ATTACHMENT I TO JPN-85-39

Proposed Technical Specification Changes Related To Primary Containment Airlock Test Requirements PTS-80-20

New York Power Authority
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333

May 2 , 1985

4.7 (cont'd)

The third test of each set shall be conducted when the plant is shutdown for the 10-year plant inservice inspections.

Permissible periods for testing. The performance of Type A tests shall be limited to periods when the plant facility is nonoperational and secured in the shutdown condition under the administrative control and in accordance with the plant safety procedures.

(2) Type B tests, (except tests for airlocks), shall be performed during each reactor shutdown for refueling, or other convenient intervals, but in no case at intervals greater than 2 years.

(3) Type B tests of airlocks shall be conducted at an internal pressure of not less than 45 psig (Pa). The overall leakage rate for the airlock shall be less than or equal to 268 SCFD (0.05 La). Airlock tests shall be conducted:

a) Every six months.

b) Prior to restoration of containment integrity, when maintenance has been performed on the airlock which could affect its sealing capability.

4.7 (cont'd)

c) Within three days of opening the airlock, when containment integrity is required and maintenance has been performed on the airlock which could affect its sealing capability.

(4) Airlock seals shall be tested at a pressure not less than 45 psig. The seal leakage rate shall be less than or equal to 120 SCFD. Airlock seal tests shall be conducted:

a) Prior to restoration of containment integrity*. If maintenance which could affect sealing capability was performed the entire airlock shall be tested as required by 4.7.A.2.e (3).

b) Within three days after opening the airlock, when containment integrity is required.

c) Once every three days, during periods of frequent openings when containment integrity is required.

* Exemption to 10 CFR 50, Appendix J

4.7 (cont'd)

(5) Type C test.

Type C tests shall be performed during each reactor shutdown for refueling but in no case at intervals greater than two years.

(6) Other leak rate tests specified in Section 4.7d shall be performed during each reactor shutdown for refueling but in no case at intervals greater than two years.

f. Containment modification

Any major modification, replacement of a component which is part of the primary reactor containment boundary, or resealing a seal-welded door, performed after the preoperational leakage rate test shall be followed by either a Type A, Type B, or Type C test, as applicable, for the area affected by the modification. The measured leakage from this test shall be included in the test report. The acceptance criteria as appropriate, shall be met. Minor modifications, replacements, or re-sealing on seal-welded doors, performed directly prior to the conduct of a scheduled Type A test do not require a separate test.

4.7 BASES (cont'd)

assumption of no holdup in the secondary containment, resulting in a direct release of fission products from the primary containment through the filters and stack to the environs. Therefore, the specified primary containment leak rate and filter efficiency are conservative and provide additional margin between expected offsite doses and 10CFR100 guidelines.

The maximum allowable test leak rate at the peak pressure of 45 psig (Pa) is 0.5 weight percent per day (Lam). The maximum allowable test leak rate at the reduced pressure of 23 psig (P_t) will be verified to be conservative by actual primary containment leak rate measurements at both 45 psig and 23 psig upon completion of the containment structure.

To allow a margin for possible leakage deterioration between intervals, the maximum allowable leak rate (Ltm), which will be met to remain on the normal test schedule, is 0.75 L_t. In addition, it is intended to operate the primary containment structure at a slight positive pressure to continuously monitor primary containment leakage.

As most leakage and deterioration of integrity is expected to occur through penetrations, especially those with resilient seals, a periodic leak rate test program of such penetrations is conducted at the peak pressure of 45 psig to insure not only that the leakage remains acceptably low but also that the sealing materials can withstand the accident pressure. For airlock leak test, a seal test at the peak pressure could be substituted for the complete airlock test, if no maintenance work is done which could affect the sealing capability of the airlock.

The leak rate testing program was originally based on AEC guidelines for development of leak rate testing and surveillance schedules for reactor containment vessels, (16) and discussed in Question 5.4 of the FSAR. With the exceptions listed in Table 4.7-2, the system conforms to the latest AEC guidelines (17). The exceptions stated in Table 4.7-2 are necessary since additional requirements were added after the system was designed.

B. Standby Gas Treatment System and
C. Secondary Containment

Initiating reactor building isolation and operation of the Standby Gas Treatment System to maintain at least a 1/4 in. of water vacuum within the secondary containment provides an adequate test of the operation of the reactor

ATTACHMENT II TO JPN-85-39

Safety Evaluation Related To Primary Containment Airlock Test Requirements PTS-80-20

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Section I - Description of the Changes

The proposed changes to the Technical Specifications are shown in Attachment I to the Application for Amendment. These changes occur in Section 4.7.A pages 173, 173a and 174 and Section 4.7.A BASES page 194. The proposed changes reflect the NRC's amendment to 10 CFR 50 Appendix J, dated October 22, 1980, regarding containment airlock testing requirements. In the proposed amendment, the following changes are incorporated:

a) The time specified for testing the airlocks, which are opened during periods when containment integrity is required, has been increased from 24 hours to 72 hours.

b) Test pressure and leakage criteria for the airlocks have been specified.

c) A seal test has been specified in lieu of the entire airlock test when: containment integrity is to be established following a period during which it was not required; and, no maintenance has been performed on the airlock that could affect its sealing capability. As per Appendix J to 10 CFR 50, paragraph III.D.2.b(ii), a complete airlock test is required at the end of the period when containment integrity is not required. The Authority hereby requests an exemption from this requirement in accordance with 10 CFR 50.12. Justification for this exemption is provided below.

d) The numbering of Sections 4.7.A.2.e(3) and 4.7.A.2.e(4) was changed to 4.7.A.2.e(5) and 4.7.A.2.e(6), respectively, as a result of the changes made above.

Section II - Purpose of the Changes

The purpose of the changes is to provide greater flexibility with respect to airlock testing when the airlocks are in frequent use. The changes would also facilitate visual inspections during plant heat-up and pressurization.

Section III - Impact of the Changes

The following is a justification to substitute a seal test in lieu of the entire airlock test for the conditions stated above.

Testing of the airlock(s) at P_a (45 psig) following primary containment entry, and prior to establishing primary containment integrity, requires installation of the airlock inner door strong backs, as the applied test pressure exerts a force on the door in the direction opposite to that of the accident pressure direction and could move the door off the sealing surface.

Installation of the strong backs must commence approximately 24 hours prior to the need to establish primary containment integrity. During this 24-hour period, approximately one (1) hour is required to inspect the door seals and door seat surfaces, three (3) hours is required to install the strong backs, and 12 to 16 hours is required to pressurize the airlock to 45 psig, stabilize the test pressure and measure the leak rate. Adding four (4) hours to this sequence for resolution of unanticipated problems, results in 20 to 24 hours to complete air lock leak testing.

During the period of 20 to 24 hours required to complete the airlock leak testing, the primary containment is inaccessible. As a result, all work inside the primary containment must be completed approximately 24 hours prior to establishing primary containment integrity or plant start-up must be delayed to allow completion of the airlock test. In either case, plant start-up is effectively delayed by approximately 24 hours.

Airlock testing would also cause additional delays for re-entry into the primary containment in order to conduct a visual inspection of systems and components. This re-entry can only be conducted after the airlock is depressurized requiring 4 to 8 hours, and the strong backs are removed requiring approximately 2 hours.

As an alternative, testing of the airlock door seals at P_a (45 psig) with a leakage limit of 120 SCFD provides a positive demonstration of seal tightness and requires approximately 30 minutes to conduct. Following completion of door seal testing, the airlock door can be opened to permit access within five (5) minutes. As a result, little or no delay in conducting plant start-up is encountered and the ease of access to primary containment enables an active and thorough inspection of the systems and components inside primary containment during plant heat-up and pressurization.

The entire airlock test, and the installation and removal of the strong backs results in an estimated expenditure of approximately 18 hours and 0.15 man-rem compared with 0.5 hours and 0.025 man-rem for seal testing only.

Furthermore, the periodic 6 month test of the entire airlock and the specified seal tests assure that the airlock is properly sealed, and would perform its design function.

This exemption is also included in the Standard Technical Specifications.

Based on the above stated reasons, the Authority considers that a seal test can be substituted in lieu of a complete airlock test for the above mentioned conditions without affecting the safe operation of the plant.

The proposed changes do not change any system or subsystem and will not alter the conclusions of either the FSAR or SER accident analyses.

Operation of the FitzPatrick plant in accordance with the proposed amendment would not:

1) involve a significant increase in the probability or consequences of an accident previously evaluated because:

   a) the changes are intended to provide greater flexibility for airlock testing and facilitate visual inspections during plant heat-up and pressurization.

   b) A seal test is substituted in lieu of an entire airlock test, when: containment integrity is to be established following a period during which it was not required; and, no maintenance has been performed on the airlock that could affect its sealing capability. This provides adequate assurance that the airlock and airlock seals will perform their design function. It should be noted that substituting a seal test in lieu of an airlock test has been incorporated into the Standard Technical Specifications.

2) create the possibility of a new or different kind of accident from any accident previously evaluated, because the changes provide greater flexibility for surveillance testing of airlocks.

3) involve a significant reduction in margin of safety because:

   a) the periodic 6 month tests of the entire airlock and the specified seal tests assure that the airlock is properly sealed, and will perform its design function.

Section IV - Implementation of the Changes

Implementation of the changes, as proposed, will not impact the ALARA or fire protection programs at FitzPatrick, nor will the changes impact the environment.

Section V - Conclusion

The incorporation of these changes:

   a) Will not change the probability or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report;

   b) Will not increase the possibility of an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report;

c) Will not reduce the margin of safety as defined in the basis for any Technical Specifications;

d) Does not constitute an unreviewed safety question as defined in 10 CFR 50.59; and

e) Involves no significant hazards consideration, as defined in 10 CFR 50.92.

Section VI - References

1) Amendment to the Code of Federal Regulations 10 CFR 50 Appendix J, dated October 22, 1980.

2) NYPA letter, J.P. Bayne to D.B. Vassallo (NRC), dated October 1, 1984 (JPN-84-60) regarding same subject.

3) James A. FitzPatrick Nuclear Power Plant Final Safety Analysis Report (FSAR), Rev 0, July 1982, Section 5.2.

4) James A. FitzPatrick Nuclear Power Plant Safety Evaluation Report (SER).