3.6.8 If INOPERABILITY was due to excessive combined leakage (See TS 4.4.1.7.1) demonstrate that one of the valves has no detectable leakage (by using soap solution at equal to or greater than 5 psig interspace pressure) and that this valve is maintained closed by approved administrative controls. This shall be sufficient verification that the one valve is OPERABLE.

Plant operation may then continue provided that the OPERABLE valve is verified to be closed at least once per 31 days and is maintained closed by approved administrative controls.

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.

3.6.9 Except as specified in 3.6.10 below the Reactor Building purge isolation valves shall be limited to less than 31 ° AH-V-1A & D) and less than 33 ° AH-V-1B & C) open, by positive means, while purging is conducted.

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) 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.

3.6.10 When the reactor is in cold shutdown continuous purging is permitted with the Reactor Building purge isolation valves opened fully.

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soluble poison in the reactor coolant to maintain the core one percent subcritical in the event all control rods are withdrawn.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.

Due to reports of unsatisfactory performance of resilient seats of containment purge isolation valves throughout the nuclear industry, a leakage test program has been implemented for these valves. This program assures a higher degree of assurance of purge valve operability.

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. The purge isolation valves have been been demonstrated capable of closing against the dynamic forces associated with a loss-of-coolant accident when limited to 30° open.

Allowing purge operations during hot shutdown and operation (TS. 3.6.9) 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.

References

FSAR Section 5.2.2.4.3

4.4.1.2.4 Corrective Action and Retest

a. If at any time it is determined that the criterion of 4.4.1.2.3 above is exceeded, repairs shall be initiated immediately.

b. If conformance to the criterion of 4.4.1.2.3 is not demonstrated within 48 hours following detection of excessive local leakage, the reactor shall be shutdown and depressurized until repairs are effected and the local leakage meets the acceptance criterion as demonstrated by retest.

4.4.1.2.5 Test Frequency

Local leak detection tests shall be performed at a frequency of at least each refueling period, except that:

a. The equipment hatch and fuel transfer tube seals shall be tested every other refueling period but in no case at intervals greater than 3 years. If they are opened they will be tested after being closed.

b. The entire personnel and emergency airlocks shall be tested once every six months. When the airlocks are opened during the interim between six month tests, the airlock door resilient seals shall be tested within 72 hours of the first of each of a series of openings. This requirement exists whenever containment integrity is required.

c. The reactor building purge isolation valves shall be leak tested each refueling interval per 10 CFR 50 Appendix J, Item III.D.2.

d. An interspace pressurization test (See T.S. 4.4.1.7.1) shall be performed for reactor building purge isolation valves every 3 months. This requirement is not in effect during cold shutdown.

e. Readings of the rotameters in each manifold of the penetration pressurization system shall be recorded at periodic intervals not to exceed three months.

4.4.1.3 Isolation Valve Functional Tests

Every three months, remotely operated reactor building isolation valves shall be stroked to the position required to fulfill their safety function unless such operation is not practical during plant operation. The valves not stroked every three months shall be stroked during each refueling period.

4.4.1.4 Annual Inspection

A visual examination of the accessible interior and exterior surfaces of the containment structure and its components shall be performed annually and prior to any integrated leak test to uncover any evidence of deterioration which may affect either the containment's structural integrity or leak-tightness. The discovery of any significant deterioration shall be accompanied by corrective actions in accord with acceptable procedures, nondestructive tests, and inspections, and local testing where practical, prior to the conduct of any integrated leak test. Such repairs shall be reported as part of the test results.

4.4.1.5 Reactor Building Modifications

Any major modification or replacement of components affecting the reactor building integrity shall be followed by either an integrated leak rate test or a local leak test, as appropriate, and shall meet the acceptance criteria of 4.4.1.1.5 and 4.4.1.2.3, respectively.

4.4.1.6 Operability of Access Hatch Interlocks

1. At least once per 6 months the operability of the personnel and emergency hatch door interlocks and the associated control room annunciator circuits shall be determined. 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.

2. During periods when containment integrity is required and an interlock is inoperable, each entry and exit via that airlock shall be locally supervised by a member of the unit operating maintenance or technical staffs, to assure that only one door is open at any time and that both doors are properly closed following use. A record of supervision and verification of closure shall be maintained during periods of interlock inoperability in an appropriate station log.

3. If an interlock is inoperable for more than 14 days following determination of inoperability, use of the airlock, except for emergency purposes, shall be suspended until the interlock is returned to operable status.

4.4.1.7 Operability of Purge Valves

1. A periodic pressurization of the purge valve interspaces to 50.6 psig per T.S. 4.4.1.2.5d shall be performed to help assure timely detection and resolution of valve and/or actuator degradation. The acceptance criteria is that total local leakage when updated for the new purge valve leakage shall be less than $0.6L_A$. See Tech Spec 3.6.8 for further action.

2. The rubber seats on purge valves shall be visually examined each refueling interval to detect degradation (e.g. cracking, brittleness, etc.) and to assure timely cleaning, lubrication, and seat replacement. As a minimum seats shall be replaced at the first refueling following 5 years of seat service.

Bases(1)

The reactor building is designed for an internal pressure of 55 psig and a steam-air mixture temperature of 281F. Prior to initial operation, the containment was strength tested at 115 percent of design pressure and leak rate tested at the design pressure. The containment was also leak tested prior to initial operation at approximately 50 percent of the design pressure. These tests established the acceptance criteria of 4.4.1.1.3.

The performance of periodic integrated and local leakage rate tests during the plant life provides a current assessment of potential leakage from the containment in case of an accident that would pressurize the interior of the containment. In