ATTACHMENT 1

OCONEE NUCLEAR STATION
PROPOSED TECHNICAL SPECIFICATION REVISION

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3. The affected penetration is isolated within four hours by the use of a closed manual valve or blind flange.

4. The reactor is in the hot shutdown condition within 12 hours and cold shutdown within 24 hours.

3.6.4 The reactor building internal pressure shall not exceed 1.5 psig or five inches of Hg if the reactor is critical.

3.6.5 Prior to criticality following refueling shutdown, a check shall be made to confirm that all manual containment isolation valves which should be closed are closed and tagged.

3.6.6 The combined leakage rate for all penetrations and valves shall be determined in accordance with Specification 4.4.1.2. If, based on the most recent surveillance testing results the combined leakage rate exceeds the specified value and containment integrity is required then, repairs shall be initiated immediately and conformance with specified value shall be demonstrated within 48 hours or the reactor shall be in cold shutdown within an additional 36 hours.

Bases

The Reactor Coolant System conditions of cold shutdown assure that no steam will be formed and hence no pressure buildup 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.

The reactor building is designed for an internal pressure of 59 psig and an external pressure 3.0 psi greater than the internal pressure. The design external pressure of 3.0 psi corresponds to a margin of 0.5 psi above the differential pressure that could be developed if the building is sealed with an internal temperature of 120°F with a barometric pressure of 29.0 inches of Hg and the building is subsequently cooled to an internal temperature of 80°F with a concurrent rise in barometric pressure to 31.0 inches of Hg. The weather conditions assumed here are conservative since an evaluation of National Weather Service records for this area indicates that from 1918 to 1970 the lowest barometric pressure recorded is 29.05 inches of Hg and the highest of 30.85 inches of Hg.

Operation with a personnel or emergency hatch inoperable does not impair containment integrity since either door meets the design specifications for structural integrity and leak rate. Momentary passage through the outer door is necessary should the inner door gasket be inoperative to install or remove auxiliary restraint beams on the inner door to allow testing of the hatch. The time limits imposed permit completion of maintenance action and the performance of a local leak rate test when required or the orderly shutdown and cooldown of the reactor. Timely corrective action for an inoperable containment isolation valve is also specified.

When containment integrity is established, the limits of 10CFR100 will not be exceeded should the maximum hypothetical accident occur.

REFERENCES

FSAR, Section 5

4.4 REACTOR BUILDING

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 Leak Rate Tests

4.4.1.1.1 Test Pressure

The periodic integrated leak rate test shall be performed at a test pressure of not less than 29.5 psig. The containment leakage rate shall be determined in conformance with the criteria specified in Appendix J of 10CFR50 using the methods and provisions of ANSI N45.4-1972.

4.4.1.1.2 Frequency of Test

After the preoperational leakage rate tests, a set of three Type A tests shall be performed with the unit in a shutdown condition at approximately equal intervals during each 10 year service period. The third test of each set shall be conducted when the plant is shutdown for the 10 year inservice inspections.

4.4.1.1.3 Acceptance Criteria

The overall acceptance containment leakage rate is determined by the pre-operational leakage rate test and shall not exceed 0.25 weight percent of containment air per 24 hours at 59 psig. Any leakage in excess of 50% of the total allowed containment leakage shall be demonstrated to be to the penetration room. If the reduced pressure leakage rate 95% Upper Confidence Level (UCL) exceeds 0.75 L_t, a test at peak pressure shall be conducted. If the peak pressure leakage rate 95% UCL exceeds 0.75 la, the test schedule applicable to subsequent Type A tests shall be reviewed and approved by the Commission. If leakage rate 95% UCL during any two consecutive Type A tests exceeds either 0.75 La or 0.75 L_t, a Type A test shall be performed at each shut-down for refueling or approximately every 18 months, whichever occurs first, until two consecutive Type A tests demonstrate leakage rate 95% UCL is less than 0.75 La or 0.75 L_t, at which time the normal testing schedule may be resumed.

4.4.1.1.4 Accuracy

The accuracy of each Type A test shall be verified by a supplemental test which:

a. Confirms the accuracy of the Type A test by verifying that the absolute difference between supplemental and Type A test data is within 0.25 La or 0.25 L_t, as appropriate.

b. Has a duration sufficient to establish accurately the change in leakage between the Type A test and the supplemental test.

c. Requires the quantity of gas bled from the containment during the supplemental test to be equivalent to at least 25 percent of the total leakage rate at Pa (59 psig) or P_t (29.5 psig).

4.4.1.1.5 Report of Test Results

The results of periodic tests shall be the subject of a summary technical report which shall be submitted to the Commission within 90 days of completion of the test.

4.4.1.2 Local Leak Rate Testing

4.4.1.2.1 Scope of Testing

The local leak rate shall be measured for the components listed in Table 4.4-1 in accordance with the criteria specified in Appendix J of 10CFR50 with the exception of the exemptions from the provisions of Appendix J noted on Table 4.4-1.

4.4.1.2.2 Frequency of Test

Local leak rate tests shall be conducted with gas at a pressure of not less than 59 psig during each reactor shutdown for refueling or other convenient interval but in no case at intervals greater than 24 months with the exception of the exemptions from the provisions of Appendix J noted on Table 4.4-1.

4.4.1.2.3 Acceptance Criteria

The combined leakage rate from all penetrations and isolation valves shall not exceed 0.125 weight percent of the postulated post-accident containment air mass per 24 hours at 59 psig.

4.4.1.3 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 rate test, as appropriate, and shall meet the acceptance criteria of 4.4.1.1.3 or 4.4.1.2.3, respectively.

4.4.1.4 Isolation Valve Functional Tests

Inservice testing of ASME Code Class 1, 2, and 3 valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10CFR50 Section 50.55a(g)(4) to the extent practicable within the limitations of design, geometry and materials of construction of the components.

Bases

The Reactor Building is designed for an internal pressure of 59 psig and a steam-air mixture temperature of 286°F. This corresponds to a post-accident containment atmosphere mass of 5.1277×10^5 lbm. 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 verified that the leak rate from Reactor Building pressurization satisfies the relationships given in the specification.

The performance of a periodic integrated leak rate test during unit life provides a current assessment of potential leakage from the containment, in case of an accident. In order to provide a realistic appraisal of the integrity of the containment under accident conditions, this periodic test is to be performed without preliminary leak detection surveys or leak repairs, and containment isolation valves are to be closed in the normal manner. The test pressure of 29.5 psig for the periodic integrated leak rate test is sufficiently high to provide an accurate measurement of the leak rate and it duplicates the preoperational leak rate test at 29.5 psig. The frequency of the periodic integrated leak rate test is normally keyed to the refueling schedule for the reactor, because these tests can best be performed during refueling shutdowns.

The specified frequency of periodic integrated leak rate tests is based on three major considerations. First is the low probability of leaks in the liner, because of conformance of the complete containment to a 0.25 percent leakage rate at 59 psig during preoperational testing and the absence of any significant stresses in the liner during reactor operation. Second is the more frequent testing, at design pressure, of those portions of the containment envelope that are most likely to develop leaks during reactor operation (penetrations and isolation valves) and the low value (0.125 percent) of leakage that is specified as acceptable from penetrations and isolation valves. Third is the tendon stress surveillance program which provides assurance that an important part of the structural integrity of the containment is maintained.

Leakage to the penetration room, which is permitted to be as low as 50 percent of the total allowable containment leakage, is discharged through high efficiency particulate air (HEPA) and charcoal filters to the unit vent. The filters are conservatively said to be 90 percent efficient for iodine removal.

More frequent testing of various penetrations is specified as these locations are more susceptible to leakage than the Reactor Building liner due to the mechanical closure involved. Testing of these penetrations is performed with air or nitrogen. The basis for specifying a maximum leak rate of 0.125 percent from penetrations and isolation valves is that one-half of the actual integrated leak rate is expected from those sources. Valve operability tests are specified to assure proper closure or opening of the Reactor Building isolation valves to provide for isolation of functioning of Engineered Safety Features systems.

When containment integrity is established, the overall containment leak rate of 0.25 weight percent of containment air at 59 psig will assure that the limits of 10CFR100 will not be exceeded should the maximum hypothetical accident occur. In order to assure the integrity of the containment, periodic testing is performed at reduced pressure, 29.5 psig. The permissible leakage rate at this reduced pressure has been established from the initial integrated leak rate tests in conformance with 10CFR50, Appendix J.

REFERENCES

(1) FSAR, Sections 5 and 13

PENETRATION NUMBER	SYSTEM	TYPE A TEST SYSTEM CONDITION	LOCAL LEAK TEST REQUIRED BY APPENDIX J	LOCAL LEAK TEST REQUIRED FOR OCONEE	REMARKS
1	Pressurizer liquid sample line (Unit 1 only)	Note 1	Type C	Yes	Note 2, 7b
2	OTSG A Sample line	Note 1	Type C	Yes	Note 7b
3	Component cooling inlet line	Note 1	Type C	Yes	Note 3, 7d
4	OTSG B drain line	Note 1	None	NA	Note 7b, 8(1)
5	RB normal sump drain line	Note 10	Type C	Yes	Note 7a, 7b, 9(1)
6	Letdown line	Note 1	Type C	Yes	Note 2, 7b
7	RC Pump seal return line	Note 1	Type C	Yes	Note 3, 7b, 9(2)
8	Loop A nozzle warming line	Not Vented	None	NA	Note 5, 7d, 8(2)
9	RCS normal makeup line and HP injection 'A' loop	Not Vented	None	NA	Note 5, 8(2)
10	RC Pump seal injection	Not Vented	Type C	Yes	Note 5, 7d, 9(6)

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PENETRATION NUMBER	SYSTEM	TYPE A TEST SYSTEM CONDITION	LOCAL LEAK TEST REQUIRED BY APPENDIX J	LOCAL LEAK TEST REQUIRED FOR OCONEE	REMARKS
11	Fuel transfer tube	Not Vented	Type B	Yes	Note 6a, 11
12	Fuel transfer tube	Not Vented	Type B	Yes	Note 6a, 11
13	RB Spray inlet line	Not Vented	None	NA	Note 5, 7d, 8(3)
14	RB Spray inlet line	Not Vented	None	NA	Note 5, 7d, 8(3)
15	LPI and DHR inlet line	Not Vented	None	NA	Note 4, 5, 8(4)
16	LPI and DHR inlet line	Not Vented	None	NA	Note 4, 5, 8(4)
17	OTSG B Emergency FDW line	Not Vented	None	NA	Note 5, 7d, 8(5)
18	Quench tank vent line	Note 1	Type C	Yes	Note 3, 7b, 9(3)
19	RB purge inlet line	Note 1	Type B	Yes	Note 6a, 7a, 7b 9(4)
20	RB purge outlet line	Note 1	Type B	Yes	Note 6a, 7a, 7b 9(4)
21	LPSW to RC Pump motors and lube oil coolers inlet	Not Vented	Type C	Yes	Note 7b, 9(5)

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PENETRATION NUMBER	SYSTEM	TYPE A TEST SYSTEM CONDITION	LOCAL LEAK TEST REQUIRED BY APPENDIX J	LOCAL LEAK TEST REQUIRED FOR OCONEE	REMARKS
22	LPSW from RC Pump motors and lube oil coolers outlet	Not Vented	Type C	Yes	Note 7b, 9(5)
23	RC Pump seal injection	Not Vented	Type C	Yes	Note 5, 7d, 9(6)
24	SPARE	Not in Use			
25	OTSG B Feedwater line	Not Vented	None	NA	Note 5, 8(6)
26	OTSG A Main steam line	Not Vented	None	NA	Note 5, 8(7) MS Stop valve leak test performed
27	OTSG A Feedwater line	Not Vented	None	NA	Note 5, 8(6)
28	OTSG B Main steam line	Not Vented	None	NA	Note 5, 8(7) MS Stop valve leak test performed
29	Quench tank drain line	Note 1	Type C	Yes	Note 3, 7b, 9(7)
30 31 32	LPSW for RB Cooling units inlet line	Not Vented	None	NA	Note 5, 8 (8)
33 34 35	LPSW for RB cooling units outlet line	Not Vented	None	NA	Note 5, 8(8)

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PENETRATION NUMBER	SYSTEM	TYPE A TEST SYSTEM CONDITION	LOCAL LEAK TEST REQUIRED BY APPENDIX J	LOCAL LEAK TEST REQUIRED FOR OCONEE	REMARKS
36 37	RB emergency sump recirculation line	Not Vented	None	NA	Note 5, 8(9)
38	Quench tank cooler inlet line	Note 1	Type C	Yes	Note 2, 7d
39	HP Nitrogen supply	Note 1	None	NA	Note 3 (manual valves)
(Unit 2, 3) Only	CFT Vent line	Note 1	None	NA	Note 3 (manual valves)
40	RB emergency sump drain line	Note 1	None	NA	Note 8(10)
41	Instrument air supply & ILRT verification line	Note 1	None	NA	Note 3 (manual valves)
42	SPARE	Not in Use			
43	OTSG A drain line	Note 1	None	NA	Note 7b, 8(1)
44	Component cooling to control rod drive inlet line	Note 1	Type C	Yes	Note 3, 7d
45	ILRT instrument line	Not Vented	Type C	Yes	Note 3, 7a
46	Reactor head-wash filtered water inlet	Note 1	Type B	Yes	Note 3, 6a

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PENETRATION NUMBER	SYSTEM	TYPE A TEST SYSTEM CONDITION	LOCAL LEAK TEST REQUIRED BY APPENDIX J	LOCAL LEAK TEST REQUIRED FOR OCONEE	REMARKS
47 (Unit 1 only)	Demineralized water supply to RC pump seal vents	Note 1	None	NA	Note 3, 7d, 8(11)
48	Breathing air inlet	Note 1	None	NA	Note 3 (manual valves
49 (Unit 1 only)	LP Nitrogen supply	Note 1	None	NA	Note 3 (manual valves
50	OTSG A Emergency FDW line	Not Vented	None	NA	Note 5, 8(5)
51	ILRT Pressurization line	Note 1	None	NA	Note 6a, 7a, 8(12)
52	HP Injection to 'B' loop	Not Vented	None	NA	Note 5, 8(2)
53 (All)	HP Nitrogen supply to 'A' core flood tank	Note 1	None	NA	Note 3 (manual valves
(Unit 2,3)	LP Nitrogen supply	Note 2	None	NA	Note 3 (manual valves
54	Component cooling outlet line	Note 1	Type C	Yes	Note 3, 7b, 9(8)
55	Demineralized water supply	Note 1	Type B	Yes (Unit 1) (Unit 2,3)	Note 3, 6a Note 3, 6a, 9(10)
56	Spent fuel canal fill and drain	Note 1	None	NA	Note 3 (manual valve)
57 (Unit 1 only)	DHR return line	Not Vented	None	NA	Note 4, 8(13)

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PENETRATION NUMBER	SYSTEM	TYPE A TEST SYSTEM CONDITION	LOCAL LEAK TEST REQUIRED BY APPENDIX J	LOCAL LEAK TEST REQUIRED FOR OCONEE	REMARKS
58 (All)	OTSG B sample line	Note 1	Type C	Yes	Note 7b
(Unit 2,3)	Pressurizer sample line	Note 1	Type C	Yes	Note 2, 7b
59	CF tank sample line	Note 1	None	NA	Note 2, 8(14)
60	RB sample line (outlet)	Note 1	Type B	Yes	Note 2, 7b, 9(9)
61	RB sample line (inlet)	Note 1	Type B	Yes	Note 3, 7b, 9(9)
62 (Units 2, 3 only)	DHR return line	Not Vented	None	NA	Note 4, 8(13)
	Equipment hatch	Vented	Type B	Yes	Note 6c
	Electrical penetration	Vented	Type B	Yes	Note 6a

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NOTE 1 All vented systems shall be drained of water or other fluids to the extent necessary to assure exposure of the system containment isolation valves to containment atmosphere and to assure they will be subjected to the test differential pressure.

NOTE 2 Fluid system that is part of the reactor coolant pressure boundary and open directly to the containment atmosphere under post-accident conditions (vented to containment atmosphere during Type A test).

NOTE 3 Closed system inside containment that penetrates containment and postulated to rupture as a result of a loss of coolant accident (vented to containment atmosphere during Type A test).

NOTE 4 System required to maintain the plant in a safe condition during the test (need not be vented). Type C test required with report to NRC.

NOTE 5 System normally filled with water and operating under post-accident condition (need not be vented). Type C test required with report to NRC.

NOTE 6 (Type B test required

a. Containment penetration whose design incorporates resilient seals, gaskets, or sealant compounds, piping penetration filled with expansion bellows, and electrical penetrations fitted with flexible metal seal assemblies.

b. Air lock door seals including door operating mechanisms which are part of the containment pressure boundary.

c. Doors with resilient seals or gaskets except for seal welded doors.

d. Components other than those above which must meet the acceptance criteria of Type B tests.

NOTE 7 (Type C test required)

a. Isolation valves provide a direct connection between the inside and outside atmospheres of the primary reactor containment under normal operation, such as purge and ventilation, vacuum relief, and instrument valves.

b. Isolation valves are required to close automatically upon receipt of a containment isolation signal in response to controls intended to affect containment isolation.

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c. Isolation valves are required to operate intermittently under post-accident conditions.

d. Check valve used for containment isolation.

NOTE 8 Test requirements (Basis).

NOTE 9 Reverse direction test of inside containment isolation valve authorized. Leakage results are conservative.

NOTE 10 System is submerged during post-accident conditions and performance of Type A test. System will be drained to the extent possible.

NOTE 11 Type B test performed on the blind flanges inside the Reactor Building. The tube drain valves and valves outside the containment are not tested.

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