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. A minimum of 50% of the total 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

ONS TECHNICAL SPECIFICATIONS
TABLE 4.4-1

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 3, 7b
3	Component cooling inlet line	Note 1	Type C	Yes	Note 3, 7d
4	OTSG B drain line	Note 1	None	NA	Note 3, 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	Type C	Yes	Note 5, 7c, 7d, 9(3)
9	RCS normal makeup line and HP injection 'A' loop	Not Vented	None	NA	Note 5, 7c 8(2)
10	RC Pump seal injection	Not Vented	Type C	Yes	Note 5, 7d

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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	Note 1	None	NA	Note 5, 7c, 7d, 8(3)
14	RB Spray inlet line	Note 1	None	NA	Note 5, 7c, 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(4)
19	RB purge inlet line	Note 1	Type B	Yes	Note 6a, 7a, 7b 9(5)
20	RB purge outlet line	Note 1	Type B	Yes	Note 6a, 7a, 7b 9(5)
21	LPSW to RC Pump motors and lube oil coolers inlet	Not Vented	Type C	Yes	Note 7b, 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
22	LPSW from RC Pump motors and lube oil coolers outlet	Not Vented	Type C	Yes	Note 7b, 9(6)
23	RC Pump seal injection	Not Vented	Type C	Yes	Note 5, 7d, 9(7)
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(8)
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	Note 1	None	NA	Note 3 (manual valves)
42	SPARE	Not in Use			
43	OTSG A drain line	Note 1	None	NA	Note 3, 7b, 8(1)
44	Component cooling to control rod drive inlet line	Note 1	Type C	Yes	Note 3, 7d
45	Leak rate test 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	Leak rate test 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(10)
55	Demineralized water supply	Note 1	Type B	Yes	(Unit 1) (Unit 2,3)	Note 3, 6a Note 3, 6a, 9(12)
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 (Unit 1)	OTSG B sample line	Note 1	Type C	Yes	Note 3, 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(11)
61	RB sample line (inlet)	Note 1	Type B	Yes	Note 3, 7b, 9(11)
62 (Units 2, 3 only)	DHR return line	Not Vented	None	NA	Note 4, 8(13)
	Personnel hatch	Vented	Type B	Yes	Note 6b
	Emergency hatch	Vented	Type B	Yes	Note 6b
	Equipment hatch	Vented	Type B	Yes	Note 6c
	Electrical penetration	Vented	Type B	Yes	Note 6a

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ONS TECHNICAL SPECIFICATIONS
TABLE 4.4-1
(NOTES)

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 te

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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ATTACHMENT 2

OCONEE NUCLEAR STATION

TEST REQUIREMENTS BASES

JUSTIFICATION FOR REVERSE DIRECTION TESTING

TEST REQUIREMENT BASES

1. Penetrations 4, 43 - OTSG B, A Drain Lines

Test Requirements - This system can be isolated from the OTSG's and is drained and vented during a Type A test. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

The inside containment isolation valves are normally closed manual gate valves. Outside containment isolation valve is a normally closed motor-operated gate valve which receives an ES signal to close. The manual isolation valves provide the containment isolation function but are not required to be tested based on the definition of containment isolation valves in Appendix J, II.H. The ES closure signal to outside isolation valve is provided as a backup method to assure containment isolation. During normal operation, the primary means to assure containment isolation is by having the system valves closed as this system is normally used only when the unit is shutdown and for a limited period of time during the unit heat-up and prior to criticality. Furthermore, the drain lines are connected to a seismically designed system, which does not communicate with the containment, and which operates at conditions well above postulated accident pressure and temperature conditions. Any containment leakage associated with this system would be included in the Type A test. It is considered that a Type C test is neither necessary nor required for this system.

2. Penetrations 9, 52 - High Pressure Injection Lines, A, B

Test Requirements - This system is normally filled with water and operating under post-accident conditions. Thus, it need not be drained and vented during the Type A test. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

The inside containment valves are a single swing check in series with two parallel stop-check valves. The outside containment valve is a motor-operated globe valve (A loop-normally closed, B loop-normally open) which receives an ES signal to open. These valves do not perform a containment isolation function as defined in Appendix J, II.4 and thus a Type C test need not be performed.

3. Penetrations 13, 14 - Reactor Building Spray Inlet Lines, A, B

Test Requirements - Reactor Building spray system is normally filled with water and operating under post-accident conditions and thus, need not be drained and vented during the Type A test. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

The inside containment valve is a tilting disc check valve. Outside containment valve is a normally closed motor-operated glove valve which receives an ES signal to open. These valves do not perform a containment isolation function as defined in Appendix J, II.H and thus a Type C test need not be performed.

4. Penetrations 15, 16 - Low Pressure Injection and Decay Heat Removal Inlet Lines, A, B

Test Requirements - This system is required to be filled with water to maintain the plant in a safe condition during the Type A test. Additionally, this system is normally filled with water and operating under post-accident conditions. Thus, it need not be drained and vented during the Type A test. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

The inside containment valve is a swing check valve. The outside containment valve is a normally closed motor-operated gate valve which receives and ES signal to open. These valves do not perform a containment isolation function as defined in Appendix J, II.H and thus a Type C test need not be performed.

5. Penetrations 17, 50 - OTSG, B, A Emergency FDW Lines

Test Requirements - This system is normally filled with water and operating under post-accident conditions, and thus, need not be drained and vented during the Type A test. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

The inside containment valve is a tilting disc check valve. The outside containment valves are a tilting disc check valve in series with a normally closed pneumatically opened gate valve. These valves do not perform a containment isolation function as defined in Appendix J, II.H and thus a Type C test need not be performed.

6. Penetrations 25, 27 - OTSG B, A Feedwater Lines

Test Requirements - The OTSG is required to be filled with water to maintain the plant in a safe condition during the Type A test and thus, the feedwater lines cannot be drained and vented. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

No inside containment isolation valves exist. The outside containment valve is a tilting disc check valve. The feedwater lines are connected to a seismically designed system which does not communicate with the containment atmosphere. The feedwater lines are seismically qualified through the outside containment valve. It is not postulated that this system will rupture during a postulated LOCA condition. However, even if it were to rupture, the operating pressure and temperature are well above that expected in the containment. Thus, it is considered that a Type C test is neither necessary nor required for this system.

7. Penetrations 26, 28 - OTSG B, A Main Steam Lines

Test Requirements - The OTSG is required to be filled with water to maintain the plant in a safe condition during the Type A test and thus, the main steam line is not vented. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

No inside containment isolation valves exist. The outside containment valves are two electro-hydraulic turbine stop valves in parallel per main steam line. The steam lines are connected to a seismically designed system which does not communicate with the containment atmosphere. The steam lines are seismically qualified through the stop valves. It is not postulated that this system will rupture during a postulated LOCA condition. However, even it were to rupture, the operating pressure and temperature are well above that expected in the containment. Thus, it is considered that a Type C test is neither necessary nor required for this system.

8. Penetrations 30, 31, 32 LPSW for RB Cooling Units Inlet Line
33, 34, 35 LPSW for RB Cooling Units Outlet Line

Test Requirements - This system is normally filled with water and operating under post-accident conditions and, thus, need not be drained and vented during the Type A test. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

No inside containment isolation valves exist. The outside containment valve is normally open motor-operated gate valve which also receives an ES signal to open. These valves do not perform a containment isolation function as defined in Appendix J, II.H and, thus, a Type C test need not be performed.

9. Penetrations 36, 37 - Reactor Building Emergency Sump Recirculation Line

Test Requirements - This system is normally filled with water and operating under post-accident conditions and thus, need not be drained and vented during the Type A test. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

No inside containment isolation valves exist. The outside containment valve for each penetration is a normally closed motor-operated gate valve. This valve does not perform a containment isolation function as defined in Appendix J, II.H and, thus, a Type C test need not be performed.

10. Penetration 40 - RB Emergency Sump Drain Line

Test Requirements - This system is drained and vented during a Type A test. During postulated accident conditions, the RB Emergency Sump contains water but this line would not be in operation. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

No inside containment isolation valves exist. All inside containment piping is imbeded in concrete. The outside containment valves are two normally closed manual gate valves in series. Any containment leakage associated with this system would be included in the Type A test. Therefore, it is considered that the additional Type C test is not necessary.

11. Penetration 47 (Unit 1 Only) - Demineralized Water Supply to RC Pump Seal Vents

Test Requirements - This system is drained and vented during a Type A test. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

Both the inside and outside containment valves are tilting disc check valves. Any containment leakage associated with this system would be included in the Type A test. Therefore, it is considered that the additional Type C test is not necessary.

12. Penetration 51 - Leak Rate Test Line

Test Requirements - This air system is vented during the Type A test. Draining of fluids is not required. A Type B test is also required by Appendix J, III.B.

The inside containment device is a gasketed blind flange which is removed only to perform the Type A test. The outside containment valves is a normally closed air-operated Saunders diaphragm valve. During the performance of the Type A test, this valve is closed and the connecting line vented. Any containment leakage associated with this system would be included in the Type A test. Therefore, it is considered that the additional Type B test is not necessary.

13. Penetration 57 (Unit 1), 62 (Unit 2, 3) Decay Heat Removal Return Line

Test Requirements - This system is required to be filled with water to maintain the plant in a safe condition during the Type A test. Additionally, this system is normally filled with water and operating under post-accident conditions. Thus, it need not be drained and vented during the Type A test. A Type C test is required for containment isolation valves by Appendix J, III.A.1(d).

The inside containment valves are two normally closed motor-operated gate valves in series. The outside containment valve is a normally closed motor-operated gate valve. These valves do not perform a containment isolation function as defined in Appendix J, II.H and, thus, a Type C test need not be performed.

14. Penetration 59 - CF Tank Sample Line

Test Requirements - This system is vented and drained during the Type A test. A Type C test is also required for containment isolation valves by Appendix J, III.A.1(d).

The inside containment valves are two normally closed motor-operated gate valves in parallel, one to each core flood tank. The outside containment valves are two normally closed manual globe valves in parallel. Any containment leakage associated with this system would be included in the Type A test. Furthermore, these valves do not perform a containment isolation function as defined in Appendix J, II.H, and thus, it is considered that a Type C test need not be performed.

JUSTIFICATION FOR REVERSE DIRECTION TESTING

1. Penetration 5 - Reactor Building Normal Sump Drain Line

   Test Requirements - This system is drained and vented during the Type A test. Type C test is also required.

   Justification Basis - Both containment isolation valves are located outside containment. Test connections exist between the two valves. The valve nearest to containment is an MOV normally closed gate valve and is tested in the reverse direction. The other valve is a pneumatically operated normally closed gate valve which is tested in the required direction. The Type A test requirements are fully met. The Type C test results include the total leakage through both valves and is considered to be conservative.

2. Penetration 7 - Reactor Coolant Pump Seal Return Line

   Test Requirements - System is drained and vented during the Type A test. Type C test is also required.

   Justification Basis - The inside containment isolation valve is a normally open MOV globe valve which receives an ES signal to close. The outside containment isolation valve is a normally open pneumatically operated valve which receives an ES signal to close. Test connections exist between the two valves. The inside containment valve is tested in the reverse direction. The Type A test requirements are fully met. The Type C test results include total leakage through both valves and is considered to be conservative.

3. Penetration 8 - Loop A Nozzle Warming Lines

   Test Requirements - HP injection system is normally filled with water and operating under post-accident conditions and, thus, the warming line portion of the injection system need not be drained and vented during the Type A test. Type C test is required.

   Justification Basis - The inside containment isolation valve is a normally open stop-check valve. The outside containment isolation valves are a normally open stop-check valve in series with normally throttled needle valve. Test connections exist between the penetration and the adjacent stop-check valve outside containment. The inside containment valve is tested in the reverse direction. The Type A test requirements are fully met. The Type C test results include total leakage through all valves and is considered to be conservative.

4. Penetration 18 - Quench Tank Vent Line

   Test Requirements - This system is drained and vented during the Type A test. Type C test is also required.

Justification Basis - The inside containment isolation valve is a normally closed MOV gate valve which receives an ES signal to close. The outside containment isolation valve is a normally closed pneumatically operated gate valve which also receives an ES signal to close. Test connections exist between the two valves. The inside containment valve is tested in the reverse direction. The Type A test requirements are fully met. The Type C test results include total leakage through both valves and is considered to be conservative.

5. Penetrations 19, 20 - Reactor Building Purge Inlet and Outlet Lines

Test Requirements - This system is vented during the Type A test. Type C test is also required.

Justification Basis - The inside containment isolation valve for each penetration is a normally closed MOV butterfly valve which receives an ES signal to close. The outside containment isolation valve for each penetration is a normally closed pneumatically operated butterfly valve which also receives an ES signal to close. Test connections exist between the two valves for each penetration. The inside containment valve is tested in the reverse direction. The Type A test requirements are fully met. The Type C test results include total leakage through both valves and is considered conservative.

6. Penetrations 21, 22 - LPSW to/from RC Pump Motors and Lube Oil Coolers

Test Requirements - This system is normally filled with water and operating under post-accident conditions and, thus, need not be drained and vented during the Type A test. Type C test is required.

Justification Basis - The inside containment isolation valves are normally open MOV gate valves. The outside containment isolation valves for each penetration is a normally open MOV gate valve which receives an ES signal to close. Test connections exist for each penetration between the penetration and the outside containment isolation valve. The inside containment isolation valves are tested in the reverse direction. The Type A test requirements are fully met. The Type C test results include total leakage through all valves and is considered to be conservative.

7. Penetration 23 - Reactor Coolant Pump Seal Injection

Test Requirements - This system is normally filled with water and operating under post-accident conditions and, thus, need not be drained and vented during the Type A test. Type C test is required.

Justification Basis - Both inside and outside containment isolation valves are normally open stop-check valves. Test connections exist between the valves. The inside valves are tested in the reverse direction. The Type A test requirements are fully met. The Type C test results include total leakage through all valves and is considered to be conservative.

8. Penetration 29 - Quench Tank Drain Line

Test Requirements - This system is drained and vented during the Type A test. Type C test is required.

Justification Basis - The inside containment isolation valve is a normally closed MOV gate valve which received an ES signal to close. The outside containment isolation valve is a normally closed pneumatically operated gate valve which also receives an ES signal to close. Test connections exist between the two valves. The inside containment valve is tested in the reverse direction. The Type A test requirements are fully met. The Type C test results include total leakage through both valves and is considered conservative.

9. Penetration 52 - HP Injection to B Loop

Test Requirements - This system is normally filled with water and operating under post-accident conditions and, thus, need not be drained and vented during the Type A test. Type C test is required.

Justification Basis - The inside containment isolation valves are normally open stop-check valves. The outside containment isolation valve is a normally open MOV operated gate valve which receives an ES signal to open. Test connections exist between the valves. The inside valves are tested in the reverse direction. The Type A test requirements are fully met. The Type C test results include total leakage through all valves and is considered to be conservative.

10. Penetration 54 - Component Cooling Outlet Line

Test Requirements - This system is drained and vented during the Type A test. Type C test is required.

Justification Basis - The inside containment isolation valve is a normally open MOV operated gate valve. The outside containment isolation valve is a normally open pneumatically operated gate valve. Both valves receive ES signals to close. Test connections exist between the two valves. The inside containment valve is tested in the reverse direction. The type C test results include total leakage through all valves and is considered to be conservative.

11. Penetrations 60, 61 - Reactor Building Sample Line (outlet and inlet)

Test Requirements - This system is drained and vented during the Type A test. Type C test is required.

Justification Basis - The inside containment valves are normally closed moter operated valves. The outside containment valves are normally closed pneumatically operated valves. Both valves for each penetration receive ES signals to close. Test connections exist between the two valves for each penetration. The inside containment valves are tested in the reverse direction. The Type C test results include total leakage through all valves and is considered to be conservative.

12. Penetration 55, (Units 2 & 3 Only), Demineralized Water Supply

Test Requirements - This system is drained and vented during the Type A test. A Type B test is required.

Justification Basis - The inside and outside containment isolation valves are normally closed manual Saunders diaphragm valves. Test connections only exist between the two valves. The inside containment valve is tested in the reverse direction. The Type A test requirements are fully met. The Type B test results include total leakage through both valves and are considered conservative.