak rate tests, the staff rejects proposed TS paragraph 4.10.1.A.1.b as presently written. The licensee may resubmit, if it so wishes, a new proposed TS which parallels the requirements of the existing regulations.

The proposed wording of paragraphs 3.10.2 and 4.10.2, as initially proposed in the January 30, 1985 letter, were reviewed against the requirements of 10 CFR 50, Appendix J regarding airlock penetration test pressure, test frequency, and acceptance criteria. The surveillance requirements (4.10.2) were found unacceptable in that the proposed method of extrapolating the results of low pressure tests to accident pressure (Pa) is considered by the staff to be nonconservative; the acceptance criteria was too large; and for outages in which containment integrity had been broken, the allowable time in Mode 5 or 6 before an airlock test was required was excessive. In extrapolating the results of reduced pressure airlock tests to full pressure (Pa), the staff has concluded that the assumption of capillary-like viscous flow should be used because it is conservative.

By letter dated July 8, 1985, the licensee revised its request to limit the allowable leakage rate for door seal tests performed within 72 hours following each airlock opening, or for tests performed each 72 hours in cases of multiple airlock openings, to 1.0 SCFH at a test pressure of ≥ 2.5 psig or 4.75 SCFH at a test pressure of 10 psig. The staff has determined that both limits are equivalent to a leakage rate limit of 0.01 La at a test pressure of 10 psig which is acceptable. In its revised request, the licensee also proposes to perform a full pressure airlock test prior to entering Mode 4 whenever the unit has been in Mode 5 for a period ≥ 7 days and the containment integrity has been broken (both airlock doors open). The licensee will also perform full pressure airlock tests every 6 months. During a phone conversation between licensee personnel and the staff on June 7, 1985 the licensee provided additional information to clarify test requirements following plant outages during which containment integrity is not required. The Zion Station Licensing Administrator stated that operability demonstration requirements mandate a full pressure airlock leakage test following airlock maintenance. Accordingly, the staff concludes that the proposed Technical Specification paragraphs 3.10.2 and 4.10.2, as proposed by the licensee in its letter dated July 8, 1985, are acceptable.

Subsections 3.10.4, 4.10.4, and their Basis concerning containment liner inspections were included in the Zion Nuclear Plant TS when liner deflections were noted following hot functional testing of Unit 1 in May 1973. The inspections were continued until 1978 and then terminated when liner deflection measurements indicated no further substantial growth in the liner deflections of both units and the licensee concluded that the deflections had resulted from post tensioning creep and shrinkage in the concrete containment. After reviewing the licensee's surveillance data, the staff concurs that the liner deflection surveillance is no longer required and Subsections 3.10.4 and 4.10.4 and their Basis may be deleted.

The TS Limiting Condition for Operation for Containment Tendon Surveillance presently requires 21 containment tendons (of one containment) be tested during each surveillance. The proposed change would require nine tendons (of one containment) be tested instead of 21. The existing Surveillance Requirements and Limited Conditions for Operation were structured for inspection intervals of one, three, and five years. These tests have been accomplished with no observed anomalies evidenced in the prestressing systems test and inspection data. The proposed and former TS Limiting Condition for Operation and Surveillance Requirements are essentially the same with the exception of the scaling back of the number of tendons to be tested. Staff believes this scaling back is acceptable since it is in accordance with U.S. Nuclear Regulatory Commission Regulatory Guide No. 1.35, "Inservice Inspection of Ungrouted Tendons In Prestressed Concrete Containment Structures."

Environmental Consideration

These amendments involve a change in the installation or use of the facilities components located within the restricted areas as defined in 10 CFR 20. The staff has determined that these amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: August 27, 1985

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