

CONTAINMENT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

restore:

- a. The overall integrated leakage rate to less than or equal to  $0.75 L_a$ , and
- b. The combined leakage rate for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves\*, main steam line drain valves\* and valves which are hydrostatically leak tested per Table 3.6.3-1, subject to Type B and C tests to less than or equal to  $0.60 L_a$ , and
- c. The leakage rate to less than or equal to 46 scf per hour for all four main steam lines through the isolation valves, and
- d. The leakage rate to less than or equal to 1.2 scf per hour for any one main steam line drain valve, and
- e. The combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment to less than or equal to 3.3 gpm,

prior to increasing reactor coolant system temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The primary containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR 50 using the methods and provisions of ANSI N45.4 - 1972:

INSERT A →

- a. 

Three Type A Overall Integrated Containment Leakage Rate tests shall be conducted at $40 \pm 10$ month intervals during shutdown at $P_a$ , 45.0 psig, during each 10-year service period. The third test of each set shall be conducted during the shutdown for the 10-year plant in service inspection.
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- b. If any periodic Type A test fails to meet  $.75 L_a$ , the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet  $.75 L_a$ , a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet  $.75 L_a$ , at which time the above test schedule may be resumed.
- c. The accuracy of each Type A test shall be verified by a supplemental test which:
  1. Confirms the accuracy of the test by verifying that the difference between the supplemental data and the Type A test data is within  $0.25 L_a$ .
  2. Has duration sufficient to establish accurately the change in leakage rate between the Type A test and the supplemental test.
  3. Requires the quantity of gas injected into the containment or bled from the containment during the supplemental test to be equivalent to at least 25 percent of the total measured leakage at  $P_a$ , 45.0 psig.

9108230118 910816  
PDR ADCK 05000397  
PDR

INSERT B →

## 3/4.6 CONTAINMENT SYSTEMS

### BASES

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#### 3/4.6.1 PRIMARY CONTAINMENT

##### 3/4.6.1.1 PRIMARY CONTAINMENT INTEGRITY

PRIMARY CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR Part 100 during accident conditions.

##### 3/4.6.1.2 PRIMARY CONTAINMENT LEAKAGE

The limitations on primary containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure of 45.0 psig, P<sub>1</sub>. As an added conservatism, the measured overall integrated leakage rate is further limited to less than or equal to 0.75 L during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

Operating experience with the main steam line isolation valves and main steam line drain valves has indicated that degradation has occasionally occurred in the leak tightness of the valves; therefore the special requirement for testing these valves.

The surveillance testing for measuring leakage rates is consistent with the requirements of Appendix "J" of 10 CFR Part 50 with the exception of exemptions granted for main steam isolation and drain valve leak testing and testing the airlocks after each opening.

INSERT C →

##### 3/4.6.1.3 PRIMARY CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the primary containment air locks are required to meet the restrictions on PRIMARY CONTAINMENT INTEGRITY and the primary containment leakage rate given in Specifications 3.6.1.1 and 3.6.1.2. The specification makes allowances for the fact that there may be long periods of time when the air locks will be in a closed and secured position during reactor operation. Only one closed door in each air lock is required to maintain the integrity of the containment.

##### 3/4.6.1.4 MSIV LEAKAGE CONTROL SYSTEM

Calculated doses resulting from the maximum leakage allowance for the main steamline isolation valves in the postulated LOCA situations would be a small fraction of the 10 CFR 100 guidelines, provided the main steam line system from the isolation valves up to and including the turbine condenser remains intact. Operating experience has indicated that degradation has occasionally occurred in the leak tightness of the MSIV's such that the specified leakage requirements have not always been maintained continuously. The requirement for the leakage control system will reduce the untreated leakage from the MSIVs when isolation of the primary system and containment is required.





## CONTAINMENT SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

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restore:

- a. The overall integrated leakage rate to less than or equal to  $0.75 L_a$ , and
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- c. The leakage rate to less than or equal to 46 scf per hour for all four main steam lines through the isolation valves, and
- d. The leakage rate to less than or equal to 1.2 scf per hour for any one main steam line drain valve, and
- e. The combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment to less than or equal to 3.3 gpm,

prior to increasing reactor coolant system temperature above 200°F.

#### SURVEILLANCE REQUIREMENTS

4.6.1.2 The primary containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR 50 using the methods and provisions of ANSI N45.4 - 1972:

- a. ~~Three Type A Overall Integrated Containment Leakage Rate tests shall be conducted at  $40 \pm 10$  month intervals during shutdown at  $P_a$ , 45.0 psig, during each 10-year service period. The third test of each set shall be conducted during the shutdown for the 10-year plant inservice inspection.~~
- b. If any periodic Type A test fails to meet  $.75 L_a$ , the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet  $.75 L_a$ , a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet  $.75 L_a$ , at which time the above test schedule may be resumed.
- c. The accuracy of each Type A test shall be verified by a supplemental test which:
  1. Confirms the accuracy of the test by verifying that the difference between the supplemental data and the Type A test data is within  $0.25 L_a$ .
  2. Has duration sufficient to establish accurately the change in leakage rate between the Type A test and the supplemental test.
  3. Requires the quantity of gas injected into the containment or bled from the containment during the supplemental test to be equivalent to at least 25 percent of the total measured leakage at  $P_a$ , 45.0 psig.

INSERT A →

INSERT B →



## 3/4.6 CONTAINMENT SYSTEMS

### BASES

#### 3/4.6.1 PRIMARY CONTAINMENT

##### 3/4.6.1.1 PRIMARY CONTAINMENT INTEGRITY

PRIMARY CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR Part 100 during accident conditions.

##### 3/4.6.1.2 PRIMARY CONTAINMENT LEAKAGE

The limitations on primary containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure of 45.0 psig, P<sub>1</sub>. As an added conservatism, the measured overall integrated leakage rate is further limited to less than or equal to 0.75 L<sub>g</sub> during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

Operating experience with the main steam line isolation valves and main steam line drain valves has indicated that degradation has occasionally occurred in the leak tightness of the valves; therefore the special requirement for testing these valves.

The surveillance testing for measuring leakage rates is consistent with the requirements of Appendix "J" of 10 CFR Part 50 with the exception of exemptions granted for main steam isolation and drain valve leak testing and testing the airlocks after each opening.

INSERT C

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The limitations on closure and leak rate for the primary containment air locks are required to meet the restrictions on PRIMARY CONTAINMENT INTEGRITY and the primary containment leakage rate given in Specifications 3.6.1.1 and 3.6.1.2. The specification makes allowances for the fact that there may be long periods of time when the air locks will be in a closed and secured position during reactor operation. Only one closed door in each air lock is required to maintain the integrity of the containment.

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