

Docket No. 50-336
B15501

Attachment 3

Millstone Nuclear Power Station, Unit No. 2

Proposed Revision to Technical Specifications
10CFR50 Appendix J, Primary Reactor Containment Leakage Testing
Requirements for Light-Water Cooled Power Reactors Option B
Performance-Based Requirements
Marked-up Pages

January 1996

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3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY*, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. ①

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

- a. At least once per 31 days by verifying that all penetrations not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges or deactivated automatic valves secured in their positions, except as provided in Table 3.6-2 of Specification 3.6.3.1.
- b. At least once per 31 days by verifying the equipment hatch is closed and sealed.
- c. By verifying the containment air lock is OPERABLE per Specification 3.6.1.3.
- d. After each closing of a penetration subject to type B testing (except the containment air lock), if opened following a Type A or B test, by leak rate testing the seal with gas at P_a (54 psig) and verifying that when the measured leakage rate for these seals is added to the leakage rate determined pursuant to Specification 4.6.1.2.d for all other Type B and C penetrations, the combined leakage rate is less than or equal to $0.60 L_a$.

IN ACCORDANCE WITH THE CONTAINMENT LEAKAGE RATE TESTING PROGRAM

*Operation within the time allowances of the ACTION statements of Specification 3.6.1.3 does not constitute a loss of CONTAINMENT INTEGRITY. ①

CONTAINMENT SYSTEMSCONTAINMENT LEAKAGELIMITING CONDITION FOR OPERATION

- 3.6.1.2 Containment leakage rates shall be limited to:
- An overall integrated leakage rate of $\leq L_0$, 0.50 percent by weight of the containment air per 24 hours at P_0 , 54 psig.
 - A combined leakage rate of $\leq 0.60 L_0$ for all penetrations and valves subject to Type B and C tests when pressurized to P_0 .
 - A combined leakage rate of $\leq 0.017 L_0$ for all penetrations identified in Table 3.6-1 as secondary containment bypass leakage paths when pressurized to P_0 .

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With either (a) the measured overall integrated containment leakage rate exceeding $0.75 L_0$, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding $0.60 L_0$, or (c) with the combined bypass leakage rate exceeding $0.017 L_0$, restore the leakage rate(s) to within the limit(s) prior to increasing the Reactor Coolant System temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The 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.

- Three Type A tests (Overall Integrated Containment Leakage Rate) shall be conducted at approximately equal intervals during shutdown at P_0 (54 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.

IN ACCORDANCE WITH THE CONTAINMENT LEAKAGE RATE TESTING PROGRAM.

CONTAINMENT SYSTEMSSURVEILLANCE REQUIREMENTS (Continued)

- 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 Type A test by verifying that the difference between supplemental and Type A test data is within $0.25 L_a$,
 2. Has a duration sufficient to establish accurately the change in leakage between the Type A 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 rate at P_a (54 psig).
- d. Type B and C tests shall be conducted at P_a (54 psig) at intervals no greater than 24 months except for tests involving air locks.*
- e. The combined bypass leakage rate shall be determined to be $< 0.017 L_a$ by applicable Type B and C tests at least once per 24 months except for penetrations which are not individually testable; penetrations not individually testable shall be determined to have no detectable leakage when tested with soap bubbles while the containment is pressurized to P_a (54 psig) during each Type A test.
- f. Air locks shall be tested and demonstrated OPERABLE per Surveillance Requirement 4.6.1.3.

*Except that the performance of the Type B and C tests that were due between June 2 and September 1, 1994, may be deferred to the end of the twelfth refueling outage.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- g. All test leakage rates shall be calculated using observed data converted to absolute values. Error analyses shall be performed to select an acceptable integrated leakage measurement system.
- h. The provisions of Specification 4.0.2 are not applicable.

TABLE 3.6-1

SECONDARY CONTAINMENT BYPASS LEAKAGE PATHS

<u>PENETRATION NO.</u>	<u>SYSTEM</u>	<u>RELEASE LOCATION</u>
14	Normal Sump	Unit 2 Stack via Aerated Waste Drain Tank Vent.
67	Refueling Water Purification	Unit 2 Stack via Auxiliary Building Ventilation System above Spent Fuel Pool.
68	Refueling Water Purification	Unit 2 Stack via Auxiliary Building Ventilation System above Spent Fuel Pool.

NO CHANGES
INFORMATION
ONLY

August 1, 1975

2-25-95

CONTAINMENT SYSTEMS

CONTAINMENT AIR LOCKSLIMITING CONDITION FOR OPERATION

3.6.1.3 The containment air lock shall be OPERABLE with:

- a. Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed, and
- b. An overall air lock leakage rate of $\leq 0.05 L_a$ at P_a (54 psig).

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With one containment air lock door inoperable:
 1. Maintain at least the OPERABLE air lock door closed and either restore the inoperable air lock door to OPERABLE status within 24 hours or lock the OPERABLE air lock door closed.
 2. Operation may then continue until performance of the next required overall air lock leakage test provided that the OPERABLE air lock door is verified to be locked closed at least once per 31 days.
 3. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
 4. Entry into an OPERATIONAL MODE or other specified condition under the provisions of Specification 3.0.4 shall not be made if the inner air lock door is inoperable.
- b. With the containment air lock inoperable, except as the result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

- a. After each opening, except when the air lock is being used for multiple entries, then at least once per 72 hours, by verifying no detectable seal leakage by pressure decay when the volume between the door seals is pressurized to greater than or equal to 25 psig for at least 15 minutes.

*IN ACCORDANCE WITH THE CONTAINMENT
LEAKAGE RATE TESTING PROGRAM.*

August 1, 1975

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 6 months by conducting an overall air lock leakage test at P₀ (54 psig) and by verifying that the overall air lock leakage rate is within its limit, and
- c. At least once per 6 months by verifying that only one door in each air lock can be opened at a time.

CONTAINMENT SYSTEMSSURVEILLANCE REQUIREMENTS (Continued)

b. Removing one wire from a dome, a vertical and a hoop tendon checked for lift off force pursuant to Specification 4.6.1.6.1.a and determining that over the entire length of the removed wire that:

1. The tendon wires are free of corrosion.
2. There are no changes in physical appearance of the sheathing filler grease.
3. A minimum tensile strength of 11,760 pounds for at least three wire samples (one from each end and one at mid-length) cut from each removed wire. Failure of any one of the wire samples to meet the minimum tensile strength test is evidence of abnormal degradation of the containment structure.

4.6.1.6.2 End Anchorages and Adjacent Concrete Surfaces The structural integrity of the end anchorages and adjacent concrete surfaces shall be demonstrated by determining through inspection that no apparent changes or degradation has occurred in the visual appearance of the end anchorage concrete exterior surfaces or as indicated by the concrete crack patterns adjacent to the end anchorages. Inspections of the concrete shall be performed concurrent with the containment tendon surveillance (reference Specification 4.6.1.6.1).

4.6.1.6.3 Liner Plate The structural integrity of the containment liner plate 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 plate and verifying no apparent changes in appearance or other abnormal degradation.

4.6.1.6.4 Reports In lieu of any other report required by Specification 6.6.1, an initial report of any abnormal degradation of the containment structure detected during the above required tests and inspections shall be made within 10 days after completion of the surveillance requirements of this specification and the detailed report shall be submitted pursuant to Specification 6.9.2 within 90 days after completion. This report shall include a description of the condition of the concrete (especially at tendon anchorages), the inspection procedure, the tolerances on cracking, and the corrective actions taken.

IN ACCORDANCE WITH THE
CONTAINMENT LEAKAGE RATE
TESTING PROGRAM.

3/4.6 CONTAINMENT SYSTEMSBASES3/4.6.1 PRIMARY CONTAINMENT3/4.6.1.1 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 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 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 accident analyses at the peak accident pressure of 54 psig, P. As an added conservatism, the measured overall integrated leakage rate is further limited to ≤ 0.75 L during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

The surveillance testing for measuring leakage rates are consistent with the requirements of Appendix "J" of 10 CFR 50, with the option of the use of the mass point method for performing leakage calculations.

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 leak rate given in Specifications 3.6.1.1 and 3.6.1.2. The limitations on the air locks allow entry and exit into and out of the containment during operation and ensure through the surveillance testing that air lock leakage will not become excessive through continuous usage.

MILLSTONE - UNIT 2

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Amendment No. 124

IS IN ACCORDANCE WITH THE
CONTAINMENT LEAKAGE RATE
TESTING PROGRAM.

NO CHANGES
INFO ONLY

August 28, 1992

ADMINISTRATIVE CONTROLS

6.16 RADIOACTIVE WASTE TREATMENT

Procedures for liquid and gaseous radioactive effluent discharges from the Unit shall be prepared, approved, maintained, and adhered to for all operations involving offsite releases of radioactive effluents. These procedures shall specify the use of appropriate* waste treatment utilizing the guidance provided in the REMODCM.

6.17 SECONDARY WATER CHEMISTRY

A program shall be maintained for monitoring of secondary water chemistry to inhibit steam generator tube degradation. This program shall include:

1. Identification of a sampling schedule for the critical variables and control points for these variables.
2. Identification of the procedures used to measure the values of the critical variables,
3. Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in-leakage.
4. Procedures for the recording and management of data.
5. Procedures defining corrective actions for all off-control point chemistry conditions, and
6. A procedure identifying: (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective action.

6.18 PASS/Sampling and Analysis of Plant Effluents

A program shall be established, implemented and maintained which will ensure the capability to obtain and analyze reactor coolant, radioactive iodines and particulates in plant gaseous effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

- (i) Training of personnel,
- (ii) Procedures for sampling and analysis,
- (iii) Provisions for maintenance of sampling & analysis.

*The Solid Radioactive Waste Treatment System shall be operated in accordance with the Process Control Program to process wet radioactive wastes to meet shipping and burial ground requirements.

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6.19 CONTAINMENT LEAKAGE RATE TESTING PROGRAM

A program shall be established to implement the leakage rate testing of the primary containment as required by 10CFR50.54(o) and 10CFR50, Appendix J, Option B as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995.

The peak calculated Primary Containment internal pressure for the design basis loss of coolant accident is P_a .

The maximum allowable primary containment leakage rate, L_a , at P_a , is 0.5% of primary containment air weight per day.

Leakage rate acceptance criteria are:

- a. Primary containment overall leakage rate acceptance criterion is $< 1.0 L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $< 0.60 L_a$ for the combined Type B and Type C tests, and $< 0.75 L_a$ for Type A tests;
- b. Air lock testing acceptance criteria are:
 - 1) Overall air lock leakage rate is $\leq 0.05 L_a$ when tested at $\geq P_a$,
 - 2) For each door, pressure decay is ≤ 0.1 psig when pressurized to ≥ 25 psig for at least 15 minutes.

The provisions of SR 4.0.2 do not apply for test frequencies specified in the Primary Containment Leakage Rate Testing Program.

The provisions of SR 4.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

Attachment 4

Millstone Nuclear Power Station, Unit No. 2

Proposed Revision to Technical Specifications
10CFR50 Appendix J, Primary Reactor Containment Leakage Testing
Requirements for Light-Water Cooled Power Reactors Option B
Performance-Based Requirements

Retyped Version of Current Technical Specifications

January 1996

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY*, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

- a. At least once per 31 days by verifying that all penetrations not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in their positions, except as provided in Table 3.6-2 of Specification 3.6.3.1,
- b. At least once per 31 days by verifying the equipment hatch is closed and sealed.
- c. By verifying the containment air lock is OPERABLE per Specification 3.6.1.3.
- d. After each closing of a penetration subject to type B testing (except the containment air lock), if opened following a Type A or B test, by leak rate testing in accordance with the Containment Leakage Rate Testing Program.

*Operation within the time allowances of the ACTION statements of Specification 3.6.1.3 does not constitute a loss of CONTAINMENT INTEGRITY.

CONTAINMENT SYSTEMS

CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Containment leakage rates shall be limited to:

- a. An overall integrated leakage rate of $< L_a$, 0.50 percent by weight of the containment air per 24 hours at P_a , 54 psig.
- b. A combined leakage rate of $< 0.60 L_a$ for all penetrations and valves subject to Type B and C tests when pressurized to P_a .
- c. A combined leakage rate of $< 0.017 L_a$ 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 either (a) the measured overall integrated containment leakage rate exceeding $0.75 L_a$, or (b) with the measured combined leakage rate for all penetrations and valves subject to Types B and C tests exceeding $0.60 L_a$, or (c) with the combined bypass leakage rate exceeding $0.017 L_a$, restore the leakage rate(s) to within the limit(s) 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 the Containment Leakage Rate Testing Program.

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CONTAINMENT SYSTEMS

CONTAINMENT AIR LOCKS

LIMITING CONDITION FOR OPERATION

3.6.1.3 The containment air lock shall be OPERABLE with:

- a. Both doors closed except when the air lock is being used for normal transit entry and exit through the containment, then at least one air lock door shall be closed, and
- b. An overall air lock leakage rate of $\leq 0.05 L_a$ at P_a (54 psig).

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With one containment air lock door inoperable:
 1. Maintain at least the OPERABLE air lock door closed and either restore the inoperable air lock door to OPERABLE status within 24 hours or lock the OPERABLE air lock door closed.
 2. Operation may then continue until performance of the next required overall air lock leakage test provided that the OPERABLE air lock door is verified to be locked closed at least once per 31 days.
 3. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
 4. Entry into an OPERATIONAL MODE or other specified condition under the provisions of Specification 3.0.4 shall not be made if the inner air lock door is inoperable.
- b. With the containment air lock inoperable, except as the result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE in accordance with the Containment Leakage Rate Testing Program.

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CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS

- b. Removing one wire from a dome, a vertical and a hoop tendon checked for lift off force pursuant to Specification 4.6.1.6.1.a and determining that over the entire length of the removed wire that:
1. The tendon wires are free of corrosion.
 2. There are no changes in physical appearance of the sheathing filler grease.
 3. A minimum tensile strength of 11,760 pounds for at least three wire samples (one from each end and one at mid-length) cut from each removed wire. Failure of any one of the wire samples to meet the minimum tensile strength test is evidence of abnormal degradation of the containment structure.

4.6.1.6.2 End Anchorages and Adjacent Concrete Surfaces The structural integrity of the end anchorages and adjacent concrete surfaces shall be demonstrated by determining through inspection that no apparent changes or degradation has occurred in the visual appearance of the end anchorage concrete exterior surfaces or as indicated by the concrete crack patterns adjacent to the end anchorages. Inspections of the concrete shall be performed concurrent with the containment tendon surveillance (reference Specification 4.6.1.6.1).

4.6.1.6.3 Liner Plate The structural integrity of the containment liner plate shall be determined in accordance with the Containment Leakage Rate Testing Program.

4.6.1.6.4 Reports In lieu of any other report required by Specification 6.6.1, an initial report of any abnormal degradation of the containment structure detected during the above required tests and inspections shall be made within 10 days after completion of the surveillance requirements of this specification and the detailed report shall be submitted pursuant to Specification 6.9.2 within 90 days after completion. This report shall include a description of the condition of the concrete (especially at tendon anchorages), the inspection procedure, the tolerances on cracking, and the corrective actions taken.

3/4.6 CONTAINMENT SYSTEMS

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 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 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 accident analyses at the peak accident pressure of P_a . As an added conservatism, the measured overall integrated leakage rate is further limited to $< 0.75 L_a$ during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

The surveillance testing for measuring leakage rates is in accordance with the Containment Leakage Rate Testing Program.

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 leak rate given in Specifications 3.6.1.1 and 3.6.1.2. The limitations on the air locks allow entry and exit into and out of the containment during operation and ensure through the surveillance testing that air lock leakage will not become excessive through continuous usage.

ADMINISTRATIVE CONTROLS

6.19 CONTAINMENT LEAKAGE RATE TESTING PROGRAM

A program shall be established to implement the leakage rate testing of the primary containment as required by 10CFR50.54(o) and 10CFR50, Appendix J, Option B as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995.

The peak calculated primary Containment internal pressure for the design basis loss of coolant accident is P_a .

The maximum allowable primary containment leakage rate, L_a , at P_a , is 0.5% of primary containment air weight per day.

Leakage rate acceptance criteria are:

- a. Primary containment overall leakage rate acceptance criterion is $< 1.0 L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $< 0.60 L_a$ for the combined Type B and Type C tests, and $< 0.75 L_a$ for Type A tests;
- b. Air lock testing acceptance criteria are:
 1. Overall air lock leakage rate is $\leq 0.05 L_a$ when tested at $\geq P_a$.
 2. For each door, pressure decay is ≤ 0.1 psig when pressurized to ≥ 25 psig for at least 15 minutes.

The provisions of SR 4.0.2 do not apply for test frequencies specified in the Primary Containment Leakage Rate Testing Program.

The provisions of SR 4.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.