NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL
(TEMPORARY FORM)

CONTROL NO: 10142

FILE:

FROM:	DATE OF DOC	DATE REC'D	LTR	TWX	RPT	OTHER
Northern States Power Co Minneapolis, Minn L.O. Mayer	9-19-75	9-25- 75	xxx			

TO:	ORIG	CC	OTHER	SENT NRC PDR	SENT LOCAL PDR
Mr. Karl R. Goller	1-signed			xxx	xxx

CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D	DOCKET NO:
	xxx				50-263

DESCRIPTION:

Ltr our 8-5-75 ltr requesting NSP to determine if containment leakage testing at the Monticello Nuclear Generating Plant conforms to 10CFR50, Appendix J ..... trans the following:

ENCLOSURES:

Table 1 10CFR50 Appendix J Requirements
Table 2 Monticello Containment Penetrations

(40 cys enc'l rec'd)

ACKNOWLEDGED
DO NOT REMOVE

PLANT NAME: Monticello

FOR ACTION/INFORMATION 9-25-75 JGB

BUTLER (L) W/ Copies	SCHWENCER (L) W/ Copies	ZIEMANN (L) W/ Copies	REGAN (E) W/ Copies	REID (L) W/ COPIES
CLARK (L) W/ Copies	STOLZ (L) W/ Copies	DICKER (E) W/ Copies	LEAR (L) W/ Copies	
PARR (L) W/ Copies	VASSALLO (L) W/ Copies	KNIGHTON (E) W/ Copies	SPIES W/ Copies	
KNIEL (L) W/ Copies	PURPLE (L) W/ Copies	YOUNGBLOOD (E) W/ Copies	LPM W/ Copies	

INTERNAL DISTRIBUTION

REG FILE	TECH REVIEW	DENTON	LIC ASST	A/T IND
NRC PDR	SCHROEDER	GRIMES	R. DIGGS (L)	BRAITMAN
OGC, ROOM P-506A	MACCARY	GAMMILL	H. GEARIN (L)	SALTZMAN
GOSSICK/STAFF	KNIGHT	KASTNER	E. GOULBOURNE (L)	MELTZ
CASE	PAWLICKI	BALLARD	P. KREUTZER (E)	
GIAMBUSSO	SHAO	SPANGLER	J. LEE (L)	PLANS
BOYD	STELLO		M. RUSHBROOK (L)	MCDONALD
MOORE (L)	HOUSTON	ENVIRO	S. REED (E)	CHAPMAN
DEYOUNG (L)	NOVAK	MULLER	M. SERVICE (L)	DUBE (Ltr)
SKOVHOLT (L)	ROSS	DICKER	S. SHEPPARD (L)	E. COUPE
GOLLER (L) (Ltr)	IPPOLITO	KNIGHTON	M. SLATER (E)	PETERSON
P. COLLINS	TEDESCO	YOUNGBLOOD	H. SMITH (L)	HARTFIELD (2)
DENISE	J. COLLINS	REGAN	S. TEETS (L)	KLECKER
REG OPR	LAINAS	PROJECT LDR	G. WILLIAMS (E)	EISENHUT
FILE & REGION (2)	BENAROYA	Baer	V. WILSON (L)	WIGGINTON
MIPC	VOLLMER	HARLESS	R. INGRAM (L)	
			M. DUNCAN (E)	

EXTERNAL DISTRIBUTION

1 – LOCAL PDR Minneapolis, Minn		
1 – TIC (ABERNATHY) (1)(2)(10)	– NATIONAL LABS	1 – PDR-SAN/LA/NY
1 – NSIC (BUCHANAN)	1 – W. PENNINGTON, Rm E-201 GT	1 – BROOKHAVEN NAT LAB
1 – ASLB	1 – CONSULTANTS NEWMARK/BLUME/AGBABIAN	1 – G. ULRIKSON ORNL
1 – Newton Anderson		
1 – ACRS HOLDING/SENT		

to h. A.

NSP

NORTHERN STATES POWER COMPANY

MINNEAPOLIS, MINNESOTA 55401

September 19, 1975

Mr Karl R Goller
Assistant Director for
Operating Reactors
Division of Reactor Licensing
U S Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr Goller:

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Monticello Compliance with the Requirements of 10CFR 50 Appendix J

In your letter of August 5, 1975 you requested us to determine if containment leakage testing at the Monticello Nuclear Generating Plant conforms to 10CFR50, Appendix J. We were asked to identify any design features that do not permit conformance with the requirements of Appendix J or any existing Technical Specifications which are less restrictive than Appendix J. In the event Monticello is not in full compliance with Appendix J, we were asked to identify planned actions and our schedule to attain conformance to the Regulation.

A preliminary study has been completed of the Monticello containment leakage testing program. A summary of a comparison of the existing program to the requirements of Appendix J is presented in Table 1. A number of deviations from Appendix J arise because of conflicts between the present Monticello Technical Specifications and the Regulation. The major deviation, however, involves a small number of containment isolation valves which may be construed to required periodic Type C tests, but have design features which preclude such tests. As noted in Table 1, departures from Appendix J include:

a. Table 1, Item 1 - A conflict with the Technical Specifications exists in the retesting required after a Type A test failure.

b. Table 1, Item 4 - Appendix J requires all fluid systems which are or may be open to the containment atmosphere following an accident to be drained and vented during Type A tests except for systems required to keep the plant in a safe condition and systems which are normally filled with water and in operation under post-accident conditions. During testing at Monticello, all required systems are drained and vented with the exception of:

1. The CRD return line is not drained and vented. Lowering the water in the reactor vessel to expose this penetration would place the plant in an unsafe condition. All other vessel nozzles associated with fluid systems penetrating containment are exposed. One of the two check valves serving as containment isolation valves in the CRD return line is not testable, however.

2. The Reactor Building Closed Cooling Water System serving the drywell coolers is left in service during the Type A test as permitted by Appendix J. The drywell isolation valves are not testable, however.

c. Table 1, Items 5, 11, and 18 - A conflict with the Technical Specifications exists in the frequency for conducting Type A tests. Under certain circumstances, the frequency required by the Technical Specifications is less restrictive than that required by Appendix J.

d. Table 1, Item 13 - A conflict with the Technical Specifications exists in the permissible test pressure for air lock leakage tests. The Technical Specifications permit this testing to be accomplished at 10 psig.

e. Table 1, Item 15 - Penetrations which may be construed as being subject to Type C tests in accordance with Section II.H of Appendix J are not testable. A list of all Monticello containment penetrations and the testing required by Appendix J is included in Table 2. Valves which cannot be tested due to system design features include:

   1. Instrument air isolation control valve
   2. Cooling water supply check valve
   3. Cooling water return isolation valve
   4. TIP ball valves (3)
   5. TIP purge supply isolation valves
   6. CRD hydraulic return inboard check valve
   7. Standby liquid control inboard check valve
   8. Torus spray isolation valves (6)

   Differences in interpretation of Section II.H of Appendix J could affect this list, however.

f. Table 1, Item 16 - A conflict with the Technical Specifications exists in the test pressure used in Type C tests of main steam isolation valves.

To fully conform to Appendix J will require a number of Technical Specification changes, possible design changes involving provisions for testing containment isolation valves, and possible requests for exemption from the requirements of Appendix J.

The following actions and schedule to attain conformance to the Regulation are planned:

a. A License Amendment Request will be submitted prior to December 31, 1975 to revise the Monticello Technical Specifications to conform to Appendix J in those areas where plant design permits. Technical Specifications which have been recently issued to new BWR's and which conform to Appendix J will be used as a guide in preparing the change request.

b. Systems containing containment isolation valves which may require Type C tests in accordance with the definition contained in Section II.H of Appendix J will be analyzed in detail and appropriate design changes will be initiated or a request for exemption from the requirements of Appendix J will be submitted to the Commission in conformance with the provisions of 10CFR50.12. If design changes are required as a result of these analyses, modifications will be accomplished in conformance with the provisions of 10CFR50.109. The results of these detailed analyses will be submitted to the Commission by March 31, 1976 and will include a schedule for completion of modifications that are deemed necessary. Requests for exemption from the requirements of Appendix J will also be submitted by March 31, 1976 in cases where they are deemed appropriate.

The Monticello containment leakage testing program is now conducted in accordance with the Technical Specifications. This testing program includes all of the essential features of Appendix J and provides a high degree of assurance that the Monticello containment system will perform as required in the event of an accident.

Yours very truly,

L. O. Mayer

L O Mayer, PE
Manager of Nuclear Support Services

LOM/DMM/ak

cc: J G Keppler
G Charnoff
Minnesota Pollution Control Agency
Attn: J W Ferman

Attachments

Table 1 10CFR50 Appendix J Requirements

Item No.	Appendix J Section No.	Requirement	Compliance Yes	Compliance No	Remarks
1	III.A.1 (a)	***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 eo that the containment can be tested in as close to the "as is" condition as practical. During the period between the 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.**		X	Procedures are in full compliance with III.A.1 (a) with the exception that Technical Specification 4.7.A.2 (c) states that if leak repairs are needed to meet the allowable operational leak rate, the Type A test need not be repeated provided Type B and Type C tests, when used to adjust the initial Type A test result, yield an acceptable leakage rate.

Table 1 10CFR50 Appendix J Requirments (contd)

Item No.	Appendix J Section No.	Requirement	Compliance Yes	Compliance No	Remarks
2	III.A.1 (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 maloperating 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.	X		
3	III.A.1 (c)	(c) The containment test conditions shall stabilize for a period of about 4 hours prior to the start of a leakage rate test.	X		
4	III.A.1 (d)	(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.		X	All fluid systems which are open to the containment atmosphere during post-accident conditions, or which may rupture as the result of the accident, except the RHR and ECCS systems, are vented and exposed to test pressure with the exception of: a. Reactor water level is lowered to expose all vessel penetrations except the CRD return line. Reducing water level below this penetration is deemed to be unsafe. One of the two isolation valves is not testable, however. b. Cooling water to the drywell coolers is left in service as permitted by Section III.A.1(d). The isolation valves are not testable, however. c. Instrument lines are not drained for the test since this would place the plant in an unsafe condition. Lines are equipped with testable excess flow check valves.

Table 1 10CFR50 Appendix J Requirments (contd)

Item No.	Appendix J Section No.	Requirement	Compliance Yes	Compliance No	Remarks
5	III.A.2	**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.**		X	The Type A test frequency contained in Technical Specification 4.7.A.2 (d) is in conflict with the frequency stated in Section III.D of Appendix J.
6	III.A.3 (a)	**3. *Test methods.* (a) All Type A tests shall be conducted in accordance with the provisions of the American National Standard N45.4-1972, 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.**	X		The test procedure fully complies with ANSI N45.4-1972.
7	III.A.3 (b)	**(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 N45.4-1972. The supplemental test method selected shall be conducted for sufficient duration to establish acurately 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.**	X		The supplemental test specified in Appendix C of ANSI N45.4-1972 is conducted.
8	III.A.3 (c)	**(c) Test leakage rates shall be calculated using absolute values corrected for instrument error.**	X		Leakage rates are calculated using the reference vessel method specified in Section 7.10 of ANSI N45.4-1972.

Table 1 10CFR50 Appendix J Requirements (contd)

Item No.	Appendix J Section No.	Requirement	Compliance Yes	Compliance No	Remarks
9	III.A.4 (a)	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 of 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 presure 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 Ld.	X		No reduced pressure preoperational Type A test was conducted at Monticello. Peak pressure tests are required by Technical Specification 4.7.A.2 (a)(1) and conform to Section III.A.4 (a) (2).
10	III.A.5	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 shall be conducted 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.	X		Periodic Type A leakage rate tests conform to Section III.A.5 (a) (2) and Section III.A.5 (b) (2).

Table 1 10CFR50 Appendix J Requirments (contd)

Item No.	Appendix J Section No.	Requirement	Compliance Yes	Compliance No	Remarks
11	III.A.6	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.**		X	Technical Specification 4.7.A.2 (d) is currently in conflict with Section III.A.6. This specification provides an alternate accelerated testing schedule in the event of a Type A test failure.
12	III.B.1	**B. *Type B tests.*** **1. *Test methods.* Acceptable means of performing a 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.**	X		All penetrations subject to Type B tests, as defined in Section II.G of Appendix J, are tested. The testing method complies with Section III.B.1.(b).

Table 1 10CFR50 Appendix J Requirements (contd)

Item No.	Appendix J Section No.	Requirement	Compliance Yes	Compliance No	Remarks
13	III.B.2	**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.**		X	Technical Specification 4.7.A.2 (e) (2) permits air lock door seals to be tested at 10 psig. All other Type B tests are conducted at Pa.
14	III.B.3	**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.**	X		Technical Specification 4.7.A.2 (f) states the acceptance criteria for Monticello Type B and Type C tests. This criteria is currently more conservative than the criterion of Section III.B.3.
15	III.B.C.1	**C. *Test 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).**		X	Penetrations which may be construed to be subject to Type C tests in Section II.H of Appendix J are not testable. The testing method employed for penetrations which are tested complies with Section III.C.1. In some cases, isolation valves are tested with pressure in a direction opposite to that existing under accident conditions.

Table 1 10CFR50 Appendix J Requirment (contd)

Item No.	Appendix J Section No.	Requirement	Compliance Yes	Compliance No	Remarks
16	III.C.2	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.		X	Technical Specification 4.7.A.2.f (2) (c) permits main steam isolation valves to be tested at 25 psig. All other Type C tests are conducted at Pa.
17	III.C.3	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.	X		Technical Specification 4.7.A.2 (f) states the acceptance criteria for Monticello Type B and Type C tests. This criteria is currently more conservative than the criterion of Section III.C.3.
18	III.D.1	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.[1] (b) Permissible periods for testing. The performance of Type A tests shall be limited to periods when the plant facility is non-operational and secured in the shutdown condition under the administrative control and in accordance with the safety procedures defined in the license.		X	Technical Specification 4.7.A.2 (d) is currently in conflict with Section III.D.1. This specification provides a different schedule for Type A tests.

Table 1 10CFR50 Appendix J Requirments (contd)

Item No.	Appendix J Section No.	Requirements	Compliance Yes	Compliance No	Remarks
19	III.D.2	2. *Type B tests.* Type B tests except tests for air locks, shall be performed during each reactor shutdown for refueling, or other convenient intervals, but in no case at intervals greater than 2 years. Air locks shall be tested at 6-month intervals. However, air locks which are opened during such intervals, shall be tested after each opening. 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.	X		
20	III.D.3	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.	X		
21	IV.A	IV. Special Test 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 Commission, 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.	X		Monticello procedures conform to Section IV.A of Appendix J. The more conservative local leakage rate test acceptance criteria contained in the Monticello Technical Specifications are applied, however.

Table 1 10CFR50 Appendix J Requirements (contd)

Item No.	Appendix J Section No.	Requirment	Compliance Yes	Compliance No	Remarks
22	IV.B	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.	X		Secondary containment testing requirements are stated in Technical Specification 3/4.7.C.
23	V.A	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.	X		

V. Inspection and Reporting of Tests

Table 1 10CFR50 Appendix J Requirments (contd)

Item No.	Appendix J Section No.	Requirement	Compliance Yes	Compliance No	Remarks
24	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 Commission 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 vertification test employed to demonstrate the validity of the leakage rate test measurements shall also be included.**	X		Summary technical reports have been submitted as required following each Type A test. All information required by Section V.B has been included. The more conservative local leakage rate test criteria contained in the Monticello Technical Specifications are applied, however. Each report has included an analysis and interpretation of the test data. The requirement for a least-squares fit analysis of the test data is not applicable when leak rate is computed for Type A tests in accordance with ANSI N45.4 Section 7.10.

Table 2 Monticello Containment Penetrations

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
-	Seismic Restraint Port A	B - Section II.G.1	-	1	Yes	-	-	-
-	Seismic Restraint Port B	B - Section II.G.1	-	1	Yes	-	-	-
-	Seismic Restraint Port C	B - Section II.G.1	-	1	Yes	-	-	-
-	Seismic Restraint Port D	B - Section II.G.1	-	1	Yes	-	-	-
-	Seismic Restraint Port E	B - Section II.G.1	-	1	Yes	-	-	-
-	Seismic Restraint Port F	B - Section II.G.1	-	1	Yes	-	-	-
-	Seismic Restraint Port G	B - Section II.G.1	-	1	Yes	-	-	-
-	Seismic Restraint Port H	B - Section II.G.1	-	1	Yes	-	-	-
-	Drywell Head	B - Section II.G.1	-	1	Yes	-	-	-

Penetration Designation	Description	Applicable Appendix J Test Type	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-1	Equipment Hatch	B - Section II.G.1	-	-	-	-	1	Yes
X-2	Air Lock	B - Section II.G.2	-	-	-	-	1	Yes
X-3	Not Assigned	None	-	-	-	-	-	Yes
X-4	Head Access Hatch	B - Section II.G.1	-	-	-	-	1	Yes
X-5A - 5H	Drywell-Torus Vent Pipes	None (Note 7)	-	-	-	-	-	-
X-6	CRD Access Hatch	B - Section II.G.1	-	-	-	-	1	Yes
X-7A	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Primary Steam Line A	C - Section II.H.4 (Note 1)	AO-2-80A	3	Yes	AO-2-86A	1	Yes
X-7B	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Primary Steam Line B	C - Section II.H.4 (Note 1)	AO-2-80B	3	Yes	AO-2-86B	1	Yes
X-7C	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Primary Steam Line C	C - Section II.H.4 (Note 1)	AO-2-80C	3	Yes	AO-2-86C	1	Yes
X-7D	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Primary Steam Line D	C - Section II.H.4 (Note 1)	AO-2-80D	3	Yes	AO-2-86D	1	Yes
X-8	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Primary Steam Drain	C - Section II.H.4	MO-2373	4	Yes	MO-2374	2	Yes

Table 2 Monticello Containment Penetrations

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-9A	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Feedwater Line	C - Section II.H.4	FW-97-2	5	Yes	FW-94-2	5	Yes
X-9B	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Feedwater Line	C - Section II.H.4	FW-97-1	5	Yes	FW-94-1	5	Yes
X-10	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Steam to RCIC	C - Section II.H.4	MO-2075	4	Yes	MO-2076	4	Yes
X-11	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Steam to HPCI	C - Section II.H.4	MO-2034	4	Yes	MO-2035	4	Yes
X-12	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	RHR Supply	C - Section II.H.3	MO-2029	4	Yes	MO-2030	4	Yes
X-13A	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	RHR Return to B Loop	C - Section II.H.3	AO-10-46B	6	Yes	MO-2015	4	Yes
X-13B	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	RHR Return to A Loop	C - Section II.H.3	AO-10-46A	6	Yes	MO-2014	4	Yes
X-14	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	RWCU Supply	C - Section II.H.2	MO-2397	4	Yes	MO-2398	4	Yes
X-15	Spare Penetration	None	-	-	-	-	-	-

Table 2 Monticello Containment Penetrations

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-16A	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Core Spray B	C - Section II.H.3	AO-14-13B	6	Yes	MO-1754	4	Yes
X-16B	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Core Spray A	C - Section II.H.3	AO-14-13A	6	Yes	MO-1753	4	Yes
X-17	Bellows	B - Section II.G.1	-	-	-	-	2	Yes
	Head Cooling	C - Section II.H.2	MO-2027	4	Yes	MO-2026	4	Yes
X-18	Floor Sump Discharge	C - Section II.H.2	-	-	-	AO-2541A	7	Yes
						AO-2541B	7	Yes
X-19	Equip Sump Discharge	C - Section II.H.2	-	-	-	AO-2561A	7	Yes
						AO-2561B	7	Yes
X-20	Demin Water Supply	None (Note 2)	-	-	-	DM-57	8	No
						DM-58	8	No
X-21	Service Air Supply	None (Note 2)	-	-	-	AS-39	8	No
						AS-40	8	No
X-22	Instrument Air	C - Section II.H.3	-	-	-	CV-1478	9	No
X-23	RBCCW to Drywell	C - Section II.C.3	-	-	-	RBCC-15	5	No
X-24	RBCCW from Drywell	C - Section II.C.3	-	-	-	MO-1426	4	No

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-25	Drywell Ventilation Exhaust	C - Section II.H.1	-	-	-	AO-2386	10	Yes
						AO-2387	10	Yes
						CV-2385	9	Yes
X-26	Drywell Ventilation Supply	C - Section II.H.1	-	-	-	AO-2377	10	Yes
						AO-2378	10	Yes
						AO-2382	10	Yes
						CV-3267	10	Yes
						CV-3268	9	Yes
						CV-3269	9	Yes
X-27A - 27C	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-27D	Oxygen Analyzer Sample Point	C - Section II.H.1	-	-	-	CV-3305	9	Yes
						CV-3306	9	Yes
X-27E	Oxygen Analyzer Sample Point	C - Section II.H.1	-	-	-	CV-3307	9	Yes
						CV-3308	9	Yes
X-27F	Oxygen Analyzer Sample Point	C - Section II.H.1	-	-	-	CV-3309	9	Yes
						CV-3310	9	Yes

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-28A - 28F	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-29A - 29F	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-30A - 30F	Spare Penetrations	None	-	-	-	-	-	-
X-31A - 31F	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-32A - 32F	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-33A - 33F	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-34A - 34F	Spare Penetrations	None	-	-	-	-	-	-
X-35A,B,C	TIP Probes (Note 4)	C - Section II.H.2	-	-	-	-	15	No
X-35D	Spare Penetration	None	-	-	-	-	-	-
X-35E	TIP Purge Supply	C - Section II.H.2	-	-	-	-	5	No
						-	16	No

Table 2 Monticello Containment Penetrations

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-36	CRD Hydraulic Return	C - Section II.H.2	CRD-34	5	No	CRD-31	5	Yes
X-37A - 37D	CRD Insert Lines (121)	None (Note 5)	-	-	-	-	-	-
X-38A - 38D	CRD Withdraw (121)	None (Note 5)	-	-	-	-	-	-
X-39A	Drywell Spray B	C - Section II.H.1	-	-	-	MO-2021	4	Yes
						MO-2023	4	Yes
X-39B	Drywell Spray A	C - Section II.H.1	-	-	-	MO-2020	4	Yes
						MO-2022	4	Yes
X-40A - 40D	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-41	Recirc Loop B Sample	C - Section II.H.2	CV-2790	9	Yes	CV-2791	9	Yes
X-42	Standby Liquid Control	C - Section II.H.2	XP-7	5	No	XP-6	5	Yes
X-43 - 47	Spare Penetrations	None	-	-	-	-	-	-
X-48	Future N_2 Pumpback System Connection	None (Note 6)	-	-	-	-	-	-
X-49A - 49F	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-50A - 50F	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-51A - 51F	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-52A - 52F	Instrumentation	None (Note 3)	-	-	-	-	-	-
X-53 - X-99	Not Assigned	None	-	-	-	-	-	-

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-100A - 100D	Electrical Penetration	B - Section II.G.1	-	-	-	-	11	Yes
X-100E	Spare Penetration	None	-	-	-	-	-	-
X-101A,101C	Spare Penetrations	None	-	-	-	-	-	-
X-101B,101D	Electrical Penetration	B - Section II.G.1	-	-	-	-	11	Yes
X-102	Spare Penetration	None	-	-	-	-	-	-
X-103	Electrical Penetration	B - Section II.G.1	-	-	-	-	11	Yes
X-104A-- 104D	Electrical Penetration	B - Section II.G.1	-	-	-	-	11	Yes
X-104E	Spare Penetration	None	-	-	-	-	-	-
X-105A,105C, 105D	Electrical Penetration	B - Section II.G.1	-	-	-	-	11	Yes
X-105B	Spare Penetration	None	-	-	-	-	-	-
X-106	Spare Penetration	None	-	-	-	-	-	-
X-107	Spare Penetration	None	-	-	-	-	-	-
X-108 - X-199	Not Assigned	None	-	-	-	-	-	-
X-200A	Torus Hatch (45°)	B - Section II.G.1	-	-	-	-	1	Yes
X-200B	Torus Hatch (225°)	B - Section II.G.1	-	-	-	-	1	Yes
X-201A - 201H	Torus Vent Pipes	None (Note 7)	-	-	-	-	-	-
X-202A,B,C,D, E,F,G,H, J,K	Drywell-Torus Vacuum Breakers	None (Note 7)	-	-	-	-	-	-

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-202I	Not Assigned	None	-	-	-	-	-	-
X-203	Not Assigned	None	-	-	-	-	-	-
X-204A - 204D	Torus Ring Header	None (Note 7)	-	-	-	-	-	-
X-205	Torus Ventilation Exhaust	C - Section II.H.1	-	-	-	AO-2383	10	Yes
						AO-2384	10	Yes
						AO-2896	10	Yes
X-206A - 206D	Torus Instrumentation	None (Note 8)	-	-	-	-	-	-
X-207A - 207H	Torus Vent Pipe Drains	None (Note 7)	-	-	-	-	-	-
X-208A - 208H	Relief Valve Discharge Pipes	None (Note 7)	-	-	-	-	-	-
X-209A - 209D	Torus Instrumentation	None (Note 8)	-	-	-	-	-	-
X-210A	RHR and Core Spray B Test Line to Torus	None (Note 9)	-	-	-	RHR-8-2	5	No
						MO-2007	4	No
						MO-2009	12	No
						MO-1750	12	No
						CS-10-2	13	No

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-210B	RHR and Core Spray A Test Line to Torus	None (Note 9)	-	-	-	RHR-8-1	5	No
						MO-2006	4	No
						MO-2008	12	No
						MO-1749	12	No
						CS-10-1	13	No
X-211A	RHR B Torus Spray	C - Section II.H.1	-	-	-	MO-2007	4	No
						MO-2009	4	No
						MO-2011	4	No
X-211B	RHR A Torus Spray	C - Section II.H.1	-	-	-	MO-2006	4	No
						MO-2008	4	No
						MO-2010	4	No
X-212	RCIC Turbine Exhaust	None (Note 9)	-	-	-	RCIC-9	5	Yes
						RCIC-10	5	No
X-213A,213B	Flanged Bottom Torus Drains	None (Note 10)						
X-214	Oxygen Analyzer Return	C - Section II.H.1	-	-	-	CV-3313	9	Yes
						CV-3314	9	Yes
X-215 - 217	Spare Penetrations	None	-	-	-	-	-	-

Table 2 Monticello Containment Penetrations

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-218	Torus-Reactor Building Vacuum Breakers	C - Section II.H.1	-	-	-	AO-2379	10	Yes
						DWV-8-2	14	Yes
						AO-2380	10	Yes
						DWV-8-1	14	Yes
X-219	Spare Penetration	None	-	-	-	-	-	-
X-220	Oxygen Analyzer Sample Point	C - Section II.H.1	-	-	-	CV-3311	11	Yes
						CV-3312	11	Yes
X-221	HPCI Turbine Exhaust	None (Note 9)	-	-	-	HPCI-9	5	Yes
						HPCI-10	5	No
X-222	HPCI Steam Line Drains	None (Note 9)	-	-	-	HPCI-14	5	Yes
						HPCI-15	5	No
X-223	RCIC Steam Line Drains	None (Note 9)	-	-	-	RCIC-16	5	Yes
						RCIC-17	5	No
X-224A	RHR B Suction	None (Note 9)	-	-	-	MO-1987	4	No
X-224B	RHR A Suction	None (Note 9)	-	-	-	MO-1986	4	No
X-225	HPCI Suction	None (Note 9)	-	-	-	MO-2061	4	No
						MO-2062	4	No

Table 2 Monticello Containment Penetrations

Penetration Designation	Description	Applicable Appendix J Type Test	INNER BARRIER			OUTER BARRIER		
			Designation	Type	Tested?	Designation	Type	Tested?
X-226A	Core Spray B Suction	None (Note 9)	-	-	-	MO-1742	4	No
X-226B	Core Spray A Suction	None (Note 9)	-	-	-	MO-1741	4	No
X-227	RCIC Suction	None (note 9)	-	-	-	MO-2100	4	No
X-228	Not Assigned	-	-	-	-	-	-	-
X-229	Capped Penetrations (Formerly Control Air to Vacuum Breakers)	None	-	-	-	-	-	-
X-230	Electrical Penetration	B - Section II.G.1	-	-	-	-	11	Yes

Explanation of Notes:

1. Main steam isolation valves are currently tested at 25 psig in accordance with the Technical Specifications. This valves may be tested, however, at Pa.

2. Isolation is accomplished using manual valves in the containment supply line. These valves are opened only when containment integrity is not required. The valves are closed in accordance with valve lineup checklists which are completed prior to plant heatup.

3. One-inch instrumentation lines equipped with excess flow check valves. Subject to leakage testing in accordance with Technical Specification 4.7.D.1.b. Leakage can occur only through rupture of the line or its associated instrument outside of containment.

4. TIP probes are withdrawn on a containment isolation signal and the line is isolated by automatic closure of a ball valve. A shear valve can be manually actuated from the Control Room in the event a probe fails to retract. A solenoid valve in the purge supply line automatically closes on a containment isolation signal.

5. Containment isolation of the CRD hydraulic control lines is accomplished with a ball check valve internal to each drive mechanism and the normally closed hydraulic system control valve.

6. This penetration is equipped with manual isolation valves which will be shut until the N_2 pumpback system is placed into service. Automatic containment isolation valves are included in the design for the proposed system.

7. These are internal penetrations between the drywell and torus.

8. Torus instrument penetration. Leakage can occur only through rupture of the line or its associated instrument outside of the suppression chamber.

9. This penetration terminates at the bottom of the suppression pool. It is not exposed to the containment atmosphere.

10. These drains are installed at the bottom of the suppression pool.

Barrier Type Codes

1	Double gasketed seal
2	Hot pipe expansion bellows
3	Air operated globe valve
4	Motor operated gate valve
5	Check valve
6	Testable check valve
7	Air operated gate valve
8	Manual gate valve
9	Diaphragm air operated control valve
10	Air operated butterfly valve
11	Electrical penetration
12	Motor operated globe valve
13	Manually operated globe valve
14	Self-actuating vacuum breaker

Spare penetrations are equipped with welded caps.