CONTAINMENT SYSTEMS

CONTAINMENT VESSEL STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.6 The structural integrity of the containment vessel shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the structural integrity of the containment vessel not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.6 The structural integrity of the containment vessel shall be determined by a visual inspection of the exposed accessible interior and exterior surfaces of the vessel. This inspection shall be performed prior to the Type A containment leakage rate test (reference Specification 4.6.1.2) to verify no apparent changes in appearance of the surfaces or other abnormal degradation. If the Type A test is performed at 10-year intervals, two additional inspections shall be performed at approximately equal intervals during shutdowns between Type A tests. Any abnormal degradation of the containment vessel detected during the above required inspections shall be reported to the Commission within 15 days as a Special Report pursuant to Specification 6.9.2.

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CONTAINMENT SYSTEMS

REACTOR BUILDING STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.7 The structural integrity of the reactor building shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.7.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the structural integrity of the reactor building not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.7 The structural integrity of the reactor building shall be determined during the shutdown for each Type A containment leakage rate test (reference Specification 4.6.1.2) by a visual inspection of the exposed accessible interior and exterior surfaces of the reactor building and verifying no apparent changes in appearance of the concrete surfaces or other abnormal degradation. If the Type A test is performed at 10-year intervals, two additional inspections shall be performed at approximately equal intervals during shutdowns between Type A tests. Any abnormal degradation of the reactor building detected during the above required inspections shall be reported to the Commission within 15 days as a Special Report pursuant to Specification 6.9.2.

INTERNAL PRESSURE (Continued)

The maximum peak pressure expected to be obtained from a LOCA event is 14.68 psig. The limit of 0.3 psig for initial positive containment pressure is consistent with the safety analyses.

3/4.6.1.5 AIR TEMPERATURE

The limitations on containment average air temperature ensure that: (1) the containment air mass is limited to an initial mass sufficiently low to prevent exceeding the design pressure during LOCA conditions, and (2) the ambient air temperature does not exceed that temperature allowable for the continuous duty rating specified for equipment and instrumentation located within containment. Measurements shall be made at all operating ventilation unit locations, whether by fixed or portable instruments, prior to determining the average air temperature.

The containment pressure transient is sensitive to the initially contained air mass during a LOCA. The contained air mass increases with decreasing temperature. The lower temperature limit of 100°F for the lower compartment and 75°F (60°F when in MODE 2, 3 or 4) for the upper compartment will limit the peak pressure to 14.7 psig which is less than the containment design pressure of 15 psig. The upper temperature limit influences the peak accident temperature slightly during a LOCA; however, this limit is based primarily upon equipment protection and anticipated operating conditions. Both the upper and lower temperature limits are consistent with the parameters used in the safety analyses.

3/4.6.1.6 CONTAINMENT VESSEL STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment steel vessel will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the vessel will withstand the maximum pressure of 15 psig in the event of a LOCA. A periodic visual inspection is sufficient to demonstrate this capability.

3/4.6.1.7 REACTOR BUILDING STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment reactor building will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to provide: (1) protection for the steel vessel from external missiles, (2) radiation shielding in the event of a LOCA, and (3) an annulus surrounding the steel vessel that can be maintained at a negative pressure during accident conditions. A visual inspection is sufficient to demonstrate this capability.

CONTAINMENT SYSTEMS

CONTAINMENT VESSEL STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.6 The structural integrity of the containment vessel shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the structural integrity of the containment vessel not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.6 The structural integrity of the containment vessel shall be determined by a visual inspection of the exposed accessible interior and exterior surfaces of the vessel. This inspection shall be performed prior to the Type A containment leakage rate test (reference Specification 4.6.1.2) to verify no apparent changes in appearance of the surfaces or other abnormal degradation. If the Type A test is performed at 10-year intervals, two additional inspections shall be performed at approximately equal intervals during shutdowns between Type A tests. Any abnormal degradation of the containment vessel detected during the above required inspections shall be reported to the Commission within 15 days as a Special Report pursuant to Specification 6.9.2.

CONTAINMENT SYSTEMS

REACTOR BUILDING STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.7 The structural integrity of the reactor building shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.7.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the structural integrity of the reactor building not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.7 The structural integrity of the reactor building shall be determined during the shutdown for each Type A containment leakage rate test (reference Specification 4.6.1.2) by a visual inspection of the exposed accessible interior and exterior surfaces of the reactor building and verifying no apparent changes in appearance of the concrete surfaces or other abnormal degradation. If the Type A test is performed at 10-year intervals, two additional inspections shall be performed at approximately equal intervals during shutdowns between Type A tests. Any abnormal degradation of the reactor building detected during the above required inspections shall be reported to the Commission within 15 days as a Special Report pursuant to Specification 6.9.2.

INTERNAL PRESSURE (Continued)

The maximum peak pressure expected to be obtained from a LOCA event is 14.68 psig. The limit of 0.3 psig for initial positive containment pressure is consistent with the safety analyses.

3/4.6.1.5 AIR TEMPERATURE

The limitations on containment average air temperature ensure that: (1) the containment air mass is limited to an initial mass sufficiently low to prevent exceeding the design pressure during LOCA conditions, and (2) the ambient air temperature does not exceed that temperature allowable for the continuous duty rating specified for equipment and instrumentation located within containment. Measurements shall be made at all operating ventilation unit locations, whether by fixed or portable instruments, prior to determining the average air temperature.

The containment pressure transient is sensitive to the initially contained air mass during a LOCA. The contained air mass increases with decreasing temperature. The lower temperature limit of 100°F for the lower compartment and 75°F (60°F when in MODE 2, 3 or 4) for the upper compartment will limit the peak pressure to 14.7 psig which is less than the containment design pressure of 15 psig. The upper temperature limit influences the peak accident temperature slightly during a LOCA; however, this limit is based primarily upon equipment protection and anticipated operating conditions. Both the upper and lower temperature limits are consistent with the parameters used in the safety analyses.

3/4.6.1.6 CONTAINMENT VESSEL STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment steel vessel will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the vessel will withstand the maximum pressure of 15 psig in the event of a LOCA. A periodic visual inspection is sufficient to demonstrate this capability.

3/4.6.1.7 REACTOR BUILDING STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment reactor building will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to provide: (1) protection for the steel vessel from external missiles, (2) radiation shielding in the event of a LOCA, and (3) an annulus surrounding the steel vessel that can be maintained at a negative pressure during accident conditions. A visual inspection is sufficient to demonstrate this capability.

Attachment IB
New original pages in combined format
TS 4.6.1.6 and 4.6.1.7

CONTAINMENT SYSTEMS

CONTAINMENT VESSEL STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.6 The structural integrity of the containment vessel shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.6.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the structural integrity of the containment vessel not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.6 The structural integrity of the containment vessel shall be determined by a visual inspection of the exposed accessible interior and exterior surfaces of the vessel. This inspection shall be performed prior to the Type A containment leakage rate test (reference Specification 4.6.1.2) to verify no apparent changes in appearance of the surfaces or other abnormal degradation. If the Type A test is performed at 10-year intervals, two additional inspections shall be performed at approximately equal intervals during shutdowns between Type A tests. Any abnormal degradation of the containment vessel detected during the above required inspections shall be reported to the Commission within 15 days as a Special Report pursuant to Specification 6.9.2.

CONTAINMENT SYSTEMS

REACTOR BUILDING STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.7 The structural integrity of the reactor building shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.7.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the structural integrity of the reactor building not conforming to the above requirements, restore the structural integrity to within the limits prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.7 The structural integrity of the reactor building shall be determined during the shutdown for each Type A containment leakage rate test (reference Specification 4.6.1.2) by a visual inspection of the exposed accessible interior and exterior surfaces of the reactor building and verifying no apparent changes in appearance of the concrete surfaces or other abnormal degradation. If the Type A test is performed at 10-year intervals, two additional inspections shall be performed at approximately equal intervals during shutdowns between Type A tests. Any abnormal degradation of the reactor building detected during the above required inspections shall be reported to the Commission within 15 days as a Special Report pursuant to Specification 6.9.2.

INTERNAL PRESSURE (Continued)

The maximum peak pressure expected to be obtained from a LOCA event is 14.68 psig. The limit of 0.3 psig for initial positive containment pressure is consistent with the safety analyses.

3/4.6.1.5 AIR TEMPERATURE

The limitations on containment average air temperature ensure that: (1) the containment air mass is limited to an initial mass sufficiently low to prevent exceeding the design pressure during LOCA conditions, and (2) the ambient air temperature does not exceed that temperature allowable for the continuous duty rating specified for equipment and instrumentation located within containment. Measurements shall be made at all operating ventilation unit locations, whether by fixed or portable instruments, prior to determining the average air temperature.

The containment pressure transient is sensitive to the initially contained air mass during a LOCA. The contained air mass increases with decreasing temperature. The lower temperature limit of 100°F for the lower compartment and 75°F (60°F when in MODE 2, 3 or 4) for the upper compartment will limit the peak pressure to 14.7 psig which is less than the containment design pressure of 15 psig. The upper temperature limit influences the peak accident temperature slightly during a LOCA; however, this limit is based primarily upon equipment protection and anticipated operating conditions. Both the upper and lower temperature limits are consistent with the parameters used in the safety analyses.

3/4.6.1.6 CONTAINMENT VESSEL STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment steel vessel will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the vessel will withstand the maximum pressure of 15 psig in the event of a LOCA. A periodic visual inspection is sufficient to demonstrate this capability.

3/4.6.1.7 REACTOR BUILDING STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment reactor building will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to provide: (1) protection for the steel vessel from external missiles, (2) radiation shielding in the event of a LOCA, and (3) an annulus surrounding the steel vessel that can be maintained at a negative pressure during accident conditions. A visual inspection is sufficient to demonstrate this capability.

Attachment IC
New original pages in combined format
TS 4.6.1.2

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

a. An overall integrated leakage rate of less than or equal to L_a, 0.30% by weight of the containment air per 24 hours at P_a, 14.68 psig.

b. A combined leakage rate of less than 0.60 L_a for all penetrations and valves subject to Type B and C tests, when pressurized to P_a, and

c. A combined bypass leakage rate of less than 0.07 L_a for all penetrations identified in Table 3.6-1 as secondary containment bypass leakage paths when pressurized to P_a.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With: (a) the measured overall integrated containment leakage rate exceeding 0.75 L_a, or (b) the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding 0.60 L_a, or (c) the combined bypass leakage rate exceeding 0.07 L_a, restore the overall integrated leakage rate to less than 0.75 L_a and the combined leakage rate for all penetrations and valves subject to Type B and C tests to less than 0.60 L_a, and the combined bypass leakage rate to less than 0.07 L_a prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The containment leakage rates shall be demonstrated in accordance with 10 CFR 50.54(o) at a test schedule determined in conformance with Appendix J of 10 CFR Part 50, Option B, using the methods and provisions of Regulatory Guide 1.163, September, 1995.

SURVEILLANCE REQUIREMENTS (Continued)

a. Deleted

b. Deleted

c. The accuracy of each Type A test shall be verified by a supplemental test in accordance with Regulatory Guide 1.163, September, 1995.

d. Type B and C tests shall be conducted with gas at a pressure not less than P_a, 14.68 psig, at intervals no greater than 24 months except for tests involving:

1) Air locks,

2) Purge supply and exhaust isolation valves with resilient material seals, and

3) Dual-ply bellows assemblies on containment penetrations between the containment building and the annulus.

BASES

3/4.6.1 PRIMARY CONTAINMENT

3/4.6.1.1 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 safety analyses. This restriction, in conjunction with the leakage rate limitation, will limit the SITE BOUNDARY radiation oses to within the dose guideline values of 10 CFR Part 100 during accident conditions.

3/4.6.1.2 CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the safety analyses at the peak accident pressure, P_a. As an added conservatism, the as-left overall integrated leakage rate is further limited to less than or equal to 0.75 L_a to account for possible degradation of the containment leakage barriers between leakage tests.

The surveillance testing for measuring leakage rates is consistent with the requirements of Appendix J of 10 CFR Part 50, Option B.

3/4.6.1.3 CONTAINMENT AIR LOCKS

The limitations on closure and leak rate for the containment air locks are required to meet the restrictions on CONTAINMENT INTEGRITY and containment leak rate. Surveillance testing of the air lock seals provide assurance that the overall air lock leakage will not become excessive due to seal damage during the intervals between air lock leakage tests.

3/4.6.1.4 INTERNAL PRESSURE

The limitations on containment internal pressure ensure that: (1) the containment structure is prevented from exceeding its design negative pressure differential with respect to the outside atmosphere of 1.5 psig, and (2) the containment peak pressure does not exceed the design pressure of 15 psig during LOCA conditions.