



Carolina Power & Light Company

H. B. ROBINSON STEAM ELECTRIC PLANT

UNIT NO. 2

10CFR50, APPENDIX J, TESTING PROGRAM

REVISION 0

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TABLE OF CONTENTS

<u>TITLE</u>	<u>PAGE</u>
I. Purpose.....	1
II. Definition of Terms.....	2
III. Type A Testing	
A. General.....	4
B. Venting And Draining Requirements.....	4
C. Acceptance Criteria.....	4
D. Derivation Of Type A Test Acceptance Criteria.....	5
E. Type A Test Scheduling.....	7
F. Exemption Requests.....	8
IV. Type B Testing	
A. General.....	10
B. Acceptance Criteria.....	11
C. Scheduling.....	11
V. Type C Testing	
A. General.....	12
B. Acceptance Criteria.....	12
C. Scheduling.....	13

Attachment 1 - Type A Testing Program

Attachment 2 - Type C Testing Program

Attachment 3 - 10CFR50, Appendix J

I. PURPOSE

This program will establish a plant position on the requirements of 10CFR50, Appendix J, "Primary Reactor Containment Leakage Testing For Water-Cooled Reactors". The program is developed in accordance with Appendix J, Section III, and includes a description of the requirements of the following test types as applied to H. B. Robinson Unit 2:

- 1) Type A - Tests intended to measure the primary reactor containment overall integrated leakage rate (1) after the containment has been completed and is ready for operation, and (2) at periodic intervals thereafter.
- 2) Type B - Tests intended to detect local leaks and to measure leakage across each pressure-containing or leakage-limiting boundary for the primary reactor containment penetrations.
- 3) Type C - Tests intended to measure containment isolation valve leakage rates.

Specifics are provided to describe the method used to achieve compliance in each of these three areas.

II. Definition Of Terms

- 1) $\underline{P_a}$ - Calculated peak containment internal pressure as used in Appendix J related to the Design Basis Accident. For Unit 2, this value is 42 psig (same as P_p).
- 2) $\underline{P_p}$ - Calculated peak containment internal pressure as used in the Technical Specifications related to the Design Basis Accident. For Unit 2, this value is 42 psig (same as P_a).
- 3) $\underline{P_t}$ - The containment pressure vessel reduced test pressure selected to measure the integrated leakage rate during periodic Type A tests. For Unit 2, this value is 21 psig.
- 4) $\underline{L_a}$ - Maximum allowable containment leakage rate at pressure P_a as used in Appendix J for preoperational and periodic tests. For Unit 2, this value was 0.0761% weight/day for the preoperational test and is *0.08% weight/day for periodic tests.
- 5) $\underline{L_p}$ - Maximum allowable containment leakage rate at pressure P_p as used in the Technical Specifications for periodic tests. For Unit 2, the value is *0.08% weight/24 hours of the contained air (same as L_a for periodic tests).
- 6) $\underline{L_d}$ - The design leakage rate at pressure P_a as specified in the Technical Specifications or associated bases. For Unit 2, this value is 0.1% weight/24 hours.
- 7) $\underline{L_t}$ - Maximum allowable containment leakage rate at pressure P_t . For Unit 2, this value is **0.0566% weight/24 hours.
- 8) $\underline{L_m(42)}$ - The measured containment leakage rate at pressure P_a . $L_m(42)$ is equivalent to the Appendix J term L_{am} .
- 9) $\underline{L_m(21)}$ - The measured containment leakage rate at pressure P_t . $L_t(21)$ is equivalent to the Appendix J term L_{tm} .
- 10) $\underline{R_a}$ - Equivalent gas constant of the containment atmosphere composition under accident conditions.
- 11) $\underline{R_p}$ - Equivalent gas constant of the containment atmosphere under test conditions (53.3533 ft-lbf/lbm-°R).

* An amendment request to Technical Specification 4.4.1.1.(f).(1) is in process to raise this value to 0.1% weight/24 hours.

**An amendment request to Technical Specification 4.4.1.1.(f).(2) is in process to raise this value to 0.0707% weight/24 hours.

- 12) T_a - Absolute temperature, °R, coincident with pressure P_p under accident conditions (722.67°R).
- 13) T_p - Absolute temperature, °R, coincident with pressure P_p under test conditions.
- 14) d - Density of containment steam-air mixture under accident conditions of 42 psig and 263°F (.162 lbs/ft³ from FSAR Section 6.2).

III. A. Type A Testing - General

Type A testing will be performed with the containment and related systems in as close to the accident condition as practical. Closure of containment isolation valves will be accomplished by normal operation and without any preliminary exercising or adjustments. Lines penetrating containment will be vented and drained to assume postulated accident conditions as defined in the FSAR, Section 6.8.2.2.

B. Type A Test Venting and Draining Requirements

Section III.A.1.(d) of Appendix J describes the venting and draining requirement for fluid systems penetrating containment prior to performing a Type A test. Referencing this section penetrations have been categorized and the requirements clarified as follows:

<u>Category</u>	<u>Description</u>
A-1	Penetrations that are part of the reactor coolant pressure boundary or normally communicate directly with containment atmosphere or could communicate with containment atmosphere due to a pipe rupture or component failure.
A-2	Penetrations that are not open to containment and are not postulated to rupture.

Attachment 1 details the plant interpretation of Appendix J relating to venting and draining of each mechanical penetration. It should be noted that no credit is taken for the IVSW system in applying the venting and draining requirement.

C. Type A Test Acceptance Criteria

Peak Pressure Tests (Appendix J, Section III.A.5.(b).(2)) - Peak pressure tests shall be conducted at 42 psig (P_a). The *95% upper confidence level leakage rate shall be less than 0.75 L_a . This requirement is consistent with Technical Specification 4.4.1.1.(f).(3). L_a as defined in Technical Specification 4.4.1.1.(f).(1) is 0.08% weight of the contained air per 24 hours. Therefore, 0.75 L_a equals 0.06% weight per 24 hours.

*The 95% upper confidence level is considered equivalent to the correction for instrumentation error stated in Appendix J, Section II.A.3.(c).

Reduced Pressure Tests (Appendix J, Section III.A.5.(b).(1)) - Reduced pressure tests shall be conducted at 21 psig (P_t). The *95% upper confidence level leakage rate shall be less than $0.75 L_t$. This requirement is also consistent with Technical Specification 4.4.1.1.(f).(3). L_t is derived from the equation given in Technical Specification 4.4.1.1.(f).(2) and equals 0.0566% weight of the contained air per 24 hours. Therefore, $0.75 L_t$ equals 0.0424% weight per 24 hours.

After each peak pressure or reduced pressure test, the accuracy of the test instrumentation shall be verified by a superimposed test. Results from this test are acceptable provided the difference between the superimposed test data and the Type A test data is within 25% of L_a for a test at pressure P_a and 25% of L_t for a test at pressure P_t .

D. Derivation Of Type A Test Acceptance Criteria

The design basis leak rate, L_d , for the Robinson containment building is 0.1% weight per 24 hours at 42 psig and 263°F, the calculated post accident peak pressure and temperature. With this leakage rate and with minimum containment engineered safety features operating, the public exposure would not exceed 10CFR100 guidelines in the event of a Design Basis Accident (Ref. basis for Technical Specification, Section 4.4, and FSAR, Section 6.2).

The 0.08% weight per day value of Technical Specification 4.4.1.1.(f).(1) is derived from a formula intended to correct leakage measured under test conditions to actual leakage under post accident conditions. This correction factor is derived as follows:

(See Definitions)

A gas constant, R_a , for the post accident steam air mixture at 42 psig and 263°F must be determined -

$$R_a = \frac{P_a}{d T_a} \times 144$$

$$R_a = \frac{56.7 \text{ psia } (144 \text{ in}^2/\text{ft}^2)}{0.162 \text{ lb/ft}^3 (722.67^\circ\text{R})}$$

$$R_a = 69.74 \frac{\text{ft-lbf}}{\text{lbm-}^\circ\text{R}}$$

*The 95% upper confidence level is considered equivalent to the correction for instrumentation error stated in Appendix J, Section III.A.3.(c).

Maximum allowable leakage rate, L_p , at pressure P_p -

(From AEC III Technical Safety Guide - Reactor Containment Leakage Testing And Surveillance Requirements, December 15, 1966)

$$L_p = L_d \left(\frac{R_p T_p}{R_a T_a} \right)^{\frac{1}{2}}$$

$$L_p = 0.1\%/Day \left(\frac{53.3533 \frac{ft-lbf}{lbm-^{\circ}R} (*549.67^{\circ}R)}{69.74 \frac{ft-lbf}{lbm-^{\circ}R} (722.67^{\circ}R)} \right)^{\frac{1}{2}}$$

$$L_p = 0.0763\%/Day$$

The correction factor is also shown in the preoperational ILRT report as the ratio of test temperature (assumed to be 90°F) to the calculated peak post accident temperature as follows:

$$\frac{T_p}{T_a} = \frac{(90 + 459.67)^{\circ}R}{(263 + 459.67)^{\circ}R} = 0.761$$

$$L_p = 0.761 (0.1\%/Day) = 0.0761\% Day$$

(The difference between 0.0763% and 0.0761% is attributed to rounding)

The 0.0761%/day value rounded to two significant figures represents the 0.08%/day value of Technical Specification 4.4.1.1.(f).(1).

The formula,

$$L_t (21) = 0.08 L_m (21)/L_m (42)**$$

from Technical Specification 4.4.1.1.(f).(2) does not apply to leakage results of 21 psig tests. Per Appendix J, Section III.A.4.(a).(i).(iii), the maximum allowable 21 psig test leakage rate, L_t , shall not exceed $L_a (L_{tm}/L_{am})$. However, should L_{tm}/L_{am} be greater than 0.7, L_t shall be specified as equal to $L_a (P_t/P_a)^{\frac{1}{2}}$.

* 90°F assumed as test temperature, corrected to absolute temperature.

** $L_m (21) = L_{tm}$; $L_m (42) = L_{am}$

Using the results of the 1974 ILRT L_{tm}/L_{am} is proven to be greater than 0.7 as follows:

$$L_{tm} = 0.029\%/day \quad L_{am} = 0.015\%/day$$

$$\frac{L_{tm}}{L_{am}} = \frac{0.029}{0.015} = 1.93$$

(See GAI Report No. 1845 dated August 30, 1974 entitled, "Reactor Containment Building Integrated Leak Rate Test And Structural Integrity Retest," page I-28.)

Therefore, the derivation of the maximum allowable leakage rate, L_t , at pressure P_t follows (From Technical Specification 4.4.1.1.(f).(2)):

$$L_t = L_p \left(\frac{P_t}{P_p} \right)^{1/2}$$

$$L_t = 0.08\%/Day \left(\frac{21 \text{ psig}}{42 \text{ psig}} \right)^{1/2}$$

$$L_t = 0.0566\%/Day$$

E. Type A Test Scheduling

Unless relief is requested, three (3) Type A tests at 21 psig will be performed at approximately 3-1/3 year intervals over a 10 year service period. The third test of each 10 year period shall be conducted when the plant is shut down for the 10 year Inservice Inspection outage (See Appendix J, Section III.D.1 and Technical Specification 4.4.1.1.g). Should any Type A test fail to meet the acceptance criteria the test schedule applicable to subsequent Type A tests will be reviewed and approved by the NRC.* Should two consecutive Type A tests fail to meet the acceptance criteria, a retest shall be conducted at each refueling outage or approximately 18 months, whichever occurs first, until two consecutive Type A tests meet the acceptance criteria. The normal test schedule would be resumed after satisfactory completion of these two tests (Ref. Appendix J, Section III.A.6).

As required by Technical Specification 4.4.4.2.(a), the containment will be pressurized to 42 psig after three (3) and twenty (20) years of operation for structural integrity verification.

*See Exemption Request 2

Any major modification or replacement of a component which is part of the primary containment boundary shall be followed by either a Type A, Type B, or Type C test as applicable for the area affected by the modification.

F. Type A Test Exemption Requests

1) Specific Exemption Request:

Repairs and adjustments made during a Type A test.

Applicable To:

All containment penetrations.

Basis For Exemption Request:

Appendix J, Section III.A.1.(a) requires termination of a Type A test to repair or adjust equipment that exhibits leakage that could cause leakage rates to exceed the acceptance criteria. Should such leakage be observed during a Type A test, if the leakage can be isolated by not affecting the leaking component directly and the component has a design that permits local leakage rate testing, the Type A test may not be terminated.

Alternate Testing:

The leaking component(s) will be locally tested in the "as found" condition following the Type A test and these results added to the measured Type A test leak rate. Should results of the local test warrant maintenance on the component(s), the "as left" leakage rate(s) will be added to the Type A test results.

2) Specific Exemption Request:

Increased interval for Type A tests following two consecutive failed tests, Appendix J, Section III.A.6.(b).

Applicable To:

All Type A tests.

Basis For Request:

As stated in Exemption Request 1, local testing after isolation of a leakage path(s) found during Type A testing may be attempted. In the event that this local testing indicates leakage, when added to Type A rates results in

unacceptable total leakage, a corrective action plan is proposed. In these instances when test failure is due to an identifiable component(s), the corrective action plan may involve engineering evaluation, repair or replacement of the component(s), and/or increasing the frequency of local leakage rate surveillance on the faulty component(s).

This component-specific corrective action plan will be aimed at correcting the identifiable leakage path(s) without imposing the excessive penalty of an increased Type A testing frequency. In these situations when determining a Type A test satisfactory or unsatisfactory for the purpose of implementing a corrective action plan, the criteria listed below will be applied.

A corrective action plan will be necessary if:

The total of "as found" leakage rate(s) for a component(s) isolated during a Type A test plus Type A test results is greater than or equal to L_t or L_a , as applicable. The criteria of L_t or L_a in lieu of $0.75 L_a$ or $0.75 L_t$ is used in this case since the 0.75 factor is intended to provide a deterioration allowance between Type A tests.

It is emphasized that this criteria is established for the sole purpose of determining the need for implementing a corrective action plan for an isolated, later tested component(s).

In no instance will the plant be returned to service if the total Type A leakage is greater than $0.75 L_t$ or $0.75 L_a$, as applicable (see Technical Specification 4.4.1.1.(f).(3)).

IV. A. Type B Testing - General

Type B testing applies to containment penetrations of the following types:

- 1) Containment penetrations whose design incorporates resilient seals, gaskets, or sealant compounds, piping penetrations fitted with expansion bellows, and electrical penetrations fitted with flexible metal seal assemblies.
- 2) Air lock doors seals, including door operating mechanism penetrations, which are part of the containment pressure boundary.
- 3) Doors with resilient seals or gaskets except for seal-welded doors.

These tests require local pneumatic pressurization of the penetrations, either individually or in groups, at a pressure not less than 42 psig. The Penetration Pressurization System (PPS) provides a constant indication of the leak tightness of penetrations and valves it serves. The only exceptions to this constant monitoring of components served by the PPS are the containment radiation monitor isolation valves RMS 1, 2, 3 and 4 (see Attachment 2, penetrations 35 and 36). These valves are open during normal operation and are cycled quarterly for ISI testing. While closed during this testing, the innerspaces between these valves are pressurized by the PPS. Any leakage from these valves is monitored by the PPS flowmeters.

This method of Type B testing using a surveillance system is allowed by Appendix J, Section III.B.1.(c) and also fulfills the requirement of Technical Specification 4.4.1.2.(a) (with the exception of the personnel air lock). The personnel air lock is pressure tested at six month intervals in accordance with Appendix J, Section III.D.2.(b)(i) and Technical Specification 4.4.1.2.(a). The air lock door seals are constantly monitored by the PPS. Therefore, after each door opening and closing, each door seal is tested in accordance with Appendix J, Section III.D.2.(b)(iii).

A description of the PPS can be found in the following:

- 1) FSAR - Section 6.9.
- 2) Plant Operating Manual - Volume 2, SD-37.

B. Type B Test Acceptance Criteria

Appendix J, Section III.B.3.(b) waives individual Type B tests for components served by systems similar to the PPS. The plant Minimum Equipment For Criticality List provides the acceptance criteria by which PPS leakage test results are compared. This acceptance criteria is based on $0.3 L_p$ as defined in Technical Specification 4.4.1.2.(b). Total PPS leakage includes:

- 1) Leakage from mechanical and electrical penetrations (Type B).
- 2) Leakage from containment isolation valves served by the PPS (see Attachment 2) (Type C).
- 3) Leakage from the six month interval personnel air lock test (Type B).

The criteria of $0.3 L_p$ from Technical Specification 4.4.1.2.(b) is considered equivalent to that of Appendix J, Section III.B.3.(a). The basis for this position is that the Appendix J criteria applies to combined leakage rates from Type B and Type C tests. Assuming one half of the Appendix J acceptance criteria of $0.6 L_a$ is attributed to results from Type B tests the value of $0.3 L_p$ is appropriate.

C. Type B Test Schedule

Continuous testing is performed on components served by the PPS. The containment air lock is tested at six month intervals.

V. A. Type C Testing - General

Containment isolation valves requiring Type C testing are those that:

- 1) 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;
- 2) are required to close automatically on receipt of a containment isolation signal in response to controls intended to effect containment isolation; and
- 3) are required to operate intermittently under post accident conditions.
- 4) are in main steam and feedwater piping and other systems which penetrate containment of direct cycle boiling water power reactors (not applicable to HBR Unit 2).

Attachment 2 lists containment isolation valves and the testing requirement applied pursuant to Appendix J.

B. Type C Test Acceptance Criteria

Test results for valves listed in Attachment 2 that receive IVSW are not compared to the $0.6 L_a$ acceptance criteria of Appendix J, Section III.C.3. Leakage from valves served by the IVSW system is excluded from this comparison by Appendix J, Section III.C.3.(a) and (b). These test results are compared to the acceptance criteria of Periodic Test 2.6 which is based on a total allowable leakage value for each of the four IVSW headers.

Pursuant to Appendix J, Section III.C.1, valves with innerspaces pressurized by air from the PPS are tested and the results are compared to the acceptance criteria for tests as described in Section IV.B of this report.

For valves individually tested and not served by IVSW or the PPS, the allowed leakage criteria of $.3 L_p$ will be applied. Thus, 50 percent of the $.6 L_a$ is applied to PPS leakage (see Section IV.B) and the remainder applied to the valves individually tested.

NOTE:

The IVSW system has been reviewed by the NRC and accepted as meeting the requirements of a seal system as defined in Appendix J. This review concluded that the IVSW system can be used in performing Type C tests (Ref. April 23, 1979 Letter to Mr. J. A. Jones from Mr. A. Schwencer).

A description of the IVSW system can be found in the following:

- 1) FSAR - Section 6.8
- 2) Plant Operating Manual - Volume 2, SD-38
- 3) Technical Specifications - Sections 3.3.6 and 4.4.2.(c)

C. Type C Test Scheduling

Type C tests shall be performed during shutdown for refueling but in no case at intervals greater than two years (Ref. Appendix J, Section III.D.3). Continuous Type C testing is performed on valves served by the PPS.

ATTACHMENT 1

10CFR50, APPENDIX J, TYPE A TESTING PROGRAM

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2

10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

INTEGRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-1	S-32	PRESSURIZER RELIEF TANK TO GAS ANALYZER	A-1	YES, 517	YES, INLET CONN. TO 1600E OPENED	N/A	N/A	COULD BE OPENED TO CONTAINMENT ATMOSPHERE DUE TO FAILURE OF RELIEF TANK RUPTURE DISKS.
P-2	S-33	NITROGEN SUPPLY TO PRESSURIZER RELIEF TANK	A-1	YES, 517	YES	N/A	N/A	COULD BE OPENED TO CONTAINMENT ATMOSPHERE DUE TO FAILURE OF RELIEF TANK RUPTURE DISKS.
P-3	S-34	PRIMARY WATER TO PRES- SURIZER RELIEF TANK	A-1	YES, 517	YES, IVSW CONN. OPENED	YES	YES	COULD BE OPENED TO CONTAINMENT ATMOSPHERE DUE TO FAILURE OF RELIEF TANK RUPTURE DISKS.
P-4	S-29	REACTOR COOLANT DRAIN TANK VENT HEADER	A-1	YES, 1609	YES, VENT HEADER, PCV-1014	N/A	N/A	RUPTURE OF A TANK INLET LINE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	SLEEVES NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-5	S-13	REACTOR COOLANT DRAIN TANK TO GAS ANALYZER	A-1	YES, 1609	YES, INLET CONN. TO 1600A OPENED	N/A	N/A	RUPTURE OF A TANK INLET LINE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-6	S-20	REACTOR COOLANT DRAIN TANK TO WASTE HOLD-UP TANK	A-1	YES, 1721B	YES, 1731A	YES	YES	RUPTURE OF A TANK INLET LINE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-7	S-40	MAIN STEAM HEADER	A-2	NO	NO	N/A	N/A	LINE IS MISSILE PROTECTED THROUGHOUT ITS LENGTH AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
P-8	S-41	MAIN STEAM HEADER	A-2	NO	NO	N/A	N/A	LINE IS MISSILE PROTECTED THROUGHOUT ITS LENGTH AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
P-9	S-42	MAIN STEAM HEADER	A-2	NO	NO	NO	NO	LINE IS MISSILE PROTECTED THROUGHOUT ITS LENGTH AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
P-10	S-43	MAIN FEEDWATER HEADER	A-2	NO	NO	NO	NO	LINE IS MISSILE PROTECTED THROUGHOUT ITS LENGTH AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	CLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-11	S-44	MAIN FEEDWATER HEADER	A-2	NO	NO	NO	NO	LINE IS MISSILE PROTECTED THROUGHOUT ITS LENGTH AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
P-12	S-45	MAIN FEEDWATER HEADER	A-2	NO	NO	NO	NO	LINE IS MISSILE PROTECTED THROUGHOUT ITS LENGTH AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
P-13	S-30	"A" STEAM GENERATOR BLOWDOWN	A-1	YES	YES	YES	YES	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-14	S-24	"B" STEAM GENERATOR BLOWDOWN	A-1	YES	YES	YES	YES	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE
P-15	S-26	"C" STEAM GENERATOR BLOWDOWN	A-1	YES	YES	YES	YES	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-16	S-15	RHR LOOP OUT	A-1	YES, RCS VENTED	NO	NO	NO	NOT VENTED OR DRAINED SINCE LINE IS IN SERVICE DURING ILRT AND LOCA CONDITIONS. LINE IS PART OF A TOTALLY ENCLOSED SYSTEM OUTSIDE CONTAINMENT.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-17	S-14	RHR LOOP IN	A-1	YES, RCS VENTED	NO	NO	NO	NOT VENTED OR DRAINED SINCE LINE IS IN SERVICE DURING ILRT AND LOCA CONDITIONS. LINE IS PART OF A TOTALLY ENCLOSED SYSTEM OUTSIDE CONTAINMENT.
P-18	S-8	COMPONENT COOLING WATER SUPPLY	A-1	YES, 916A	NO	NO	NO	A PIPE RUPTURE COULD OPEN THE PENETRATION TO CONTAINMENT ATMOSPHERE. LINE IS IN SERVICE OUTSIDE CONTAINMENT DURING ILRT AND LOCA CONDITIONS. THEREFORE, LINE IS NOT DRAINED.
P-19	S-9	COMPONENT COOLING WATER DISCHARGE	A-1	YES, 915A	YES, BONNET OF 731 REMOVED	YES	YES	A PIPE RUPTURE COULD OPEN THE PENETRATION TO CONTAINMENT ATMOSPHERE.
P-20	S-16	COMPONENT COOLING WATER DISCHARGE	A-1	YES, 741	YES, 922	YES	YES	A PIPE RUPTURE COULD OPEN THE PENETRATION TO CONTAINMENT ATMOSPHERE.
P-21	S-35	EXCESS LETDOWN HEAT EXCHANGER COOLING WATER SUPPLY	A-2	NO	NO	NO	NO	MISSILE PROTECTED, TOTALLY ENCLOSED, NOT POSTULATED TO RUPTURE.
P-22	S-28	EXCESS LETDOWN HEAT EXCHANGER COOLING WATER DISCHARGE	A-2	NO	NO	NO	NO	MISSILE PROTECTED, TOTALLY ENCLOSED, NOT POSTULATED TO RUPTURE.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

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P-23	S-27	RCS LETDOWN LINE	A-1	YES, 204C	YES, 145A	YES	YES	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-24	S-17	CHARGING LINE	A-1	YES, VENTED TO RCS WHEN 310A FAILS OPEN	NO	NO	NO	NORMALLY FILLED WITH WATER AND WILL REMAIN FILLED FOLLOWING LOCA.
P-25	S-2	"C" REACTOR COOLANT PUMP SEAL INJECTION SUPPLY	A-2	YES, THRU PUMP SEALS TO RCS	NO	NO	NO	NORMALLY FILLED WITH WATER AND WILL REMAIN FILLED FOLLOWING A LOCA.
P-26	S-3	"B" REACTOR COOLANT PUMP SEAL INJECTION SUPPLY	A-2	YES, THRU PUMP SEALS TO RCS	NO	NO	NO	NORMALLY FILLED WITH WATER AND WILL REMAIN FILLED FOLLOWING A LOCA.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

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P-27	S-7	"A" REACTOR COOLANT PUMP SEAL INJECTION SUPPLY	A-2	YES, THRU PUMP SEALS TO RCS	NO	NO	NO	NORMALLY FILLED WITH WATER AND WILL REMAIN FILLED FOLLOWING A LOCA.
P-28	S-19	REACTOR COOLANT PUMP SEAL WATER RETURN	A-1	YES, 389A	YES, 316A	YES	YES	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-29	S-22	PRESSURIZER STEAM SPACE SAMPLE	A-1	YES, 951A	YES, 951B	YES	YES	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-30	S-22	PRESSURIZER LIQUID SAMPLE	A-1	YES, 953A	YES, 953B	YES	YES	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-31	S-22	RCS LOOP 2 & 3 SAMPLE	A-1	YES, 955G & 955F	YES, 989F	YES	YES	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-32	S-36	FUEL TRANSFER TUBE	A-1	N/A	N/A	N/A	N/A	BLANK FLANGED INSIDE CONTAINMENT.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-33	S-12	CONTAINMENT INSTRUMENT AIR HEADER	A-1	YES, VENT VALVE IN CV	YES, IA-244 & 244A	N/A	N/A	VENTED INSIDE AND OUTSIDE CONTAINMENT TO ENSURE NO INLEAKAGE OR PRESSURE GRADIENT EXISTS THAT WOULD MASK OR OPPOSE CV LEAKAGE.
P-34A	S-31	NITROGEN SUPPLY TO VALVE V12-14 OPERATOR	A-2	NO	YES, PAV-31A	N/A	N/A	MISSILE PROTECTED, TOTALLY ENCLOSED, NOT POSTULATED TO RUPTURE. VENTED OUTSIDE CONTAINMENT TO ENSURE NO PRESSURE GRADIENT EXISTS THAT WOULD OPPOSE CV LEAKAGE.
P-34B	S-31	NITROGEN SUPPLY TO VALVE V12-18 OPERATOR	A-2	NO	YES, PAV-33A	N/A	N/A	MISSILE PROTECTED, TOTALLY ENCLOSED, NOT POSTULATED TO RUPTURE. VENTED OUTSIDE CONTAINMENT TO ENSURE NO PRESSURE GRADIENT EXISTS THAT WOULD OPPOSE CV LEAKAGE.
P-34C	S-31	NITROGEN SUPPLY TO VALVE V12-24A OPERATOR	A-2	NO	YES, PAV-35A	N/A	N/A	MISSILE PROTECTED, TOTALLY ENCLOSED, NOT POSTULATED TO RUPTURE. VENTED OUTSIDE CONTAINMENT TO ENSURE NO PRESSURE GRADIENT EXISTS THAT WOULD OPPOSE CV LEAKAGE.
P-34D	S-31	NITROGEN SUPPLY TO VALVE V12-24B OPERATOR	A-2	NO	YES, PAV-37A	N/A	N/A	MISSILE PROTECTED, TOTALLY ENCLOSED, NOT POSTULATED TO RUPTURE. VENTED OUTSIDE CONTAINMENT TO ENSURE NO PRESSURE GRADIENT EXISTS THAT WOULD OPPOSE CV LEAKAGE.

H.E. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PERFORATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-35	S-23	CONTAINMENT AIR SAMPLE IN	A-1	YES, OPEN ENDED	NO	N/A	N/A	INNER SPACE BETWEEN VALVES RMS-3 AND 4 DEPRESSURIZED.
P-36	S-23	CONTAINMENT AIR SAMPLE OUT	A-1	YES, OPEN- ENDED	NO	N/A	N/A	INNER SPACE BETWEEN VALVES RMS-1 and 2 DEPRESSURIZED.
P-37	S-37	CONTAINMENT PURGE SUPPLY	A-1	YES, OPEN- ENDED	YES, OPEN- ENDED	N/A	N/A	INNER SPACE BETWEEN VALVES V12-6 AND V12-7 DEPRESSURIZED.
P-38	S-38	CONTAINMENT PURGE EXHAUST	A-1	YES, OPEN- ENDED	YES, OPEN- ENDED	N/A	N/A	INNER SPACE BETWEEN VALVES V12-8 AND V12-9 DEPRESSURIZED.
P-39	S-25	CONTAINMENT SERVICE AIR HEADER	A-1	YES, VENT VALVE IN CV	YES, V12-26 BONNET REMOVED	N/A	N/A	VENTED INSIDE AND OUTSIDE CONTAINMENT TO ENSURE NO INLEAKAGE OR PRESSURE GRADIENT EXISTS THAT WOULD MASK OR OPPOSE CV LEAKAGE.
P-40	S-46	POST ACCIDENT HYDROGEN VENT LINE	A-1	YES, OPEN- ENDED	YES, V12-26B	N/A	N/A	INNER SPACE BETWEEN VALVES V12-18 AND V12-19 DEPRESSURIZED.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-41	S-21	CONTAINMENT PRESSURE RELIEF LINE	A-1	YES, OPEN- ENDED	YES, V12-26A, PLANT STACK	N/A	N/A	INNER SPACE BETWEEN VALVES V12-11, V12-14 AND V12-10, V12-15 DEPRESSURIZED.
P-42	S-39	CONTAINMENT VACUUM RELIEF LINE	A-1	YES, OPEN- ENDED	YES, OPEN- ENDED	N/A	N/A	VALVE V12-13 REMOVED INSIDE CONTAINMENT TO ALLOW PRESSURIZATION PATH FOR ILRT.
P-43	S-2	SAFETY INJECTION LOOP 2 AND 3 HOT LEGS	A-1	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS.
P-44	S-4	CONTAINMENT SPRAY HEADER	A-1	YES, THRU NOZZLES	YES, 839A	N/A	NO	SYSTEM IS DESIGNED FOR OPERATION DURING A LOCA.
P-45	S-6	CONTAINMENT SPRAY HEADER	A-1	YES, THRU NOZZLES	YES, 839B	N/A	NO	SYSTEM IS DESIGNED FOR OPERATION DURING A LOCA.
P-46	N/A	CONTAINMENT SUMP RHR RECIRCULATION	A-1	YES, OPEN- ENDED	NO	N/A	NO	TOTALLY ENCLOSED OUTSIDE CONTAINMENT. USED FOR LONG TERM CORE COOLING.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-47	N/A	CONTAINMENT SUMP RHR RECIRCULATION	A-1	YES, OPEN- ENDED	NO	N/A	NO	TOTALLY ENCLOSED OUTSIDE CONTAINMENT. USED FOR LONG TERM CORE COOLING.
P-48	S-5	SAFETY INJECTION HIGH HEAD TEST LINE	A-1	YES, 859 REMOVED	YES, 895B	YES	YES	----
P-49	S-1	HVH-2 SERVICE WATER SUPPLY	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS.
P-50	S-3	HVH-1 SERVICE WATER SUPPLY	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS.
P-51	S-5	HVH-4 SERVICE WATER SUPPLY	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS.
P-52	S-7	HVH-3 FAN COOLER SERVICE WATER DISCHARGE	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS.
P-53	S-1	HVH-2 FAN COOLER SERVICE WATER DISCHARGE	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-53A	S-10	HVH-2 MOTOR COOLER SERVICE WATER DISCHARGE	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS
P-54	S-3	HVH-2 FAN COOLER SERVICE WATER DISCHARGE	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS
P-54A	S-10	HVH-2 MOTOR COOLER SERVICE WATER DISCHARGE	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS
P-55	S-5	HVH-4 FAN COOLER SERVICE WATER DISCHARGE	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS
P-55A	S-10	HVH-4 MOTOR COOLER SERVICE WATER DISCHARGE	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS
P-56	S-7	HVH-1 FAN COOLER SERVICE WATER DISCHARGE	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS
P-56A	S-10	HVH-1 MOTOR COOLER SERVICE WATER DISCHARGE	A-2	NO	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS
P-57	S-8	AUXILIARY FEEDWATER HEADER	A-2	NO	NO	NO	NO	MISSILE PROTECTED, TOTALLY ENCLOSED, NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2

10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-58	S-11	AUXILIARY FEEDWATER WATER HEADER	A-2	NO	NO	NO	NO	MISSILE PROTECTED, TOTALLY ENCLOSED, NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
P-59	S-12	AUXILIARY FEEDWATER HEADER	A-2	NO	NO	NO	NO	MISSILE PROTECTED, TOTALLY ENCLOSED, NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
P-60	S-22	ACCUMULATOR SAMPLE LINE	A-1	YES, 955H, 955K, 955J, 955I & 955L	YES, 971E	YES	YES	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-61	S-13	CONTAINMENT SUMP PUMP DISCHARGE	A-1	YES, 1757B	YES, 1731A	YES	YES	OPEN TO CONTAINMENT ATMOSPHERE VIA PUMP SUCTION.
P-62	S-3	SAFETY INJECTION LOOP 2 COLD LEG	A-1	YES, RCS VENTED	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS.
P-63	S-5	SAFETY INJECTION LOOP 1 COLD LEG	A-1	YES, RCS VENTED	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS.
P-64	S-7	SAFETY INJECTION LOOP 3 COLD LEG	A-1	YES, RCS VENTED	NO	NO	NO	FILLED WITH WATER AND OPERATING UNDER LOCA CONDITIONS.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-65	S-12	ACCUMULATOR NITROGEN SUPPLY	A-1	YES, 853B, 883E & 883D	YES, VENT VALVE OPEN UPSTREAM OF 855 AT PIPE	N/A	N/A	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-66	S-33	CONTAINMENT TEST CHANNEL PRESSURE LINE	A-2	YES	YES, 13D & 5D	N/A	N/A	VENTED OUTSIDE TO ENSURE NO PRESSURE GRADIENT EXISTS THAT WOULD OPPOSE CV LEAKAGE.
P-67	S-25	CONTAINMENT CONTROLLED LEAKAGE TEST LINE	A-1	YES, CAP REMOVED	NO	N/A	N/A	PENETRATION USED FOR SUPERIMPOSED TEST DURING ILRT.
P-68	S-32	CONTAINMENT PRESSURE SENSING LINE	A-1	YES, OPEN- ENDED	SEE COMMENTS	N/A	N/A	SAMPLE LINES VENTED; CV PRESSURE TRANSMITTER LINES NOT VENTED SINCE THESE LINES ARE NORMALLY OPEN TO CONTAINMENT ATMOSPHERE AND ARE EXPOSED TO TYPE A TEST PRESSURE.
P-69	S-32	CONTAINMENT PRESSURE SENSING LINE	A-1	YES, OPEN- ENDED	SEE COMMENTS	N/A	N/A	SAMPLE LINES VENTED; CV PRESSURE TRANSMITTER LINES NOT VENTED SINCE THESE LINES ARE NORMALLY OPEN TO CONTAINMENT ATMOSPHERE AND ARE EXPOSED TO TYPE A TEST PRESSURE.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-70	S-32	CONTAINMENT PRESSURE SENSING LINE	A-1	YES, OPEN- ENDED	SEE COMMENTS	N/A	N/A	SAMPLE LINES VENTED; CV PRESSURE TRANSMITTER LINES NOT VENTED. SINCE THESE LINES ARE NORMALLY OPEN TO CONTAINMENT ATMOSPHERE AND ARE EXPOSED TO TYPE A TEST PRESSURE.
P-71	S-31	PENETRATION PRESSURIZATION AIR SUPPLY LINE	A-2	NO	YES, 13D & 5D	N/A	N/A	VALVES INSIDE CONTAINMENT ARE LEFT IN NORMAL POSITIONS WITH ALL PPS HEADERS DEPRESSURIZED.
P-72	S-32	DEAD WEIGHT CALIBRATOR LINE TO PRESSURE TRANSMITTER 458	A-2	NO	NO	N/A	N/A	MISSILE PROTECTED, NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
P-73	S-18	FIRE WATER SUPPLY TO RCP BAYS AND VARIOUS HOSE STATIONS	A-1	YES, VENT VALVE INSIDE CV	YES, VENT VALVE UPSTREAM OF 256	YES	YES	A PIPE RUPTURE COULD OPEN PENETRATION TO CONTAINMENT ATMOSPHERE.
P-74	S-18	FIREWATER SUPPLY TO ELECTRICAL PENETRATION AREA SPRAY HEADERS	A-1	YES, VENT VALVE INSIDE CV	YES, VENT VALVE UPSTREAM OF 248	YES	YES	-----

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT TYPE A TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	PENETRATION CATEGORY	VENTED INSIDE CONTAINMENT	VENTED OUTSIDE CONTAINMENT	DRAINED INSIDE CONTAINMENT	DRAINED OUTSIDE CONTAINMENT	COMMENTS
P-75 THRU P-80	S-18	REACTOR VESSEL LEVEL INSTRUMENTATION SYSTEM	A-1	N/A	N/A	N/A	N/A	CAPPED PENETRATIONS INSIDE AND OUTSIDE CONTAINMENT.
-	-	EQUIPMENT HATCH	A-1	N/A	N/A	N/A	N/A	PPS TO SEALS DEPRESSURIZED.
-	-	PERSONNEL AIR LOCK	A-1	N/A	N/A	N/A	N/A	PPS TO SEALS DEPRESSURIZED.

ATTACHMENT 2

10CFR50, APPENDIX J, TYPE C TESTING PROGRAM

CODES AND SYMBOLSVALVE TYPE

GL. GLOBE
 GA. GATE
 CK. CHECK
 DA. DIAPHRAGM
 REG. REGULATOR

OPERATOR TYPE

AO. AIR OPERATED
 MO MOTOR OPERATED
 M. MANUAL
 SA. SELF-ACTUATED

VALVE CATEGORY

- C-1: VALVES THAT 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.
- C-2: VALVES THAT ARE REQUIRED TO CLOSE AUTOMATICALLY ON RECEIPT OF A CONTAINMENT ISOLATION SIGNAL IN RESPONSE TO CONTROLS INTENDED TO EFFECT CONTAINMENT ISOLATION.
- C-3: VALVES REQUIRED TO OPERATE INTERMITTENTLY UNDER POST ACCIDENT CONDITIONS.
- C-4: VALVES NOT MEETING DESCRIPTIONS AND CATEGORIES OF APPENDIX J, SECTION II.H.

NOTE: FOR PENETRATIONS SERVED BY IVSW BETWEEN CONTAINMENT ISOLATION VALVES, THE CONTAINMENT BOUNDARY IS ASSUMED TO INCLUDE THE IVSW CHECK VALVE NEAREST THE PENETRATION.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-1	S-32	PRESSURIZER RELIEF TANK TO GAS ANALYZER	516	C-2	3/8	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			553	C-2	3/8	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
P-2	S-33	NITROGEN SUPPLY TO PRESSURIZER RELIEF TANK	518	C-4	3/4	CK	SA	NO	NO	NO	YES	---	
			550	C-2	3/4	DA	AO	YES, PHASE A CLOSED	NO	NO	YES	---	
			PCV-473	C-4	3/4	REG	--	FAIL CLOSED	NO	NO	YES	---	
-3	S-34	PRIMARY WATER TO PRESSURIZER RELIEF TANK	519A	C-2 C-3	3	DA	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			519B	C-2 C-3	3	DA	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
			519D	C-4	1/2	GL	M	NO	NO	NO	NO	APP. J, II.H	CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THIS VALVE.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-4	S-29	REACTOR COOLANT DRAIN TANK VENT HEADER	1786	C-2	1	DA	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J, III.C.2.b)
			1787	C-2	1	DA	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
		NITROGEN SUPPLY TO REACTOR COOLANT DRAIN TANK	1793	C-4	1	DA	M	NO	NO	NO	YES	---	
			1713	C-4	1	CK	SA	NO	NO	NO	YES	---	
P-5	S-13	REACTOR COOLANT DRAIN TANK TO GAS ANALYZER	1789	C-2	3/4	DA	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW LEAK TEST (APP. J, III.C.2.b)
			1794	C-2	3/4	DA	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-6	S-20	REACTOR COOLANT DRAIN TANK TO WASTE HOLD-UP TANK	1722	C-2	3	DA	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J, III.C.2.b)
			1721	C-2	3	DA	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
			1721A	C-4	1/2	GA	M	NO	NO	NO	NO	APP. J, II. H	THE CATEGORIES OF APP. J, SECTION II.H DO NOT APPLY TO THIS VALVE
P-7	S-40	MAIN STEAM HEADER	MS-VI 3A-ISOL	C-2 C-3	26	STOP CK	AO	YES, PHASE B CLOSED	NO	NO	NO	SEE COMMENT	THE MAIN STEAM SYSTEM IS CLOSED INSIDE CONTAINMENT AND NOT POSI ULATED TO RUPTURE AS A RESULT OF A LOCA.
			MS-VI- 3A-BY- PASS	C-4	2	GA	MO	NO	NO	NO	NO	APP. J, II. H	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-8	S-41	MAIN STEAM HEADER	MS-V1- 3B-ISOL	C-2 C-3	26	STOP CK	AO	YES, PHASE B CLOSED	NO	NO	NO	SEE COMMENT	THE MAIN STEAM SYSTEM IS CLOSED INSIDE CONTAINMENT AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
			MS-V1 3B- BYPASS	C-4	.2	GA	MO.	NO	NO	NO	NO	APP. J, II. H	
P-9	S-42	MAIN STEAM HEADER	MS-V1 3C-ISOL	C-2 C-3	26	STOP CK	AO	YES, PHASE B CLOSED	NO	NO	NO	SEE COMMENT	THE MAIN STEAM SYSTEM IS CLOSED INSIDE CONTAINMENT AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-9	S-42	MAIN STEAM HEADER	MS-VI-3C BYPASS	C-4	2	GA	MO	NO	NO	NO	NO	APP. J, II.H	
P-10	S-43	MAIN FEEDWATER HEADER	FW-8A	C-4	16	STOP CK	SA	NO	NO	NO	NO	APP. J, II. H	THE CATEGORIES OF APP. J SECTION II.H DO NOT APPLY TO THIS VALVE. THE VALVE IS NOT LEAK TESTED SINCE UPSTREAM PIPING IS CLOSED INSIDE CONTAINMENT AND NOT POSTULATED TO RUPTURE DURING A LOCA.
P-11	S-44	MAIN FEEDWATER HEADER	FW-8B	C-4	16	STOP CK	SA	NO	NO	NO	NO	APP. J, II. H	THE CATEGORIES OF APP. J SECTION II. H DO NOT APPLY TO THIS VALVE. THE VALVE IS NOT LEAK TESTED SINCE UPSTREAM PIPING IS CLOSED INSIDE CONTAINMENT AND NOT POSTULATED TO RUPTURE DURING A LOCA.
P-12	S-45	MAIN FEEDWATER HEADER	FW-8C	C-4	16	STOP CK	SA	NO	NO	NO	NO	APP. J, II. H	THE CATEGORIES OF APP. J SECTION II. H DO NOT APPLY TO THIS VALVE. THE VALVE IS NOT LEAK TESTED SINCE UPSTREAM PIPING IS CLOSED INSIDE CONTAINMENT AND NOT POSTULATED TO RUPTURE DURING A LOCA.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-13	S-30	"A" STEAM GENERATOR BLOWDOWN	FCV-1930 A	C-2	2	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			FCV-1930 B	C-2	2	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
		STEAM GENERATOR BLOWDOWN SAMPLE	FCV-1933 A	C-2 C-3	3/4	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
			FCV-1933 B	C-2 C-3	3/4	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
P-14	S-24	"B" STEAM GENERATOR BLOWDOWN	FCV-1931 A	C-2	2	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			FCV-1931 B	C-2	2	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-14	S-24	STEAM GENERATOR BLOWDOWN SAMPLE	FCV- 1934A	C-2 C-3	3/4	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			FCV- 1934B	C-2 C-3	3/4	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
P-15	S-26	STEAM GENERATOR BLOWDOWN	FCV- 1932A	C-2	2	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			FCV- 1932B	C-2	2	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
		STEAM GENERATOR BLOWDOWN SAMPLE	FCV- 1935A	C-2 C-3	3/4	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
			FCV- 1935B	C-2 C-3	3/4	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-16	S-15	RHR LOOP OUT	750	C-4	14	GA	MO	NO	NO	NO	NO	APP. J, II. H	VALVES ARE NOT DESIGNED AS CONTAINMENT ISOLATION VALVES. THE RHR SYSTEM IS IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THESE VALVES. THIS SYSTEM IS CLOSED OUTSIDE CONTAINMENT AND DOES NOT CON- STITUTE A POTENTIAL LEAK PATH.
			751	C-4	14	GA	MO	NO	NO	NO	NO	APP. J, II. H	
P-17	S-14	RHR LOOP IN	744A	C-4	10	GA	MO	NO, SI SIGNAL OPEN	NO	NO	NO	APP. J, II. H	VALVES ARE NOT DESIGNED AS CONTAINMENT ISOLATION VALVES. THE RHR SYSTEM IS IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II. H DO NOT APPLY TO THESE VALVES. THE SYSTEM IS CLOSED OUTSIDE CONTAINMENT AND DOES NOT CONSTITUTE A POTENTIAL LEAK PATH.
			744B	C-4	10	GA	MO	NO, SI SIGNAL OPEN	NO	NO	NO	APP. J, II. H	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-18	S-8	COMPONENT COOLING WATER SUPPLY	716A	C-2 C-3	6	DOUBLE DISC GA	MO	YES, PHASE B CLOSED	NO	NO	NO	SEE COMMENT	SINCE IVSW IS APPLIED BETWEEN THE DISCS OF THE UPSTREAM VALV 716B, VALVE 716A IS NOT LOCALL TESTED.
			716B	C-2 C-3	6	DOUBLE DISC GA	MO	YES, PHASE B CLOSED	YES,	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J, III.C.2.b)
P-19	S-9	COMPONENT COOLING WATER DISCHARGE	730	C-2 C-3	6	DOUBLE DISC GA	MO	YES, PHASE B CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J, III.C.2.b) THE SECOND BARRIER FOR THIS PENETRATION IS THE CLOSED SYSTEM OUTSIDE CONTAINMENT.
P-20	S-16	COMPONENT COOLING WATER DISCHARGE	FCV-626	C-2 C-3	3	GA	MO	YES, PHASE B CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J, III.C.2.b)
			735	C-2 C-3	3	GL	MO	YES, PHASE B CLOSED	YES	NO	YES	---	" "

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-21	S-35	EXCESS LETDOWN HEAT EXCHANGER COOLING WATER SUPPLY	737A	C-4	3	GA	M	NO	NO	NO	NO	APP J, II. H	LEAK RATE TEST NOT PERFORMED ON THESE VALVES. SYSTEM IS CLOSED INSIDE CONTAINMENT, NOT POSTU- LATED TO RUPTURE AS A RESULT OF A LOCA, AND DOES NOT CONSTITUTE A POTENTIAL LEAK PATH.
			738	C-4	3	CK	SA	NO	NO	NO	NO	APP.J, II. H	
P-22	S-28	EXCESS LETDOWN HEAT EXCHANGER COOLING WATER DISCHARGE	739	C-2	3	GL	AO	YES, PHASE A CLOSED	NO	NO	NO	SEE COMMENT	LEAK RATE TEST NOT PERFORMED ON THESE VALVES. SYSTEM IS CLOSED INSIDE CONTAINMENT, NOT POSTU- LATED TO RUPTURE AS A RESULT OF A LOCA, AND DOES NOT CONSTITUTE A POTENTIAL LEAK PATH.
P-23	S-27	RCS LETDOWN LINE	200A	C-2	2	GL	AO	YES, PHASE A CLOSED	NO	NO	NO	SEE COMMENT	VALVES 200A, B, AND C ARE NOT LEAK TESTED DUE TO THE INNER- SPACE BETWEEN VALVES 204A AND 204B BEING SERVED BY IVSW.
			200B	C-2	2	GL	AO	YES PHASE A CLOSED	NO	NO	NO	SEE COMMENT	
			200C	C-2	2	GL	AO	YES, PHASE A CLOSED	NO	NO	NO	SEE COMMENT	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-23	S-27	RCS LETDOWN LINE	204A	C-2	2	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			204B	C-2	2	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
P-24	S-17	CHARGING LINE	282	C-4	3	GL	M	NO	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J III, C.2.b)
			202A	C-4	3	GA	M	NO	YES	NO	YES	---	" "
			309A	C-4	2	GL	M	NO	YES	NO	YES	---	" "

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO- ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-25	S-2	"C" REACTOR COOLANT PUMP SEAL INJECTION SUPPLY	298F	C-4	2	CK	SA	NO	NO	NO	NO	APP. J, II. H	VALVE 298F NOT LEAK TESTED DUE TO UPSTREAM PIPING BEING SERVED BY IVSW. THE CATEGORIES OF APP. J Section II. H DO NOT APPLY TO THIS VALVE.
			297C	C-4	1	ND	M	NO	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			295	C-4	3	GA	M	NO	YES	NO	YES	---	" "
			292A	C-4	3/4	GL	M	NO	YES	NO	YES	---	" "
			293A	C-4	2	GL	M	NO	YES	NO	YES	---	" "
			293C	C-4	2	GL	M	NO	YES	NO	YES	---	" "
P-26	S-3	"B" REACTOR COOLANT PUMP SEAL INJECTION SUPPLY	298E	C-4	2	CK	SA	NO	NO	NO	NO	APP. J, II. H	VALVE 298E NOT LEAK TESTED DUE TO UPSTREAM PIPING BEING SERVED BY IVSW. THE CATEGORIES OF APP. J SECTION II. H DO NOT APPLY TO THIS VALVE.
			297B	C-4	1	ND	M	NO	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-26	S-3	"B" REACTOR COOLANT PUMP SEAL INJECTION	295	C-4	3	GA	M	NO	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST
			292A	C-4	3/4	GL	M	NO	YES	NO	YES	---	(APP.J,III.C.2.b) "
			293A	C-4	2	GL	M	NO	YES	NO	YES	---	" "
			293C	C-4	2	GL	M	NO	YES	NO	YES	---	" "
P-27	S-7	"A" REACTOR COOLANT PUMP SEAL INJECTION SUPPLY	298D	C-4	2	CK	SA	NO	NO	NO	NO	APP. J, II.H	VALVE 298D NOT LEAK TESTED DUE TO THE UPSTREAM PIPING BEING SERVED BY IVSW. THE CATEGORIES OF APP. J SECTION II.H DO NOT APPLY TO THIS VALVE.
			297A	C-4	1	ND	M	NO	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST
			295	C-4	3	GA	M	NO	YES	NO	YES	---	(APP.J,III.C.2.b) "
			292A	C-4	3/4	GL	M	NO	YES	NO	YES	---	" "
			293A	C-4	2	GL	M	NO	YES	NO	YES	---	" "
			293C	C-4	2	GL	M	NO	YES	NO	YES	---	" "

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-28	S-19	REACTOR COOLANT PUMP SEAL WATER RETURN	381	C-2 C-3	3	GA DOUBLE DISC	MO	YES, PHASE B CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
P-29	S-22	PRESSURIZER STEAM SPACE SAMPLE	956A	C-2	3/8	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			956B	C-2	3/8	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
P-30	S-22	PRESSURIZER LIQUID SAMPLE	956C	C-2	3/8	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			956D	C-2	3/8	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-31	S-22	RCS LOOP 2 AND 3 SAMPLE	956E	C-2 C-3	3/8	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
			956F	C-2 C-3	3/8	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
P-32	S-36	FUEL TRANSFER TUBE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	YES	YES	APP.J, III.C.1 & III.B.1.c	BLIND FLANGED INSIDE CONTAINMENT. FLANGE SEALS PRESSURIZED BY PPS. THIS PENETRATION IS TESTED UNDER TYPE B REQUIREMENTS.
P-33	S-12	CONTAINMENT INSTRUMENT AIR HEADER	V8-5	C-4	2	CK	SA	NO	NO	NO	YES	---	
			IA-PCV-1716	C-2	2	GL	AO	YES, PHASE A CLOSED	NO	NO	YES	---	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-34A	S-31	NITROGEN SUPPLY TO VALVE V12-14 OPERATOR	PAV-31	C-4	3/8	GL	M	NO	NO	NO	NO	APP.J, II.H	THE CATEGORIES OF APP. J SECTION II. H DO NOT APPLY TO THESE VALVES. THIS LINE DOES NOT CONSTITUTE A POTENTIAL LEAK PATH.
			PAV-32	C-4	3/8	GL	M	NO	NO	NO	NO	APP.J, II.H.	
P34B	S-31	NITROGEN SUPPLY TO VALVE V12-18 OPERATOR	PAV-33	C-4	3/8	GL	M	NO	NO	NO	NO	APP.J, II.H	THE CATEGORIES OF APP. J SECTION II.H DO NOT APPLY TO THESE VALVES. THIS LINE DOES NOT CONSTITUTE A POTENTIAL LEAKAGE PATH.
			PAV-34	C-4	3/8	GL	M	NO	NO	NO	NO	APP.J, II.H	
P-34C	S-31	NITROGEN SUPPLY TO VALVE V12-24A OPERATOR	PAV-35	C-4	3/8	GL	M	NO	NO	NO	NO	APP.J, II. H	THE CATEGORIES OF APP. J SECTION II. H DO NOT APPLY TO THESE VALVES. THIS LINE DOES NOT CONSTITUTE A POTENTIAL LEAKAGE PATH.
			PAV-36	C-4	3/8	GL	M	NO	NO	NO	NO	APP.J, II.H	
P-34D	S-31	NITROGEN SUPPLY TO VALVE V12-24B OPERATOR	PAV-37	C-4	3/8	GL	M	NO	NO	NO	NO	APP.J, II. H	THE CATEGORIES OF APP. J SECTION II. H DO NOT APPLY TO THESE VALVES. THIS LINE DOES NOT CONSTITUTE A POTENTIAL LEAKAGE PATH.
			PAV-38	C-4	3/8	GL	M	NO	NO	NO	NO	APP.J, II. H	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-35	S-23	CONTAINMENT AIR SAMPLE IN	RMS-3	C-2 C-3	1	DA	AO	YES, PHASE A CLOSED	NO	YES	YES	---	TEST METHOD AS PER APPENDIX J SECTION III.C.1 AND III.B.1.c.
			RMS-4	C-2 C-3	1	DA	AO	YES, PHASE A CLOSED	NO	YES	YES	---	
P-36	S-23	CONTAINMENT AIR SAMPLE OUT	RMS-1	C-2 C-3	1	DA	AO	YES, PHASE A CLOSED	NO	YES	YES	---	TEST METHOD AS PER APPENDIX J SECTIONS III.C.1 AND III.B.1.c.
			RMS-2	C-2 C-3	1	DA	AO	YES, PHASE A CLOSED	NO	YES	YES	---	
P-37	S-37	CONTAINMENT PURGE SUPPLY	V12-6	C-1 C-2	42	BF	AO	YES, PHASE A CLOSED	NO	YES	YES	---	TEST METHOD AS PER APPENDIX J SECTIONS III.C.1 AND III.B.1.c.
			V12-7	C-1 C-2	42	BF	AO	YES, PHASE A CLOSED	NO	YES	YES	---	
P-38	S-38	CONTAINMENT PURGE EXHAUST	V12-8	C-1 C-2	42	BF	AO	YES, PHASE A CLOSED	NO	YES	YES	---	TEST METHOD AS PER APPENDIX J SECTIONS III.C.1 AND III.B.1.c.
			V12-9	C-1 C-2	42	BF	AO	YES, PHASE A CLOSED	NO	YES	YES	---	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
S-25	CONTAINMENT SERVICE AIR HEADER	SA-44	C-4	2	DA	M	NO	NO	YES	YES	---	THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THESE VALVES.
		SA-43	C-4	2	DA	M	NO	NO	YES	YES	---	
S-46	POST ACCIDENT HYDROGEN VENT LINE	V12-18	C-1	3	DA	AO	NO	NO	YES	YES	---	TEST METHOD AS PER APPENDIX J SECTIONS III.C.1. AND III.B.1.c.
		V12-19	C-1	3	DA	AO	NO	NO	YES	YES	---	
S-21	CONTAINMENT PRESSURE RELIEF LINE	V12-10	C-1	6	BF	AO	YES, PHASE A CLOSED	NO	YES	YES	---	TEST METHOD AS PER APPENDIX J SECTIONS III.C.1. AND III.B.1.c.
		V12-11	C-1 C-2	6	BF	AO	YES, PHASE A CLOSED	NO	YES	YES	---	
		V12-14	C-1	3	DA	AO	NO	NO	YES	YES	---	
		V12-15	C-1	3	DA	AO	NO	NO	YES	YES	---	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

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P-42	S-39	CONTAINMENT VACUUM RELIEF LINE	V12-12	C-1 C-2	6	BF	AO	YES, PHASE A CLOSED	NO	YES	YES	---	TEST METHOD AS PER APPENDIX J SECTIONS III.C.1 AND III.B.1.c.
			V12-13	C-1 C-2	6	BF	AO	YES, PHASE A CLOSED	NO	YES	YES	---	
P-43	S-2	SAFETY INJECTION LOOP 2 AND 3 HOT LEGS	866A	C-4	2	GL	MO	NO	NO	NO	NO	APP.J, II.H	CATEGORIES OF APP.J SECTION II H DO NOT APPLY TO THESE VALVES THE SYSTEM IS IN SERVICE DURING A LOCA. P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J,III.C.2.b)
			866B	C-4	2	GL	MO	NO	NO	NO	NO	APP.J, II.H	
			869	C-4	3	GA DOUBL DISC	MO	NO	YES	NO	YES	---	
P-44	S-4	CONTAINMENT SPRAY HEADER	891A	C-4	6	GA DOUBL DISC	M	NO	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J,III.C.2.b)
P-45	S-6	CONTAINMENT SPRAY HEADER	891B	C-4	6	GA DOUBL DISC	M	NO	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J,III.C.2.b)

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-46	N/A	CONTAINMENT SUMP RHR RECIRCULATION	860A 861A	C-4 C-4	14 14	GA GA	MO MO	NO NO	NO NO	NO NO	NO NO	APP.J, II. H APP.J, II. H	DOWNSTREAM PIPING IS IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THESE VALVES.
P-47	N/A	CONTAINMENT SUMP RHR RECIRCULATION	860B 861B	C-4 C-4	14 14	GA GA	MO MO	NO NO	NO NO	NO NO	NO NO	APP.J, II. H APP.J, II.H	DOWNSTREAM PIPING IS IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THESE VALVES.
P-48	S-5	SAFETY INJECTION HIGH HEAD TEST LINE	895V 898F	C-4 C-4	3/4 3/4	GL GL	M M	NO NO	YES YES	NO NO	YES YES	--- ---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J, III.C.2.b) "
P-49	S-1	HVH-2 SERVICE WATER SUPPLY	V6-33B V6-33F 40	C-4 C-4 C-4	6 6 1	BF BF GA	MO MO M	NO NO NO	NO NO NO	NO NO NO	NO NO NO	APP.J, II.H APP.J, II.H APP.J, II.H	THIS SYSTEM IS CLOSED INSIDE CONTAINMENT, NOT POSTULATED TO RUPTURE, AND IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THESE VALVES.

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-50	S-3	HVH-1 SERVICE WATER SUPPLY	V6-33A	C-4	6	BF	MO	NO	NO	NO	NO	APP.J, II.H	THIS SYSTEM IS CLOSED INSIDE CONTAINMENT, NOT POSTULATED TO RUPTURE, AND IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II. H DO NOT APPLY TO THESE VALVES.
			41	C-4	1	GA	M	NO	NO	NO	NO	APP.J, II.H	
P-51	S-5	HVH-4 SERVICE WATER SUPPLY	V6-33D	C-4	6	BF	MO	NO	NO	NO	NO	APP.J, II.H	THIS SYSTEM IS CLOSED INSIDE CONTAINMENT, NOT POSTULATED TO RUPTURE, AND IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THESE VALVES.
			V6-33E	C-4	6	BF	MO	NO	NO	NO	NO	APP.J, II.H	
			43	C-4	1	GA	M	NO	NO	NO	NO	APP.J, II.H	
P-52	S-7	HVH-3 SERVICE WATER SUPPLY	V6-33C	C-4	6	BF	MO	NO	NO	NO	NO	APP.J, II.H	THIS SYSTEM IS CLOSED INSIDE CONTAINMENT, NOT POSTULATED TO RUPTURE, AND IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II. H DO NOT APPLY TO THESE VALVES.
			42	C-4	1	GA	M	NO	NO	NO	NO	APP.J, II.H	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-53/ 53A	S-1/ S-10	HVH-2 FAN/MOTOR COOLER SERVICE WATER DISCHARGE	548	C-4	3/4	RV	--	NO	NO	NO	NO	APP.J, II.H	THIS SYSTEM IS CLOSED INSIDE CONTAINMENT, NOT POSTULATED TO RUPTURE, AND IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THESE VALVES.
			V6-35B	C-4	1	GL	MO	NO	NO	NO	NO	APP.J, II.H	
			V6-34B	C-4	6	BF	MO	NO	NO	NO	NO	APP.J, II.H	
			V6-109	C-4	1	GA	M	NO	NO	NO	NO	APP.J, II.H	
			V6-110	C-4	1	GA	M	NO	NO	NO	NO	APP.J, II.H	
			302	C-4	2	GL	M	NO	NO	NO	NO	APP.J, II.H	
P-54/ 54A	S-3/ S-10	HVH-3 FAN/MOTOR COOLER SERVICE WATER DISCHARGE	547	C-4	3/4	RV	-	NO	NO	NO	NO	APP.J, II.H	THIS SYSTEM IS CLOSED INSIDE CONTAINMENT, NOT POSTULATED TO RUPTURE, AND IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THESE VALVES.
			V6-34C	C-4	6	BF	MO	NO	NO	NO	NO	APP.J, II.H	
			V6-35C	C-4	1	GL	MO	NO	NO	NO	NO	APP.J, II.H	
			V6-111	C-4	1	GA	M	NO	NO	NO	NO	APP.J, II.H	
			V6-112	C-4	1	GA	M	NO	NO	NO	NO	APP.J, II.H	
			303	C-4	2	GL	M	NO	NO	NO	NO	APP.J, II.H	

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P-55/ 55A	S-5/ S-10	HVV-4 FAN/MOTOR COOLER SERVICE WATER DISCHARGE	546	C-4	3/4	RV	--	NO	NO	NO	NO	APP.J, II.H	THIS SYSTEM IS CLOSED INSIDE CONTAINMENT, NOT POSTULATED TO RUPTURE, AND IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THESE VALVES.
			V6-35D	C-4	1	GL	MO	NO	NO	NO	NO	APP.J, II.H	
			V6-34D	C-4	6	BF	MO	NO	NO	NO	NO	APP.J, II.H	
			V6-113	C-4	1	GA	M	NO	NO	NO	NO	APP.J, II.H	
			304	C-4	2	GL	M	NO	NO	NO	NO	APP.J, II.H	
P-56/ 56A	S-7/ S-10	HVV-1 FAN/MOTOR COOLER SERVICE WATER DISCHARGE	549	C-4	3/4	RV	--	NO	NO	NO	NO	APP.J, II.H	THIS SYSTEM IS CLOSED INSIDE CONTAINMENT, NOT POSTULATED TO RUPTURE, AND IN SERVICE DURING A LOCA. THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THESE VALVES.
			V6-35A	C-4	1	GL	MO	NO	NO	NO	NO	APP.J, II.H	
			V6-34A	C-4	6	BF	MO	NO	NO	NO	NO	APP.J, II.H	
			V6-107	C-4	1	GA	M	NO	NO	NO	NO	APP.J, II.H	
			V6-108	C-4	1	GA	M	NO	NO	NO	NO	APP.J, II.H	
			301	C-4	2	GL	M	NO	NO	NO	NO	APP.J, II. H	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
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PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-57	S-8	AUXILIARY FEEDWATER HEADER	AFW-62	C-4	4	GA	M	NO	NO	NO	NO	APP.J, II.H	THE CATEGORIES OF APP.J SECTION II.H DO NOT APPLY TO THESE VALVES. THE SYSTEM IS CLOSED INSIDE CONTAINMENT AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
			AFW-68	C-4	4	CK	SA	NO	NO	NO	NO	APP.J, II.H	
			AFW-V2- 16A	C-4	4	GA	MO	NO	NO	NO	NO	APP.J, II.H	
P-58	S-11	AUXILIARY FEEDWATER HEADER	AFW-63	C-4	4	GA	M	NO	NO	NO	NO	APP.J, II. H	THE CATEGORIES OF APP.J SECTION II.H DO NOT APPLY TO THESE VALVES. THE SYSTEM IS CLOSED INSIDE CONTAINMENT AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
			AFW-V2- 16B	C-4	4	GA	MO	NO	NO	NO	NO	APP.J, II.H	
			AFW-69	C-4	4	CK	SA	NO	NO	NO	NO	APP.J, II.H	

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PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-59	S-12	AUXILIARY FEEDWATER HEADER	AFW-64	C-4	4	GA	M	NO	NO	NO	NO	APP.J, II. H	THE CATEGORIES OF APP.J SECTION II. H DO NOT APPLY TO THESE VALVES. THE SYSTEM IS CLOSED INSIDE CONTAINMENT AND NOT POSTULATED TO RUPTURE AS A RESULT OF A LOCA.
			AFW-70	C-4	4	CK	SA	NO	NO	NO	NO	APP.J, II.H	
			AFW-V2- 16C	C-4	4	GA	MO	NO	NO	NO	NO	APP.J, II.H	
P-60	S-22	ACCUMULATOR SAMPLE LINE	956G	C-2	3/8	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J, III.C.2.b)
			956H	C-2	3/8	GL	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "
P-61	S-13	CONTAINMENT SUMP PUMP DISCHARGE	1728	C-2	2	DA	AO	YES, PHASE A CLOSED	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP.J, III.C.2.b)
			1723	C-2	2	DA	AO	YES, PHASE A CLOSED	YES	NO	YES	---	" "

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-62	S-3	SAFETY INJECTION (LOOP 2 COLD LEG)	868B	C-4	2	GA DOUBLE DISC	M	NO	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)
P-63	S-5	SAFETY INJECTION (LOOP 1 COLD LEG)	868C	C-4	2	GA DOUBLE DISC	M	NO	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)

10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-64	S-7	SAFETY INJECTION (LOOP 3 COLD LEG)	868A	C-4	2	GA DOUBLE DISC	M	NO	YES	NO	YES	---	P.T. 2.6 IVSW SYSTEM LEAK TEST (APP. J, III.C.2.b)

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-65	S-12	ACCUMULATOR NITROGEN SUPPLY	855	C-2	1	GL	AO	YES, PHASE A CLOSED	NO	NO	YES	---	
P-66	S-33	CONTAINMENT TEST CHANNEL PRESSURE LINE	284D	C-4	3/8	GL	M	NO	NO	NO	NO	APP. J, II.H	VALVES ARE LOCKED CLOSED AND DO NOT FALL IN CATEGORIES LISTED IN APPENDIX J, SECTION II.H
			285D	C-4	3/8	GL	M	NO	NO	NO	NO	APP. J, II.H	
P-67	S-25	CONTAINMENT CONTROLLED LEAKAGE TEST LINE	VCT-13	C-1	2	GA	M	NO	NO	NO	YES	APP. J, II.H	THIS PENETRATION IS CAPPED IN- SIDE CONTAINMENT. HOWEVER, IT IS UNCAPPED AND USED AS AN IN- STRUMENTATION LINE DURING AN ILRT AND THEREFORE IS REQUIRED TO BE LOCALLY TESTED
P-68	S-32	CONTAINMENT PRES- SURE SENSING LINE	VCT-17	C-4	3/8	GL	M	NO	NO	NO	NO	APP. J, II.H	OPEN DURING LOCA AND TYPE A TEST
			VCT-20	C-3	3/8	GL	M	NO	NO	NO	YES	-	
			PAS-5	C-3	3/8	GL	M	NO	NO	NO	YES	-	
			PAS-6	C-3	3/8	GL	M	NO	NO	NO	YES	-	
			CONTAIN- MENT VESSEL PRESSURE TRANS- MITTER VALVES (2)	C-4	3/8	GL	M	NO	NO	NO	NO	APP. J, II.H	
			VCT-23	C-1	3/8	GL	M	NO	NO	NO	YES	-	OPEN DURING LOCA AND TYPE A TEST

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-69	S-32	CONTAINMENT PRES- SURE SENSING LINE	VCT-15	C-4	3/8	GL	M	NO	NO	NO	NO	APP. J, II.H	OPEN DURING LOCA AND TYPE A TEST
			VCT-18	C-3	3/8	GL	M	NO	NO	NO	YES	-	
			PAS-1	C-3	3/8	GL	M	NO	NO	NO	YES	-	
			PAS-2	C-3	3/8	GL	M	NO	NO	NO	YES	-	
			CONTAIN- MENT PRESSURE TRANS- MITTER VALVES (2)	C-4	3/8	GL	M	NO	NO	NO	NO	APP. J, II.H	OPEN DURING LOCA AND TYPE A TEST
			VCT-22	C-1	3/8	GL	M	NO	NO	NO	YES	-	
P-70	S-32	CONTAINMENT PRES- SURE SENSING LINE	VCT-16	C-4	3/8	GL	M	NO	NO	NO	NO	APP. J, II.H	OPEN DURING LOCA AND TYPE A TEST
			VCT-19	C-3	3/8	GL	M	NO	NO	NO	YES	-	
			PAS-3	C-3	3/8	GL	M	NO	NO	NO	YES	-	
			PAS-4	C-3	3/8	GL	M	NO	NO	NO	YES	-	
			CONTAIN- MENT PRESSURE TRANS- MITTER VALVES (2)	C-4	3/8	GL	M	NO	NO	NO	NO	APP. J, II.H	OPEN DURING LOCA AND TYPE A TEST
			VCT-21	C-1	3/8	GL	M	NO	NO	NO	YES	-	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

PENETRATION NUMBER	SLEEVE NUMBER	DESCRIPTION	VALVE IDENTIFICATION	VALVE CATEGORY	SIZE	TYPE	ACTUATOR TYPE	AUTO. ACTUATED FOR CV ISOLATION	RECEIVES IVSW	RECEIVES PPS	LLRT PERFORMED	LLRT EXEMPTION BASIS	COMMENTS
P-71	S-31	PENETRATION PRES- SURIZATION AIR SUPPLY LINE	275D	C-4	3/8	GL	M	NO	NO	YES	YES	-	PENETRATION IS CONSTANTLY PRESSURIZED BY PPS. ANY LEAK- AGE IS MONITORED BY PPS HEADER "D" FLOWMETER.
			274D	C-4	3/8	GL	M	NO	NO	YES	YES	-	
P-72	S-32	DEAD WEIGHT CALI- BRATOR LINE TO PRESSURE TRANS- MITTER 458	DWC-1	C-4	3/8	GL	M	NO	NO	NO	NO	APP. J, II.H	THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THIS VALVE. THE CATEGORIES OF APPENDIX J SECTION II.H DO NOT APPLY TO THIS VALVE.
			DWC-2	C-4	3/8	GL	M	NO	NO	NO	NO	APP. J, II.H	
P-73	S-18	FIREWATER SUPPLY TO RCP BAYS AND VARIOUS HOSE STATIONS.	FP-258	C-2	4	GA	MO	YES, PHASE A CLOSED	NO	NO	YES	-	
			FP-256	C-2	4	GA	MO	YES, PHASE A CLOSED	NO	NO	YES	-	
P-74	S-18	FIRE PROTECTION SYSTEM TO ELECTRI- CAL PENETRATION AREA SPRAY HEADERS	FP-249	C-2	4	GA	MO	YES, PHASE A CLOSED	NO	NO	YES	-	
			FP-248	C-2	4	GA	MO	YES, PHASE A CLOSED	NO	NO	YES	-	

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2

10CFR50, APPENDIX J CONTAINMENT ISOLATION VALVE TYPE C TESTING PROGRAM

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ATTACHMENT 3

10CFR50, APPENDIX J

APPENDIX J

PRIMARY REACTOR CONTAINMENT LEAKAGE TESTING FOR WATER-COOLED POWER REACTORS

- I. Introduction.
- II. Explanation of terms.
- III. Leakage test requirements.
 - A. Type A test.
 - B. Type B test.
 - C. Type C test.
 - D. Periodic retest schedule.
- IV. Special test requirements.
 - A. Containment modifications.
 - B. Multiple leakage-barrier containments.
- V. Inspection and reporting of tests.
 - A. Containment inspection.
 - B. Report of test results.

I. INTRODUCTION

One of the conditions of all operating licenses for water-cooled power reactors as specified in § 50.54(o) is that primary reactor containments shall meet the containment leakage test requirements set forth in this appendix. These test requirements provide for preoperational and periodic verification by tests of the leak-tight integrity of the primary reactor containment, and systems and components which penetrate containment of water-cooled power reactors, and establish the acceptance criteria for such tests. The purposes of the tests are to assure that (a) leakage through the primary reactor containment and systems and components penetrating primary containment shall not exceed allowable leakage rate values as specified in the technical specifications or associated bases and (b) periodic surveillance of reactor containment penetrations and isolation valves is performed so that proper maintenance and repairs are made during the service life of the containment, and systems and components penetrating primary containment. These test requirements may also be used for guidance in establishing appropriate containment leakage test requirements in technical specifications or associated bases for other types of nuclear power reactors.

II. EXPLANATION OF TERMS

- A. "Primary reactor containment" means the structure or vessel that encloses the components of the reactor coolant pressure boundary, as defined in § 50.2(v), and serves as an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment.
- B. "Containment isolation valve" means any valve which is relied upon to perform a containment isolation function.
- C. "Reactor containment leakage test program" includes the performance of Type A, Type B, and Type C tests, described in II.F, II.G, and II.H, respectively.
- D. "Leakage rate" for test purposes is that leakage which occurs in a unit of time, stated as a percentage of weight of the original content of containment air at the leakage rate test pressure that escapes to the outside atmosphere during a 24-hour test period.
- E. "Overall integrated leakage rate" means that leakage rate which obtains from a summation of leakage through all potential leakage paths including containment welds, valves, fittings, and components which penetrate containment.
- F. "Type A Tests" means tests intended to measure the primary reactor containment overall integrated leakage rate (1) after the containment has been completed and is ready for operation, and (2) at periodic intervals thereafter.
- G. "Type B Tests" means tests intended to detect local leaks and to measure leakage across each pressure-containing or leakage-limiting boundary for the following primary reactor containment penetrations:
 1. Containment penetrations whose design incorporates resilient seals, gaskets, or sealant compounds, piping penetrations fitted with expansion bellows, and electrical penetrations

fitted with flexible metal seal assemblies.

2. Air lock door seals, including door operating mechanism penetrations which are part of the containment pressure boundary.

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

4. Components other than those listed in II.G.1, II.G.2, or II.G.3 which must meet the acceptance criteria in III.B.3.

H. "Type C Tests" means tests intended to measure containment isolation valve leakage rates. The containment isolation valves included are those that:

1. 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;
2. Are required to close automatically upon receipt of a containment isolation signal in response to controls intended to effect containment isolation;

3. Are required to operate intermittently under postaccident conditions; and
4. Are in main steam and feedwater piping and other systems which penetrate containment of direct-cycle boiling water power reactors.

I. Pa. (p.s.i.g.) means the calculated peak containment internal pressure related to the design basis accident and specified either in the technical specification or associated bases.

J. Pt. (p.s.i.g.) means the containment vessel reduced test pressure selected to measure the integrated leakage rate during periodic Type A tests.

K. La. (percent/24 hours) means the maximum allowable leakage rate at pressure Pa as specified for preoperational tests in the technical specifications or associated bases, and as specified for periodic tests in the operating license.

L. Ld. (percent/24 hours) means the design leakage rate at pressure Pa, as specified in the technical specifications or associated bases.

M. Lt. (percent/24 hours) means the maximum allowable leakage rate at pressure Pt derived from the preoperational test data as specified in III.A.4.(a) (III).

N. L_{am}, L_{tm} (percent/24 hours) means the total measured containment leakage rates at pressure Pa and Pt, respectively, obtained from testing the containment with components and systems in the state as close as practical to that which would exist under design basis accident conditions (e.g., vented, drained, flooded or pressurized).

O. "Acceptance criteria" means the standard against which test results are to be compared for establishing the functional acceptability of the containment as a leakage limiting boundary.

III. LEAKAGE TESTING REQUIREMENTS

A program consisting of a schedule for conducting Type A, B, and C tests shall be developed for leak testing the primary reactor containment and related systems and components penetrating primary containment pressure boundary.

Upon completion of construction of the primary reactor containment, including installation of all portions of mechanical, fluid, electrical, and instrumentation systems penetrating the primary reactor containment pressure boundary, and prior to any reactor operating period, preoperational and periodic leakage rate tests, as applicable, shall be conducted in accordance with the following:

A. Type A test—1. Pretest requirements. (a) Containment inspection in accordance with V.A. shall be performed as a prerequisite to the performance of Type A tests. During the period between the initiation of the containment inspection and the performance of the Type A test, no repairs or adjustments shall be made so that the containment can be tested in as close to the "as is" condition as practical. During the period between the

38 FR 4385

38 FR 4385

completion of one Type A test and the initiation of the containment inspection for the subsequent Type A test, repairs or adjustments shall be made to components whose leakage exceeds that specified in the technical specification as soon as practical after identification. If during a Type A test, including the supplemental test specified in III.A.3.(b), potentially excessive leakage paths are identified which will interfere with satisfactory completion of the test, or which result in the Type A test not meeting the acceptance criteria III.A.4.(b) or III.A.5.(b), the Type A test shall be terminated and the leakage through such paths shall be measured using local leakage testing methods. Repairs and/or adjustments to equipment shall be made and a Type A test performed. The corrective action taken and the change in leakage rate determined from the tests and overall integrated leakage determined from the local leak and Type A tests shall be included in the report submitted to the Commission as specified in V.B.

(b) Closure of containment isolation valves for the Type A test shall be accomplished by normal operation and without any preliminary exercising or adjustments (e.g., no tightening of valve after closure by valve motor). Repairs of malfunctioning or leaking valves shall be made as necessary. Information on any valve closure malfunction or valve leakage that requires corrective action before the test, shall be included in the report submitted to the Commission as specified in V.B.

(c) The containment test conditions shall stabilize for a period of about 4 hours prior to the start of a leakage rate test.

(d) Those portions of the fluid systems that are part of the reactor coolant pressure boundary and are open directly to the containment atmosphere under post-accident conditions and become an extension of the boundary of the containment shall be opened or vented to the containment atmosphere prior to and during the test. Portions of closed systems inside containment that penetrate containment and rupture as a result of a loss of coolant accident shall be vented to the containment atmosphere. 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 air test pressure and to assure they will be subjected to the post-accident differential pressure. Systems that are required to maintain the plant in a safe condition during the test shall be operable in their normal mode, and need not be vented. Systems that are normally filled with water and operating under post-accident conditions, such as the containment heat removal system, need not be vented. However, the containment isolation valves in the systems defined in III.A.1.(d) shall be tested in accordance with III.C. The measured leakage rate from these tests shall be reported to the Commission.

2. *Conduct of tests.* Preoperational leakage rate tests at either reduced or at peak pressure, shall be conducted at the intervals specified in III.D.

3. *Test methods.* (a) All Type A tests shall be conducted in accordance with the provisions of the American National Standard N454-1972, Leakage Rate Testing of Containment Structures for Nuclear Reactors, March 16 1972.¹ The method chosen for the

initial test shall normally be used for the periodic tests.

(b) The accuracy of any Type A test shall be verified by a supplemental test. An acceptable method is described in Appendix C of ANSI N454-1972. The supplemental test method selected shall be conducted for sufficient duration to establish accurately the change in leakage rate between the Type A and supplemental test. Results from this supplemental test are acceptable provided the difference between the supplemental test data and the Type A test data is within 0.25 La (or 0.25 Lt). If results are not within 0.25 La (or 0.25 Lt), the reason shall be determined, corrective action taken, and a successful supplemental test performed.

(c) Test leakage rates shall be calculated using absolute values corrected for instrument error.

4. *Preoperational leakage rate tests.* (a) *Test pressure.*—(1) *Reduced pressure tests.* (i) An initial test shall be performed at a pressure Pt, not less than 0.50 Pa to measure a leakage rate Ltm.

(ii) A second test shall be performed at pressure Pa to measure a leakage rate Lam.

(iii) The leakage characteristics yielded by measurements Ltm and Lam shall establish the maximum allowable test leakage rate Lt not more than La (Ltm/Lam). In the event Ltm/Lam is greater than 0.7, Lt shall be specified as equal to La (Pt/Pa)^{1/2}.

(2) *Peak pressure tests.* A test shall be performed at pressure Pa to measure the leakage rate Lam.

(b) *Acceptance criteria.*—(1) *Reduced pressure tests.* The leakage rate Ltm shall be less than 0.75 Lt.

(2) *Peak pressure tests.* The leakage rate Lam shall be less than 0.75 La and not greater than Lt.

5. *Periodic leakage rate tests.* (a) *Test pressure.* (1) *Reduced pressure tests* shall be conducted at Pt.

(2) *Peak pressure tests* shall be conducted at Pa.

(b) *Acceptance criteria.*—(1) *Reduced pressure tests.* The leakage rate Ltm shall be less than 0.75 Lt. If local leakage measurements are taken to effect repairs in order to meet the acceptance criteria, these measurements shall be taken at a test pressure Pt.

(2) *Peak pressure tests.* The leakage rate* Lam shall be less than 0.75 La. If local leakage measurements are taken to effect repairs in order to meet the acceptance criteria, these measurements shall be taken at a test pressure Pa.

6. *Additional Requirements.* (a) If any periodic Type A test fails to meet the applicable acceptance criteria in III.A.5.(b), the test schedule applicable to subsequent Type A tests will be reviewed and approved by the Commission.

(b) If two consecutive periodic Type A tests fail to meet the applicable acceptance criteria in III.A.5.(b), notwithstanding the periodic retest schedule of III.D., a Type A test shall be performed at each plant shutdown for refueling or approximately every 18 months, whichever occurs first, until two consecutive Type A tests meet the acceptance criteria in III.A.5.(b), after which time the retest schedule specified in III.D. may be resumed.

B. *Type B tests.*

1. *Test methods.* Acceptable means of performing preoperational and periodic Type B tests include:

(a) Examination by halide leak-detection method (or by other equivalent test methods such as mass spectrometer) of a test chamber, pressurized with air, nitrogen, or pneumatic fluid specified in the technical specifications or associated bases and constructed as part of individual containment penetrations.

(b) Measurement of the rate of pressure loss of the test chamber of the containment penetration pressurized with air, nitrogen, or pneumatic fluid specified in the technical specifications or associated bases.

(c) Leakage surveillance by means of a permanently installed system with provisions for continuous or intermittent pressurization of individual or groups of containment penetrations and measurement of rate of pressure loss of air, nitrogen, or pneumatic fluid specified in the technical specification or associated bases through the leak paths.

2. *Test: Pressure.* All preoperational and periodic Type B tests shall be performed by local pneumatic pressurization of the containment penetrations, either individually or in groups, at a pressure not less than Pa.

3. *Acceptance criteria.* (See also Type C tests.) (a) The combined leakage rate of all penetrations and valves subject to Type B and C tests shall be less than 0.60 La, with the exception of the valves specified in III.C.3.

(b) Leakage measurements obtained through component leakage surveillance systems (e.g., continuous pressurization of individual containment components) that maintains a pressure not less than Pa at individual test chambers of containment penetrations during normal reactor operation, are acceptable in lieu of Type B tests.

C. *Type C tests.*

1. *Test method.* Type C tests shall be performed by local pressurization. The pressure shall be applied in the same direction as that when the value would be required to perform its safety function, unless it can be determined that the results from the tests for a pressure applied in a different direction will provide equivalent or more conservative results. The test methods in III.B.1 may be substituted where appropriate. Each valve to be tested shall be closed by normal operation and without any preliminary exercising or adjustments (e.g., no tightening of valve after closure by valve motor).

2. *Test: pressure.* (a) Valves, unless pressurized with fluid (e.g., water, nitrogen) from a seal system, shall be pressurized with air or nitrogen at a pressure of Pa.

(b) Valves, which are sealed with fluid from a seal system shall be pressurized with that fluid to a pressure not less than 1.10 Pa.

3. *Acceptance criterion.* The combined leakage rate for all penetrations and valves subject to Type B and C tests shall be less than 0.60 La. Leakage from containment isolation valves that are sealed with fluid from a seal system may be excluded when determining the combined leakage rate: *Provided, That:*

(a) Such valves have been demonstrated to have fluid leakage rates that do not exceed those specified in the technical specifications or associated bases, and

(b) The installed isolation valve seal-water system fluid inventory is sufficient to assure the sealing function for at least 30 days at a pressure of 1.10 Pa.

D. *Periodic retest schedule.*—1. *Type A test.* (a) After the preoperational leakage rate tests, a set of three Type A tests shall be performed, 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 plant in-service inspections.²

¹ ANSI N454-1972 Leakage Rate Testing of Containment Structures for Nuclear Reactors (dated Mar. 16, 1972). Copies may be obtained from the American Nuclear Society, 244 East Ogden Avenue, Hinsdale, IL 60521. A copy is available for inspection at the Commission's Public Document Room, 1717 H Street NW., Washington, DC. The incorporation by reference was approved by the Director of the Federal Register on October 30, 1972.

*Amended 38 FR 5997.

² Such in-service inspections are required by § 50.55a.

2. Type B Tests.

(a) Type B tests, except tests for air locks, shall be performed during reactor shutdown for refueling, or other convenient intervals, but in no case at intervals greater than 2 years. If opened following a Type A or B test, containment penetrations subject to Type B testing shall be Type B tested prior to returning the reactor to an operating mode requiring containment integrity. For primary reactor containment penetrations employing a continuous leakage monitoring system, Type B tests, except for tests of air locks, may, notwithstanding the test schedule specified under III.D.1., be performed every other reactor shutdown for refueling but in no case at intervals greater than 3 years.

(b)(i) Air locks shall be tested prior to initial fuel loading and at 6-month intervals thereafter at an internal pressure not less than P_r .

(ii) Air locks opened during periods when containment integrity is not required by the plant's Technical Specifications shall be tested at the end of such periods at not less than P_r .

(iii) Air locks opened during periods when containment integrity is required by the plant's Technical Specifications shall be tested within 3 days after being opened. For air lock doors opened more frequently than once every 3 days, the air lock shall be tested at least once every 3 days during the period of frequent openings. For air lock doors having testable seals, testing the seals fulfills the 3-day test requirements. In the event that the testing for this 3-day interval cannot be at P_r , the test pressure shall be as stated in the Technical Specifications. Air lock door seal testing shall not be substituted for the 6-month test of the entire air lock at not less than P_r .

(iv) The acceptance criteria for air lock testing shall be stated in the Technical Specifications.

3. Type C tests. Type C tests shall be performed during each reactor shutdown for refueling but in no case at intervals greater than 2 years.

IV. SPECIAL TESTING REQUIREMENTS

A. Containment modification. Any major modification, replacement of a component which is part of the primary reactor containment boundary, or resealing a seal-welded door, performed after the preoperational leakage rate test shall be followed by either a Type A, Type B, or Type C test, as applicable for the area affected by the modification. The measured leakage from this test shall be included in the report to the Com-

mission, required by V.A. The acceptance criteria of III.A.5.(b), III.B.3., or III.C.3., as appropriate, shall be met. Minor modifications, replacements, or resealing of seal-welded doors, performed directly prior to the conduct of a scheduled Type A test do not require a separate test.

B. Multiple leakage barrier or subatmospheric containments. The primary reactor containment barrier of a multiple barrier or subatmospheric containment shall be subjected to Type A tests to verify that its leakage rate meets the requirements of this appendix. Other structures of multiple barrier or subatmospheric containments (e.g., secondary containments for boiling water reactors and shield buildings for pressurized water reactors that enclose the entire primary reactor containment or portions thereof) shall be subject to individual tests in accordance with the procedures specified in the technical specifications, or associated bases.

V. INSPECTION AND REPORTING OF TESTS*

A. Containment inspection. A general inspection of the accessible interior and exterior surfaces of the containment structures and components shall be performed prior to any Type A test to uncover any evidence of structural deterioration which may affect either the containment structural integrity or leak-tightness. If there is evidence of structural deterioration, Type A tests shall not be performed until corrective action is taken in accordance with repair procedures, nondestructive examinations, and tests as specified in the applicable code specified in § 50.55a at the commencement of repair work. Such structural deterioration and corrective actions taken shall be reported as part of the test report, submitted in accordance with V.B.

B. Report of test results. 1. The preoperational and periodic tests shall be the subject of a summary technical report submitted to the Director of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Wash. DC: 20555,† approximately 3 months after the conduct of each test. The report shall be titled, "Reactor Containment Building Integrated Leak Rate Test."

2. The report on the preoperational test shall include a schematic arrangement of the leakage rate measurement system, the instrumentation used, the supplemental test method, and the test program selected as applicable to the preoperational test, and all subsequent periodic tests. The report shall contain an analysis and interpretation of the leakage rate test data for the Type A test results to the extent necessary to demonstrate the acceptability of the containment's leakage rate in meeting the acceptance criteria.

3. For each periodic test, leakage test results from Type A, B, and C tests shall be reported. The report shall contain an analysis and interpretation of the Type A test results and a summary analysis of periodic Type B and Type C tests that were performed since the last Type A test. Leakage test results from Type A, B, and C tests that failed to meet the acceptance criteria of III.A.5.(b), III.B.3., and III.C.3., respectively, shall be reported in a separate accompanying summary report that includes an analysis and interpretation of the test data, the least-squares fit analysis of the test data, the instrumentation error analysis, and the structural conditions of the containment or components, if any, which contributed to the failure in meeting the acceptance criteria. Results and analyses of the supplemental verification test employed to demonstrate the validity of the leakage rate test measurements shall also be included.

* Amended 38 FR 5997.

† Amended 41 FR 16445.