

ATTACHMENT 3

TMI-1

TECHNICAL SPECIFICATION

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3.6 REACTOR BUILDING (Continued)

3.6.8 While containment integrity is required (see T.S. 3.6.1), if a 48" reactor building purge valve is found to be inoperable perform either 3.6.8.1 or 3.6.8.2 below.

3.6.8.1 If inoperability is due to reasons other than excessive combined leakage, close the associated valve and within 24 hours verify that the associated valve is OPERABLE. Maintain the associated valve closed until the faulty valve can be declared OPERABLE. If neither purge valve in the penetration can be declared OPERABLE within 24 hours, be in HOT SHUTDOWN within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

3.6.8.2 If inoperability is due to excessive combined leakage (see Specification 6.8.5), within 48 hours restore the leaking valve to OPERABILITY or perform either a or b below:

a. Manually close both associated reactor building isolation valves and meet the leakage criteria of Specification 6.8.5 and perform either (1) or (2) below.

(1) Restore the leaking valve to OPERABILITY within the following 72 hours.

(2) Maintain both valves closed by administrative controls, verify both valves are closed at least once per 31 days and perform the interspace pressurization test in accordance with the Reactor Building Leakage Rate Testing Program. In order to accomplish repairs, one containment purge valve may be opened for up to 72 hours following successful completion of an interspace pressurization test.

b. Be in HOT SHUTDOWN within 6 hours and COLD SHUTDOWN within the following 30 hours.

3.6.9 Except as specified in 3.6.11 below, the Reactor Building purge isolation valves (AH-V-1A&D) shall be limited to less than 31° and (AH-V-1B&C) shall be limited to less than 33° open, by positive means, while purging is conducted.

3.6.10 During STARTUP, HOT STANDBY and POWER OPERATION:

a. Containment purging shall not be performed for temperature or humidity control.

b. Containment purging is permitted to reduce airborne activity in order to facilitate containment entry for the following reasons:

(1) Non-routine safety-related corrective maintenance.

(2) Non-routine safety-related surveillance.

3.6 REACTOR BUILDING (Continued)

- (3) Performance of Technical Specification required surveillances.
 - (4) Radiation Surveys.
 - (5) Engineering support of safety-related modifications for pre-outage planning.
 - (6) Purging prior to shutdown to prevent delaying of outage commencement (24 hours prior to shutdown).
- c. Containment purging is permitted for Reactor Building pressure control.
 - d. To the extent practicable the above containment entries shall be scheduled to coincide, in order to minimize instances of purging.
- 3.6.11 When the reactor is in **COLD SHUTDOWN** or **REFUELING SHUTDOWN**, continuous purging is permitted with the Reactor Building purge isolation valves opened fully.
- 3.6.12 Personnel or emergency air locks:
- a. At least one door in each of the personnel or emergency air locks shall be closed and sealed during personnel passage through these air locks.
 - b. One door of the personnel or emergency air lock may be open for maintenance, repair or modification provided the other door of the air lock is verified closed within 1 hour, locked within 24 hours, and verified to be locked closed monthly. Air lock doors in high radiation areas may be verified locked closed by administrative means.
 - c. Entry and exit is permissible to perform repairs on the affected personnel or emergency air lock components. With both air locks inoperable due to inoperability of only one door in each airlock, entry and exit is permissible for 7 days under administrative controls. With the personnel or emergency air lock door interlock mechanism inoperable, entry and exit is permissible under the control of a dedicated individual.
 - d. With one or more air locks inoperable for reasons other than "b" or "c" above, initiate action immediately to evaluate the overall containment leakage rate with respect to the requirements of Specification 6.8.5, verify a door is closed in the affected air lock within 1 hour, and restore the affected air lock(s) to operable status within 24 hours or the reactor shall be brought to **HOT SHUTDOWN** within 6 hours and **COLD SHUTDOWN** within the following 30 hours.

3.6 REACTOR BUILDING (Continued)

Bases

The Reactor Coolant System conditions of COLD SHUTDOWN assure that no steam will be formed and hence no pressure will build up in the containment if the Reactor Coolant System ruptures. The selected shutdown conditions are based on the type of activities that are being carried out and will preclude criticality in any occurrence.

A condition requiring integrity of containment exists whenever the Reactor Coolant System is open to the atmosphere and there is insufficient soluble poison in the reactor coolant to maintain the core one percent subcritical in the event all control rods are withdrawn. The Reactor Building is designed for an internal pressure of 55 psig, and an external pressure 2.5 psi greater than the internal pressure.

An analysis of the impact of purging on ECCS performance and an evaluation of the radiological consequences of a design basis accident while purging have been completed and accepted by the NRC staff. Analysis has demonstrated that a purge isolation valve is capable of closing against the dynamic forces associated with a LOCA when the valve is limited to a nominal 30° open position.

Allowing purge operations during STARTUP, HOT STANDBY and POWER OPERATION (T.S. 3.6.10) is more beneficial than requiring a cooldown to COLD SHUTDOWN from the standpoint of (a) avoiding unnecessary thermal stress cycles on the reactor coolant system and its components and (b) reducing the potential for causing unnecessary challenges to the reactor trip and safeguards systems.

The recombiner unit is capable of controlling the expected hydrogen generation associated with 1) zirconium-water reactions, 2) radiolytic decomposition of water and 3) corrosion of metals within containment. The recombiner is designed in accordance with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA", March 1971, the acceptance criteria of the Standard Review Plan (S.R.P.) 6.2.5., and NUREG 0578, July 1979. In addition to the installed hydrogen recombiner, a second recombiner including all piping, electrical, and structural provisions is available on site.

The hydrogen mixing is provided by the reactor building ventilation system to ensure adequate mixing of the containment atmosphere following a LOCA. This mixing action will prevent localized accumulations of hydrogen from exceeding the flammable limit.

3.6 REACTOR BUILDING - BASES (Continued)

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of 10 CFR 50, Appendix J (Reference 1), and the Reactor Building Leakage Rate Testing Program. Each air lock door has been designed and is tested to certify its ability to withstand a pressure in excess of the maximum expected pressure following a Design Basis Accident (DBA) in containment. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events.

Entry and exit is allowed to perform repairs on the affected air lock component. If the outer door is inoperable, then it may be easily accessed to repair. If the inner door is the one that is inoperable, however, then a short time exists when the containment boundary is not intact (during access through outer door). The ability to open the OPERABLE door, even if it means the containment boundary is temporarily not intact, is acceptable due to the low probability of an event that could pressurize the containment during the short time in which the OPERABLE door is expected to be open. After each entry and exit the OPERABLE door must be immediately closed. If ALARA conditions permit, entry and exit should be via an OPERABLE air lock. With both air locks inoperable due to inoperability of one door in each of the two air locks, entry and exit is allowed for use of the air locks for 7 days under administrative controls. Containment entry may be required to perform Technical Specifications (TS) Surveillances and Required Actions, as well as other activities on equipment inside containment that are required by TS or activities on equipment that support TS-required equipment. This is not intended to preclude performing other activities (i.e., non-TS-required activities) if the containment was entered, using the inoperable air lock, to perform an allowed activity listed above. This allowance is acceptable due to the low probability of an event that could pressurize the containment during the short time that the OPERABLE door is expected to be open.

With one or more air locks inoperable for reasons other than those described in 3.6.12."b" or "c," Section 3.6.12.d requires action to be immediately initiated to evaluate previous combined leakage rates using current air lock test results. An evaluation is acceptable since it is overly conservative to immediately declare the containment inoperable if both doors in an air lock have failed a seal test or if the overall air lock leakage is not within limits. In many instances (e.g., only one seal per door has failed), containment remains OPERABLE, yet only 1 hour would otherwise be provided to restore the air lock to OPERABLE status prior to requiring a plant shutdown. In addition, even with both doors failing the seal test, the overall containment leakage rate can still be within limits.

Section 3.6.12.d requires that one door in the affected containment air lock(s) must be verified to be closed within 1 hour. Additionally, the affected air lock(s) must be restored to OPERABLE status within the 24 hour Completion Time. 24 hours is considered reasonable for restoring an inoperable air lock to OPERABLE status assuming that at least one door is maintained closed in each affected air lock.

References

- (1) 10 CFR 50, Appendix J.

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Amendment No. 498

4.4.1 CONTAINMENT LEAKAGE TESTS

Applicability

Applies to containment leakage.

Objective

To verify that leakage from the Reactor Building is maintained within allowable limits.

Specification

- 4.4.1.1 Integrated Leakage Rate Testing (ILRT) shall be conducted in accordance with the Reactor Building Leakage Rate Testing Program at test frequencies established in accordance with the Reactor Building Leakage Rate Testing Program.
- 4.4.1.2 Local Leakage Rate Testing (LLRT) shall be conducted in accordance with the Reactor Building Leakage Rate Testing Program. LLRT shall be performed at a pressure not less than peak accident pressure P_{ac} with the exception that the airlock door seal tests shall normally be performed at 10 psig and the periodic containment airlock tests shall be performed at a pressure not less than P_{ac} . LLRT frequencies shall be in accordance with the Reactor Building Leakage Rate Testing Program.
- 4.4.1.3 Operability of the personnel and emergency air lock door interlocks and the associated control room annunciator circuits shall be determined at least once per six months. If the interlock permits both doors to be open at the same time or does not provide accurate status indication in the control room, the interlock shall be declared inoperable.

Bases (1)

The Reactor Building is designed to limit the leakage rate to 0.1 percent by weight of contained atmosphere in 24 hours at the design internal pressure of 55 psig with a coincident temperature of 281°F at accident conditions. The peak calculated Reactor Building pressure for the design basis loss of coolant accident, P_{ac} , is 50.6 psig. The maximum allowable Reactor Building leakage rate, L_a , shall be 0.1 weight percent of containment atmosphere per 24 hours at P_{ac} . Containment Isolation Valves are addressed in the UFSAR (Reference 2).

The Reactor Building will be periodically leakage tested in accordance with the Reactor Building Leakage Rate Testing Program (See Section 6.3.5). This program is contained in the surveillance procedures for Reactor Building inspection, Integrated Leak Rate Testing, and Local Leak Rate Testing. These periodic testing requirements verify that Reactor Building leakage rate does not exceed the assumptions used in the safety analysis. At $\leq 1.0 L_a$ the offsite dose consequences are bounded by the assumptions of the safety analysis. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60 L_a$ for the combined Type B and Type C leakage, and $\leq 0.75 L_a$ for overall Type A leakage. At all other times between required leakage tests, the acceptance criteria is based on an overall Type A leakage limit of $\leq 1.0 L_a$.

Periodic surveillance of the airlock interlock systems (Reference 4) is specified to assure continued operability and preclude instances where one or both doors are inadvertently left open. When an airlock is inoperable and containment integrity is required, local supervision of airlock operation is specified.

Reference

- (1) UFSAR, Chapter 5.7.4 - "Post Operational Leakage Rate Tests"
- (2) UFSAR, Tables 5.7-1 and 5.7-3
- (3) DELETED.
- (4) UFSAR, Table 5.7-2

6.8.5 Reactor Building Leakage Rate Testing Program

The Reactor Building Leakage Rate Testing Program shall be established, implemented, and maintained as follows:

A program shall be established to implement the leakage rate testing of the Reactor Building as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995.

The peak calculated Reactor Building internal pressure for the design basis loss of coolant accident, P_{ac} , is 50.6 psig.

The maximum allowable Reactor Building leakage rate, L_a , shall be 0.1 weight percent of containment atmosphere per 24 hours at P_{ac} .

Reactor Building leakage rate acceptance criteria is $\leq 1.0 L_a$. During the first plant startup following each test performed in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60 L_a$ for the Type B and Type C tests and $\leq 0.75 L_a$ for the Type A tests.