Nebraska Public Power District

COOPER NUCLEAR STATION
P.O. BOX 98, BROWNVILLE, NEBRASKA 68321
TELEPHONE (402) 825-3811

CNSS887376

July 29, 1988

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

References:

1. Letter from W. O. Long to G. A. Trevors, dated January 13, 1988, "Cooper Nuclear Station (CNS) Inservice Testing (IST) Program (TAC 54682)".

2. Letter from G. A. Trevors to NRC, dated April 13, 1988, "Inservice Test Program, Cooper Nuclear Station, NRC Docket No. 50-298, DPR-46".

Gentlemen:

Reference 1 transmitted the staff's Safety Evaluation for the second 10-Year IST Program for Cooper Nuclear Station (CNS) and identified certain anomalies, listed in Appendix C, for the District to address by either correcting the IST Program or submitting appropriate relief requests.

Reference 2 transmitted the District's response for the disposition of each anomaly, including revised or new relief requests referred to in the response. Reference 2 also stated that the District was continuing to evaluate several of the items regarding their final resolution and the need for additional relief.

The District has completed its evaluation and has determined the appropriate relief requests and program corrections necessary to resolve the anomalies identified in the staff's Safety Evaluation. A listing of the anomalies is contained in Attachment 1 to this letter, along with the District's response for the disposition of each anomaly. Attachment 2 contains revised and new relief requests referred to in the responses, which are provided for your review.

Additional reviews of the IST Program have identified the need for further changes to the Program. These changes include revision of existing relief requests, additional relief requests, reduction in testing frequency of certain valves, deletion of certain valve testing, addition of valves and/or valve testing, program format changes, and other miscellaneous changes. Revised relief requests, new relief requests, and new technical justifications referred to in these changes are included in Attachment 2 for your review. A listing of these changes is contained in Attachment 3 to this letter.

A047
1/1

8808040006 880729
PDR ADOCK 05000298
P PDC

The District has developed a reformatted IST Program that incorporates the revisions discussed above. The new IST Program or portions thereof will be provided upon your request.

If you have any questions, please contact me.

Sincerely,

G. A. Trevors
Division Manager of
Nuclear Support

GAT:ss

Attachments

cc: U.S. Nuclear Regulatory Commission
Regional Office, Region IV

NRC Resident Inspector
Cooper Nuclear Station

RESPONSE TO IST PROGRAM ANOMALIES IDENTIFIED IN REVIEW

The anomalies noted during staff review are listed below, along with the District response.

1. The licensee has not included the reactor equipment cooling pumps, REC-1A, -1B, -1C, and -1D, and the diesel generator fuel oil transfer pumps, DG-FOT-1A and -1B, in the request for relief from measuring bearing temperature annually. The licensee should be required to address this item. (See Item 3.1.1.)

   Response

   Relief Request RP-01 applies to all pumps in the program. The reactor equipment cooling pumps and diesel generator fuel oil transfer pumps have been added to the program such that RP-01 now applies to these pumps, also. Relief Request RP-01 is being re-submitted for staff review and approval due to minor revisions to the relief request.

2. The licensee should be required to measure vibration in accordance with Section XI during pump tests until an IST Program revision has been provided to and approved by the NRC staff that is in agreement with the requirements of ANSI/ASME OM-6, Draft 8, as stated in Item 3.1.2. The licensee should also be required to measure vibration on the reactor equipment cooling pumps, REC-1A, -1B, -1C, and -1D, and the diesel generator fuel oil transfer pumps, DG-FOT-1A and -1B. (See Item 3.1.2.)

   Response

   As stated above, reactor equipment cooling pumps REC-1A, -1B, -1C, and -1D, and diesel generator fuel oil transfer pumps, DG-FOT-1A and -1B have been added to the program. Vibration measurements are taken during testing for all pumps in the IST Program. Relief Request RP-04 has been revised to indicate vibration testing will be done in accordance with the guidelines of ANSI/ASME OM-6, Draft 8. RP-04 is contained in Attachment 2.

3. The licensee should be required to conduct the tests of the high pressure coolant injection pump, HP-1, in accordance with Section XI. The licensee has not identified the request for relief, RP-05, in the high pressure coolant injection section of the body of the pump testing program. (See Item 3.3.1.)

   Response

   Testing of the high pressure coolant injection pump, HP-1, will be performed in accordance with Section XI. The applicable pump test procedure has been revised accordingly. Relief Request RP-05 has been withdrawn.

4. The licensee should provide the NRC staff with a relief request that describes how inlet pressure measurements are taken and how lubricant level is observed on the submerged service water pumps, SW-1A, -1B. -1C, and -1D. (See the body of the pump testing program, service water system, and Item 3.4.1.)

Response

A Relief Request, RP-08, addressing the measurement of the inlet pressure to the service water pumps is contained in Attachment 2. Observation of the lubricant level is not practical for these pumps due to a lack of installed instrumentation. The IST Program has been revised to include discussion of lubricant level observation where applicable.

5. The licensee should be required to test the reactor equipment cooling pumps, REC-1A, -1B, -1C, and -1D, in accordance with Section XI. (See items 3.5.1, 3.1.1, and 3.1.2.)

Response

The reactor equipment cooling pumps will be tested in accordance with Section XI. Relief Request RP-06 has been withdrawn.

6. The licensee should be required to test the diesel fuel oil transfer pumps, DG-FOT-1A and -1B, in accordance with Section XI. (See items 3.6.1, 3.1.1, and 3.1.2.)

Response

The diesel fuel oil transfer pumps will be tested in accordance with Section XI. Relief reqeusts RP-09 and RP-10, which address pump inlet pressure measurement and flow rate measurement, respectively, are contained in Attachment 2. Relief Request RP-07 has been withdrawn.

7. The licensee should be required to comply with Section XI, paragraphs IWV-3426 and -3427, when leak testing containment isolation valves. (See Item 4.1.1.1.)

Response

The District will comply with Section XI, paragraphs IWV-3426 and -3427 when leak testing containment isolation valves.

8. The licensee has included valve RHR-CV-23, reactor vessel head spray supply check, in Technical Justification TJV-03 but has not included this valve in the body of the valve testing program. The licensee stated at the working meeting that this valve was scheduled to be removed from the system during the outage in the fall of 1986 and that if it was not removed, it would be included in the IST Program. This item will require further verification.

Response

Valve RHR-CV-23 was removed from the the system during the Fall 1986 Outage.

9. Technical Justification TJV-03 states that valves RHR-MO-32 and -33, reactor vessel head spray supply isolations, can be exercised only during cold shutdowns and then goes on to state that they will be exercised during refueling outages. It is the reviewer's opinion that this inconsistency is a typographical error and that these valves will be exercised during cold shutdowns as described in the body of the valve testing program. It should also be noted that the licensee has identified these valves as passive valves. The licensee should be required to correct this item. (See Appendix A, Item 1.1.)

Response

Valves RHR-MO-32 and -33 were removed from the system during the Fall 1986 Outage. The removal of these valves is discussed in the Safety Evaluation to Amendment No. 103 to the Cooper Nuclear Station Facility Operating License dated November 10, 1986. Technical Justification TJV-03 has been deleted from the IST Program.

10. The licensee should be required to continue the disassembly/inspection program on valve RHR-CV-20, service water emergency core flooding supply check, during each refueling outage. (See Item 4.3.1.2.)

Response

Disassembly/inspection of valve RHR-CV-20 is being performed each refueling outage. Due to satisfactory inspection history, RV-17 proposes to perform the inspection at least once every two years during a refueling outage. RV-17 is contained in Attachment 2.

11. The licensee has incorrectly identified the residual heat removal system pressure maintenance supply check valves as core spray system valves in Relief Request RV-15. The licensee should be required to correct this item.

Response

Relief Request RV-15 has been revised to correctly identify the residual heat removal pressure maintenance supply check valves. Additional revisions were made to RV-15 to further clarify the contents of the relief request and is contained in Attachment 2.

12. The licensee has failed to describe how valve HPCI-CV-15, high pressure coolant injection turbine exhaust check, is full-stroke exercised quarterly during extended shutdowns when no steam is available to operate the turbine. The licensee should be required to correct this item. (See the body of the valve testing program, High Pressure Coolant Injection section.)

Response

The system containing HPCI-CV-15, high pressure coolant injection, is out of service when the plant is shut down and, therefore, is not required to be exercised per paragraph IWV-3416. The plant Technical Specifications do not require the system to be operable when reactor pressure is less than or equal to 113 psig. During plant startup, Technical Specification 3.5.C.3 allows surveillance testing to be conducted within 48 hours of achieving 150 psig reactor steam pressure to verify system operability.

13. The licensee should be required to continue the disassembly/inspection program on valve HPCI-CV-11, high pressure coolant injection torus suction check, during each refueling outage. (See Item 5.5.2.2.)

Response

Disassembly/inspection of valve HPCI-CV-11 is being performed each refueling outage. Due to satisfactory inspection history, RV-20 proposes to perform the inspection at least once every two years during a refueling outage. RV-20 has been revised and is contained in Attachment 2.

14. The licensee has incorrectly identified reactor core isolation cooling valve RCIC-LVSC-42 as the RCIC turbine drain to the torus when it is the RCIC barometric condenser vacuum pump discharge to the torus. The licensee should be required to correct this item. (See Relief Request RV-25 and the body of the valve testing program, Reactor Core Injection Cooling section.)

Response

Relief Request RV-25 has been revised to correctly identify valve RCIC-LVSC-42 and to further clarify relief request content. RV-25 is contained in Attachment 2.

15. The licensee should be required to continue the disassembly/inspection program on valve RCIC-CV-11, reactor core isolation cooling torus suction check, during each refueling outage. (See Item 4.6.2.2.)

Response

Disassembly/inspection of valve RCIC-CV-11 is being performed each refueling outage. Due to satisfactory inspection history, RV-23 proposes to perform the inspection at least once every two years during a refueling outage. RV-23 has been revised and is contained in Attachment 2.

16. The licensee has incorrectly identified the relief request that applies to the main steam isolation valves in the body of the valve testing program, Main Steam section. The applicable relief request is Relief Request RV-04 instead of Relief Request RV-05. The licensee should be required to correct this item. (Also see Item 4.8.1.1.)

Response

The IST Program has been revised to identify the correct relief request that applies to the main steam isolation valves.

17. The licensee should be required to measure the stroke time of valves CRD-CV-126 and -127, control rod scram inlet and outlet, or to provide a relief request that explains why it cannot be done. (See Item 4.11.2.1.)

Response

Relief Request RV-06 has been revised to include a discussion on why it is impractical to stroke time these valves. Relief Request RV-06 is contained in Attachment 2.

18. The licensee should be required to include valve CRD-CV-138, control rod drive cooling water header check (137 valves), in the IST Program because this valve performs a safety-related function by having to shut during a control rod scram to prevent diversion of scram water flow away from the scram flow path in the event the cooling water header became depressurized. (See Section 4.11.)

Response

The CRD-CV-138, control rod drive cooling water header check valve for all 137 control rod drive mechanisms, has been added to the IST Program.

19. The licensee has incorrectly identified the diesel generator service water supply check valves in Relief Request RV-09. The correct valve numbers should be SW-CV-35CV, -36CV, -37CV, and -38CV. The licensee should be required to correct this item. (See Item 4.12.1.1.)

Response

Relief Request RV-09 has been revised to correctly identify the diesel generator service water supply check valves and to clarify relief request content. The revised RV-09 is included in Attachment 2.

20. The licensee should be required to test valves SW-MO-37, reactor building and diesel generator supply header cross connection, SW-MO-117, turbine building service water supply, SW-MO-886, -887, -888, and -889, reactor equipment cooling system/service water cross connections, and SW-MO-650 and -651, reactor equipment cooling heat exchanger service water outlets,

in accordance with the requirements of Section XI. Additionally, the licensee has incorrectly identified these valves as passive in Relief Request RV-32. (See Item 4.13.1.1.)

Response

The IST Program has been revised to incorporate testing of the above valves in accordance with Section XI. Relief Request RV-32 has been withdrawn.

21. The licensee should be required to test the following valves in accordance with Section XI.

REC-MO-694 and -695	Loop A and B Cross Connections
REC-MO-697 and -698	Critical Service Return Header Isolations
REC-MO-700	Non-critical Service Supply Isolation
REC-MO-702 and -709	Containment Cooling Supply and Return Isolations
REC-MO-712 and -713	Reactor Equipment Cooling Heat Exchanger Inlets
REC-MO-711 and -714	Reactor Equipment Cooling Heat Exchanger Outlets
REC-MO-721 and -722	Reactor Equipment Cooling Pump Suction Non-Critical Return
REC-MO-1329	Radwaste Supply Isolation

The licensee has incorrectly described the function of valves REC-MO-697, -698, and -700 in Relief Request RV-13. The licensee should be required to correct this item. (See Item 4.14.1.1.)

Response

The IST Program has been revised to incorporate testing of the above valves (except REC-MO-709) in accordance with Section XI. Relief Request RV-13 has been withdrawn.

REC-MO-709, Containment Cooling Return Isolation, has no safety-related function and has been deleted from the IST Program. REC-MO-700 and -702 will be tested during cold shutdowns; Technical Justification TJV-10 is provided in Attachment 2.

22. The licensee should be required to verify the closure capability of valve REC-CV-16, non-critical cooling return header check, in accordance with the requirements of Section XI. (See Item 4.14.2.1.)

Response

Relief Request RV-12 has been withdrawn. REC-CV-16 will be tested during each refueling. Relief Request RV-41 is contained in Attachment 2.

23. The licensee should be required to test valves SGT-249AV, -250AV, -251AV, -252AV, -255AV, and -256AV in accordance with Section XI. The licensee has also incorrectly identified valve SGT-252AV in Relief Request RV-37 as valve SGT-253AV. (See Item 4.16.1.1.)

Response

The IST Program has been revised to incorporate testing of the above valves (except SGT-255AV and -256AV) in accordance with Section XI. Relief Request RV-37 has been withdrawn.

SGT-255AV and -256AV, Filter Bank Recirculation Bypass Valves, have no safety-related function and have been deleted from the IST Program.

24. The licensee has not provided a request for relief from the valve stroke time trending requirements of Section XI, Paragraph IWV-3417(a), for rapid acting valves in the IST Program, therefore, the licensee should be required to comply with this Code paragraph.

Response

The District will continue to comply with IWV-3417(a) requirements.

25. The licensee has failed to include the diesel generator air start solenoids in the IST Program or to propose any alternate testing for those valves. These valves are safety-related and should be included in the IST Program and tested as closely as possible to the requirements of Section XI. The licensee should be required to comply with this position.

Response

The IST Program has been revised to incorporate testing of the diesel generator air start solenoids. Stroke timing of these valves is impractical. Relief Request RV-42 is contained in Attachment 2.

26. The following relief requests have been determined to be unnecessary because the licensee is meeting the Code requirements. For the sake of clarity, each relief request is listed according to system, relief request number, valve(s) number, and a very brief explanation why the request is unnecessary.

A. Standby Liquid Control System.

A.1 Relief Request RV-19.

A.1.1 Valves SLC-14A and -14B

A.1.1.1 These are the explosive injection valves. This relief request is unnecessary because Section XI, Paragraph IWV-3610, does not require that Category D valves be exercised, only that 20% of the charges be tested every two years.

B. Service Water System.

B.1 Relief Request RV-35.

B.1.1 Valves SW-CV-19, -20, -21, and -22.

B.1.1.1 These are the residual heat removal service water booster pump discharge check valves and are being full-stroke exercised with system flow. This relief request is unnecessary because Section XI, Paragraph IWV-3522, allows the use of system flow to full-stroke exercise check valves.

B.2 Relief Request RV-33.

B.2.1 Valves SW-CV-10, -11, -12, -13, -27, and -28.

B.2.1.1 These are the service water pump discharge check valves and the reactor equipment cooling heat exchanger service water supply check valves. This relief request is unnecessary because Section XI, Paragraph IWV-3522, allows the use of system flow to full-stroke exercise check valves.

C. Diesel Generator Fuel Oil Transfer System.

C.1 Relief Request RV-10.

C.1.1 Valves DG-FOT-10, -11, -12, and -13.

C.1.1.1 These are the diesel generator fuel oil transfer pump discharge check valves and the diesel generator fuel oil transfer header building penetration check valves. This relief request is unnecessary because Section XI, Paragraph IWV-3522, allows the use of system flow to full-stroke exercise check valves.

D. Diesel Generator Starting Air System.

D.1 Relief Request RV-08.

D.1.1 Valves DG-SA-10-CV, -11-CV, -12-CV, -13-CV, -14-CV, -15-CV, -16-CV, -17-CV, -18-CV, -19-CV, -20-CV, and -21-CV.

D.1.1.1 These are the diesel generator starting air compressor discharge check valves, the starting air receiver inlet check valves, and the starting air receiver discharge check valves. This relief request is unnecessary because Section XI, Paragraph IWV-3522, allows the use of system flow to full-stroke exercise check valves.

Response

The District has withdrawn the above relief requests.

VI. RELIEF REQUESTS AND TECHNICAL JUSTIFICATIONS

RELIEF REQUESTS

RR No.	Description
RP-01 (Rev. 1)	Bearing Temperature Measurement
RP-02	SLC Pump Inlet Pressure Measurement
RP-03	SW Pump Vibration Measurement
RP-04 (Rev. 1)	Pump Vibration Measurement Method
RP-05	Withdrawn
RP-06	Withdrawn
RP-07	Withdrawn
RP-08	SW Pump Inlet Pressure Measurement
RP-09	DG-FOT Pump Inlet Pressure Measurement
RP-10	DG-FOT Pump Flow Rate Measurement
RP-11	Required Action Range - High and Alert Range - High Limits
RP-12	CS, RHR, HPCI, and RCIC Pumps Suction Pressure Gauge Range
RP-13	CS, RHR, HPCI, RCIC, SW, and SWB Pumps Instrument Accuracy
RV-01 (Rev. 2)	Valve Leak-Rate Test Method and Criteria
RV-02	Replaced by Technical Justification TJV-01
RV-03	Replaced by Technical Justification TJV-04
RV-04	Main Steam Isolation Valve Stroke Time, Required Action Relief
RV-05	Reactor Feedwater Check Valve Reverse Flow Test
RV-06	Valves CRD-AOV-CV126, CRD-AOV-CV127, and CRD-CV114 Testing Relief
RV-07	Check Valve CRD-CV115 Testing Relief
RV-08	Withdrawn
RV-09	Diesel Generator Service Water Inlet Supply Check Valves, SW-CV-35, 36, 37, and 38 Test/ Frequency Relief

RELIEF REQUESTS (Continued)

RR No.	Description
RV-10	Withdrawn
RV-11	Excess Flow Check Valves Testing Relief
RV-12	Withdrawn
RV-13	Withdrawn
RV-14	Core Spray Pressure Maintenance Check Valves Testing to the Closed Position (CS-CV-12, 13, 14, and 15)
RV-15	RHR Pressure Maintenance Check Valves Testing to the Closed Position (RHR-CV-18, 19, 24, and 25)
RV-16	HPCI Pressure Maintenance Check Valves Testing to the Closed Position (HPCI-CV-18 and 19)
RV-17	RHR/SW Core Standby Cooling Check Valve Testing Relief (RHR-CV-20)
RV-18	SLC-CV-12 and SLC-CV-13 Testing Frequency
RV-19	Withdrawn
RV-20	HPCI-CV-11 Testing Relief
RV-21	HPCI-LVSC-44 and HPCI-LVSC-50 Testing to the Closed Position
RV-22	HPCI-CV-24, 25, 26, and 27 Testing Frequency
RV-23	RCIC-CV-11 Testing Relief
RV-24	RCIC-CV-18 and 19 Testing to the Closed Position
RV-25	RCIC-LVSC-37 and RCIC-LVSC-42 Testing to the Closed Position
RV-26	RCIC-CV-22, 23, 24, and 25 Testing Frequency
RV-27	Main Steam Relief Valve Exercising Testing Frequency (MS-RV-71A to 71H)
RV-28	Main Steam Relief Line Vacuum Breaker Check Valve Testing Frequency (MS-CV-20 to 35)
RV-29	IA Accumulator Check Valve Testing/Frequency (IA-CV-17, 18, 19, 20, 21, 22, 36, and 37)

RELIEF REQUESTS (Continued)

RR No.	Description
RV-30	RWCU-CV-15 Test Frequency
RV-31	CRD-CV-13, 14, 15, and 16 Exercise Testing Frequency
RV-32	Withdrawn
RV-33	Withdrawn
RV-34	Service Water Motor-Operated Valves to RHR (SW-MO-89A and 89B) Testing Relief
RV-35	Withdrawn
RV-36	PC-CV-13 and 14 Testing Frequency
RV-37	Withdrawn
RV-38	HPCI-CV-15, 16, and 17 Testing to the Closed Position
RV-39	RCIC-CV-12, 13, and 15 Testing to the Closed Position
RV-40	Main Steam Isolation Valves (MS-AO-80A, B, C, D, 86A, B, C, and D) Fail Safe Test Frequency
RV-41	REC-CV-16 Closure Test Frequency
RV-42	Diesel Generator Air Start Valves Stroke Time Measurement
RV-43	Suppression Chamber Vacuum Breaker Check Valves Open Test Frequency
RV-44	IA Accumulator Check Valve Testing/Frequency (IA-CV-28, 29, 30, 31, 32, 33, 34, 35, 47, 48)
RV-45	Group Leak Rate Testing of Primary Containment Isolation Valves
RV-46	TIP Ball Valves Position Indication Test

TECHNICAL JUSTIFICATIONS

TJ No.	Description
TJV-01	RHR-920-MV and RHR-921-MV Testing Frequency
TJV-02	RHR-MO-17 and RHR-MO-18 Testing Frequency
TJV-03	Deleted
TJV-04	RR-MO-53A and 53B Testing Frequency
TJV-05	CS-AO-13A, 13B, RHR-AO-68A, and 68B
TJV-06	CS-MO-12A and 12B
TJV-07	RHR-MO-25A and 25B
TJV-08	HPCI-MO-15, 16, 17, 19, and 20
TJV-09	RCIC-MO-15, 16, 18, 20, and 21
TJV-10	REC-MO-700 and 702
TJV-11	DG-SA-CV-14, 15, 16, and 17

RELIEF REQUEST RP-01 (Rev. 1)

PUMP: All Pumps

CLASS: 2 and 4

FUNCTION: Various

REQUIRED TEST: Measure bearing temperature annually (IWP-3100).

BASIS FOR RELIEF: Bearing temperature measurements will not provide significant additional information regarding bearing condition than that already obtained by measuring vibration. (See Relief Request RP-04.) Measurement of vibration provides more concise and consistent information with respect to pump and bearing condition. Vibration readings are not affected by the temperature of the medium being pumped; thus, the readings are more consistent. The use of vibration measurements can provide information as to a change in the balance of rotating parts, misalignment of bearings, worn bearings, coupling misalignment, changes in internal hydraulic forces, and general pump integrity prior to the pump condition degrading to the point where the component is jeopardized. Bearing temperature does not always predict such problems. An increase in bearing temperature most often does not occur until the bearing has deteriorated to a point where additional pump damage may occur. Bearing temperatures are also affected by the temperatures of the medium being pumped, which could yield misleading results. In addition, it is impractical to measure bearing temperatures on many of the pumps in the program. Some specific examples are as follows:

1. Service Water Pumps: There is no installed instrumentation to measure bearing temperature. Also, pump bearings are under water and, therefore, inaccessible.

2. Standby Liquid Control Pumps: There is no installed instrumentation to measure bearing temperature. Bearings are inaccessible for direct measurement due to the location of the bearings within the housing. The bearings are in an oil bath, which is also inaccessible.

3. High Pressure Coolant Injection Pumps:

   Booster Pump - There is no installed instrumentation to measure bearing temperature. The booster pump bearings are anti-friction roller bearings. This type of bearing will not typically show a significant rise in temperature just before failure, as is the case with journal bearings.

Main Pump - Instrumentation to measure thrust and journal bearing temperatures is installed on the main pump. However, the HPCI unit cannot be operated for extended time periods in order to meet the acceptance criteria of IWP-3500, due to suppression pool temperature considerations.

4. Residual Heat Removal Pumps: These pumps utilize lower shaft guide bearings which are lubricated by the medium being pumped. These bearings are in the main flowpath and are therefore exempt per IWP-4310.

ALTERNATIVE TEST: None.

RELIEF REQUEST RP-02

PUMP:	SLC-1A, SLC-1B
CLASS:	2
FUNCTION:	Emergency shutdown of the reactor without the use of control rods.
REQUIRED TEST:	Measure pump inlet pressure (IWP-3100).
BASIS FOR RELIEF:	It is impractical to measure standby liquid control pump inlet pressure (thus making pump differential pressure impractical) in accordance with Section XI requirements. During pump testing, the pump suction is from a test tank rather than the main standby liquid control tank. The only means available to measure inlet pressure is to correlate tank level to inlet pressure. These pumps are positive displacement, and the measurement of inlet pressure is not critical in judging pump performance. Measuring the discharge pressure and the flow rate is adequate to detect changes in the hydraulic characteristics of the pumps.
ALTERNATIVE TEST:	Monitor pump discharge pressure and pump flow rate at each Inservice Test.

RELIEF REQUEST RP-03

PUMP:	Service Water Pumps 1A, 1B, 1C, 1D
CLASS:	4
FUNCTION:	Emergency Equipment Cooling
REQUIRED TEST:	Measure pump vibration (IWP-4510).
BASIS FOR RELIEF:	The pump casings are physically located underwater and, therefore, are inaccessible.
ALTERNATIVE TEST:	Measure pump motor vibration at upper and lower bearings.

RELIEF REQUEST RP-04 (Rev. 1)

PUMP: All Pumps

CLASS: 2 and 4

FUNCTION: Various

REQUIRED TEST: Vibration amplitude measurement (IWP-4510) and IWP-4120 as it pertains to the vibration measuring device.

BASIS FOR RELIEF: Measuring vibration in velocity units rather than displacement is an industry accepted method considered to be more sensitive to small changes that are indicative of developing mechanical problems.

The vibration measurement program proposed here exceeds the requirements of Section XI. It will provide for a highly reliable vibration monitoring program for detection of pump degradation.

ALTERNATIVE TEST: The following requirements are based on statements from ANSI/ASME OM-6, 1986, "Inservice Testing of Pumps", Draft 9.

- Vibration instruments are excluded from the range requirements of IWP-4120.

- On centrifugal pumps, measurements shall be taken in a plane approximately perpendicular to the rotating shaft in two orthogonal directions on each accessible pump bearing housing. Measurement also shall be taken in the axial direction on each accessible pump thrust bearing housing.

- On vertical line shaft pumps, measurements shall be taken on the upper motor bearing housing in three orthogonal directions, one of which is the axial direction.

  NOTE: Vertical line shaft pumps defined for this application are vertical pumps in which the pump is not accessible for vibration measurement and/or the pump and motor are separated by such a distance that measurement as-close-to-the-pump-inboard-bearing-as-possible will not be indicative of pump bearing degradation.

- On reciprocating pumps, the location shall be on the bearing housing of the crankshaft, approximately perpendicular to both the crankshaft and the line of plunger travel.

- If a portable vibration indicator is used, the reference points must be clearly identified on the pump to permit subsequent duplication in both location and plane.

- Vibration measurements are to be broadband (unfiltered). If velocity measurements are used, they shall be peak. If displacement amplitudes are used, they shall be peak-to-peak.

- Acceptance criteria for vibration measurements will conform to Table 2.1.

TABLE 2.1

RANGES OF TEST PAPAMETERS (1)

PUMP TYPE	PUMP SPEED	TEST PARAMETER	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Centrifugal and Vertical Line Shaft (2)					
	<600 rpm	V_d or V_v	$\leq 2.5\ V_r$	$>2.5\ V_r$ to $6V_r$ but not >10.5 mils	$>6V_r$ but not >22 mils
	$\geq$600 rpm (3)	V_v or V_d	$\leq 2.5\ V_r$ and ≤ 0.325 in/sec	$>2.5\ V_r$ to $6V_r$ or >0.325 but ≤ 0.70 in/sec	$>6V_r$ or >0.70 in/sec
Reciprocating		V_d or V_v	$\leq 2.5\ V_r$	$>2.5\ V_r$ to $6\ V_r$	$>6\ V_r$

NOTES: (1) V_d is vibration displacement measurements in mils; V_v is vibration velocity measurements in in/sec. and V_r is vibration reference value in the selected units.

(2) Refer to Figure 2.1 to establish displacement limits for pumps with speeds $\geq$600 rpm or velocity limits for pumps with speeds <600 rpm.

(3) The most limiting shall apply when velocity measurements are taken.

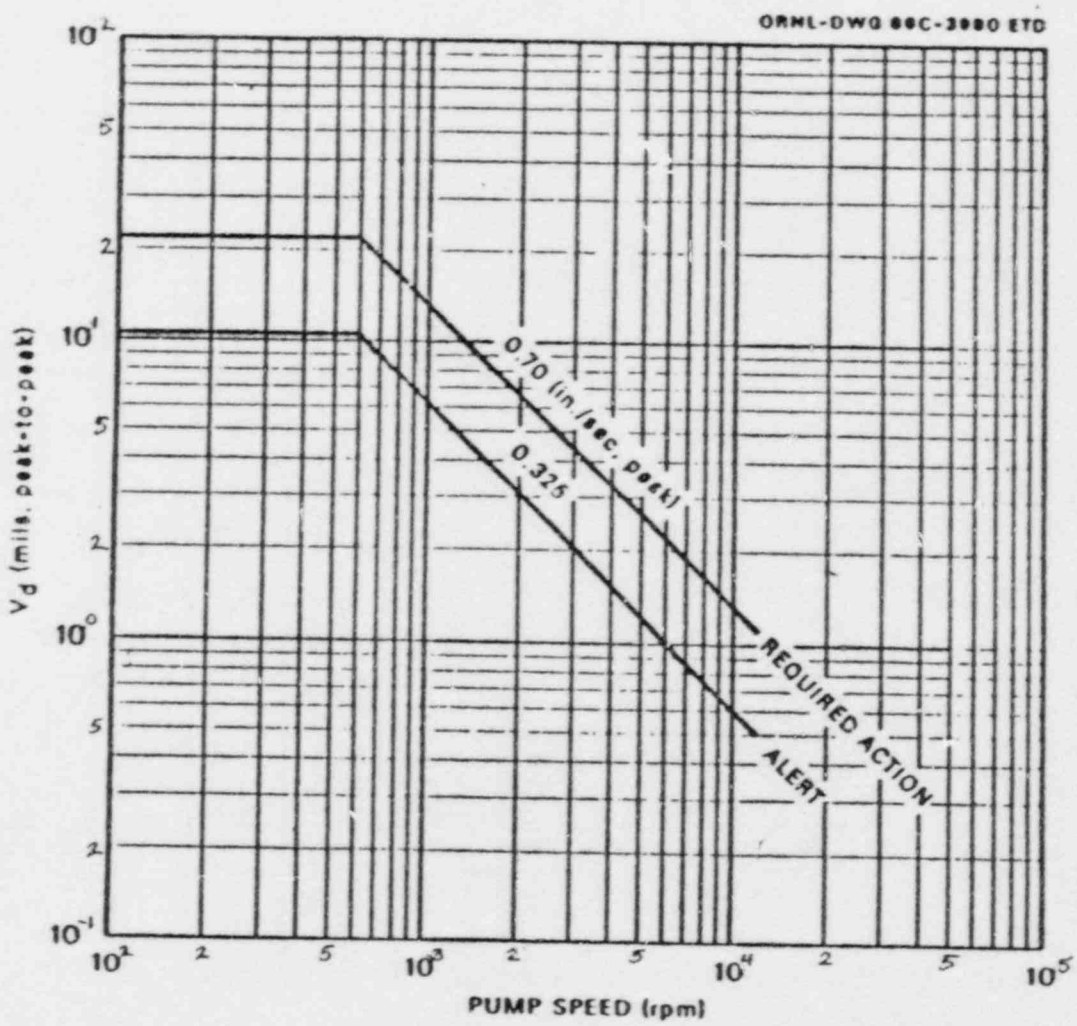

Figure 2.1 Vibration Limits

RELIEF REQUEST RP-05

(Withdrawn)

RELIEF REQUEST RP-06

(Withdrawn)

RELIEF REQUEST RP-07

(Withdrawn)

RELIEF REQUEST RP-08

PUMP: Service Water Pumps 1A, 1B, 1C, 1D

CLASS: 4

FUNCTION: Emergency Equipment Cooling

REQUIRED TEST: Measure pump inlet pressure before starting the pump and during the test (Table IWP-3100-1).

BASIS FOR RELIEF: These pumps are submerged, and as such, have inlet pressures corresponding to that of the static head of the medium in which the pumps reside. There is no practical mechanism for inlet pressure measurement. Since the level of the medium remains essentially constant through the duration of the test, only one measurement is required.

ALTERNATIVE TEST: A single inlet pressure will be calculated from the height of the liquid above the pump suction during each test.

RELIEF REQUEST RP-09

PUMP:	Diesel Fuel Oil Transfer 1A, 1B
CLASS:	4
FUNCTION:	Transfer fuel oil from the main diesel fuel oil storage tanks to the emergency diesel generator day tanks.
REQUIRED TEST:	Measure pump inlet pressure before starting the pump and during the test (Table IWP-3100-1) (IWP-3100).
BASIS FOR RELIEF:	The diesel fuel oil transfer pumps are submerged and have inlet pressures which correspond to levels of the diesel oil storage tanks. Because these levels remain relatively constant before and during the test, only one measurement per test is necessary.
ALTERNATIVE TEST:	One inlet pressure, based on fuel oil tank level, will be calculated per test.

RELIEF REQUEST RP-10

PUMP:	Diesel Fuel Oil Transfer 1A and 1B
CLASS:	4
FUNCTION:	Transfer fuel oil from the main diesel fuel oil storage tanks to the emergency diesel generator day tanks.
REQUIRED TEST:	Flow rate shall be measured using a rate or quantity meter installed in the pump test circuit (IWP-4600).
BASIS FOR RELIEF:	There is no flow instrumentation installed in the test flowpath for these pumps. Monitoring the time it takes to deliver a specific amount of fuel oil to the day tank is an adequate measurement of flow rate.
ALTERNATIVE TEST:	Flow rate will be calculated during each test. Day tank volume change and the time it takes for this change will be monitored and used to determine flow rate.

RELIEF REQUEST RP-11

PUMP: All Pumps

CLASS: 2 and 4

FUNCTION: Various

REQUIRED TEST: The allowable ranges of inservice test quantities in relation to the reference values are tabulated in Table IWP-3100-2. This table limits the acceptable performance of each pump dependent variable (flowrate or differential pressure) to a maximum of 102 percent of the respective reference value for the alert condition and 103 percent of the action-required range. If the test parameter should exceed these limits, the subject pump shall be tested at more frequent intervals for the alert range or declared inoperative and removed from service if the test parameter falls into the action required range (IWP-3200).

BASIS FOR RELIEF: The requirement to declare a pump inoperative when a test parameter (flowrate or differential pressure) exceeds the reference value by 3 percent is not technically justified, sound engineering judgement, nor acceptable plant operating practice for the following reasons:

- Indiscriminately declaring safety system pumps inoperative could result in excessive and unneeded testing of other plant safeguard systems and components. Such testing could ultimately detract from the overall reliability of plant safety systems. In addition, unwarranted testing unnecessarily adds to the burden of the operating staff and dilutes efforts focused on the performance of their primary duties. Such testing also results in unnecessary radiation exposure.

- The case where a test parameter exceeds the reference value does not indicate pump degradation. It may merely signify that the reference value is probably on the lower side of the statistical scatter of the test data and the specific test in question is on the upper side. Note that the reference values are subject to the same elements of statistical error associated with any other individual test.

- The 3 percent limitation is overly restrictive when compared to the accuracy of the instrumentation used to gather the test data as required by Paragraph IWP-4110 (±2 percent).

- Power plant operating systems are not configured in a way that allows for the accuracy and precision of the testing needed to consistently and reliably provide the repeatability needed to meet this requirement.

- This requirement provides no additional measure of reliability to the equipment.

ALTERNATIVE TEST: The acceptance criteria of Table IWP-3100-2 will be utilized, unless otherwise noted, with the following exceptions:

(a) The Required Action Range (HIGH) will be greater than 110 percent of the reference value for test quantities of flowrate and differential pressure.

(b) The Alert Range (HIGH) will be between 105 to 110 percent of the reference value for test quantities of flowrate and differential pressure.

RELIEF REQUEST RP-12

PUMP: Core Spray (CS) 1A, 1B
Residual Heat Removal (RHR) 1A, 1B, 1C, 1D
High Pressure Coolant Injection (HPCI)
Reactor Core Isolation Cooling (RCIC)

CLASS: 2

FUNCTION: Emergency core cooling.

REQUIRED TEST: The full-scale range of each instrument shall be three times the reference value or less (IWP-4120).

BASIS FOR RELIEF: The permanently installed suction pressure gauge of a pump is generally sized to accommodate the maximum pressure it would experience under normal or emergency conditions. In many cases, this results in an instrument range that exceeds the Code requirements since, under test conditions, normal or emergency condition suction pressures are typically not experienced.

Suction pressure measurements serve two primary functions. First, they provide assurance that the pump has an adequate suction head for proper operation. For suction head determination, the accuracy and range requirement is overly restrictive. Since, in most cases, plant pumps are provided with a considerable margin of suction head, an accuracy of ±1.0% or less should be adequate.

Secondly, the suction pressure is used to determine the pump differential pressure. When used in determining differential pressure, the accuracy of the suction pressure measurement has little or no effect on the calculation since, generally, the pump discharge pressure is higher than the suction pressure by two or three orders of magnitude.

ALTERNATIVE TEST: When measuring pump suction pressure, the range requirement of IWP-4120 will not be followed, however, instruments used shall have an accuracy of ±1.0% or better.

RELIEF REQUEST RP-13

PUMP: Core Spray (CS) 1A, 1B
Residual Heat Removal (RHR) 1A, 1B, 1C, 1D
High Pressure Coolant Injection (HPCI)
Reactor Core Isolation Cooling (RCIC)
Service Water (SW) 1A, 1B, 1C, 1D
Service Water Booster (SWB) 1A, 1B, 1C, 1D

CLASS: 2 - CS, RHR, HPCI, and RCIC
4 - SW and SWB

FUNCTION: CS, RHR, HPCI, RCIC - Emergency core cooling.
SW - Safety-related equipment cooling.
SWB - Residual heat removal equipment cooling

REQUIRED TEST: Instrument accuracy shall be within the limits of Table IWP-4110-1 (IWP-4110).

BASIS FOR RELIEF: The instrument loop accuracies listed below do not meet the requirements of Table IWP-4110-1

FUNCTION	LOOP ACCURACY (±%)
CS Pump Discharge Pressure	2.06
CS Pump Flow Rate	2.02
RHR Pump Flow Rate	2.08
HPCI Pump Flow Rate	2.03
RCIC Pump Flow Rate	2.03
SW Pump Flow Rate	2.2
SWB Pump Flow Rate	2.03

The difference between the existing loop accuracies and the Code required accuracy (maximum difference is 0.2%) is insignificant when compared to the cost of manpower required to obtain the ±2% accuracy.

ALTERNATIVE TEST: Inservice test measurements of pressure and flow rate, as described above, will be made using instruments with loop accuracies as indicated.

RELIEF REQUEST RV-01 (Rev. 2)

VALVE:	Category A Containment Isolation Valves
CLASS:	1, 2
FUNCTION:	Primary Containment Isolation
REQUIRED TEST:	Valve seat leakage may be determined by measuring leakage through a downstream telltale connection or by measuring the makeup feed rate needed to maintain constant pressure in the test volume (IWV-3424).
BASIS FOR RELIEF:	The pressure decay method is suitable for measuring air or nitrogen leakage and is one of the methods permitted by 10CFR50, Appendix J.
ALTERNATIVE TEST:	The pressure decay method may be used as an alternate option to leak rate testing methods of IWV-3424 to determine seat leakage. Measurement of valve seat leakage will be performed in accordance with Appendix J, Local Leak Rate Tests.

RELIEF REQUEST RV-04

VALVE:	24" MS-AO-80A	24" MS-AO-86A
	24" MS-AO-80B	24" MS-AO-86B
	24" MS-AO-80C	24" MS-AO-86C
	24" MS-AO-80D	24" MS-AO-86D

CLASS: 1

FUNCTION: Inboard and Outboard Main Steam Isolation Valves (MSIV) for Loops A, B, C, and D.

REQUIRED TEST: IWV-3417(a) requires increased test frequency to once each month should the full-stroke time increase by 50% or more from the previous test time (for valves with a stroke-time less than 10 seconds).

BASIS FOR RELIEF: Each MSIV is full-stroke times each quarter. Stroke-time specifications in seconds (T) are given below.

With Flow $3 < T < 5$
Without Flow $4 < T < 4.5$

The normal operating time is four seconds. A 50% deviation from the normal operating time would be two seconds or six seconds. This would exceed specification limits and corrective action would be required. Since corrective action is required before the 50% deviation is reached, an increase in test frequency would not serve any purpose.

ALTERNATIVE TEST: Due to the short stroke-time specifications for the MSIVs, no increase in test frequency will be performed if stroke-time exceeds 50% of the previous test value.

RELIEF REQUEST RV-05

VALVE: 18" RF-CV-13
18" RF-CV-14
18" RF-CV-15
18" RF-CV-16

CLASS: 1

FUNCTION: Main Feed Check Valves

REQUIRED TEST: Test in accordance with IWV-3522(a), normally open valves. Valves that are normally open and whose function is to prevent reverse flow shall be tested in a manner that proves that the disk travels to the seat promptly on cessation or reversal of flow. Confirmation that the disk is on the seat shall be by visual observation, by an electrical signal initiated by a position indicating device, by observation of appropriate pressure indications in the system, or by other positive means.

BASIS FOR RELIEF: These valves are normally open and must remain open during reactor operations to ensure adequate feedwater flow. Feedwater provides normal reactor core cooling during operation. To exercise these valves during plant operation could cause a reactor scram due to the transitory nature of operating the feedwater pumps at low-flow or no-flow conditions. The observation of specified leakage during local leak-rate testing provides the only means for verification to the closed position.

ALTERNATIVE TEST: These valves will be exercised to a closed position during the leak rate test performed during a refueling outage.

RELIEF REQUEST RV-06

VALVE: 1" CRD-AOV-CV126 (typical of 137 each)
3/4" CRD-AOV-CV127 (typical of 137 each)
3/4" CRD-CV-114 (typical of 137 each)

CLASS: 2

FUNCTION: 1" CRD-AOV-CV126 - Open with scram signal to pressurize lower side of CRD pistons from accumulator or charging header.

3/4" CRD-AOV-CV127 - Open with scram signal to vent top of CRD pistons to scram discharge header.

3/4" CRD-CV-114 - Open to allow flow from the top of the CRD pistons to the scram discharge header.

REQUIRED TEST: Full stroke exercise, observe proper operation of fail-safe mechanism, and measure stroke time quarterly or each cold shutdown (IWV-3411, IWV-3413, IWV-3415, IWV-3521, and IWV-3522).

BASIS FOR RELIEF: These valves are required to operate for rapid insertion (scram) of control rods. Each valve is tested by scram-timing control rods in accordance with Technical Specification Sections 3.3 and 4.3. The Technical Specifications require testing 10% of the CRDs every 16 weeks and 100% of the drives each refueling. The CRDs must fully insert within specified time limits. Should either the insert or exhaust valves fail, the CRDs would not be able to meet Technical Specification requirements.

The air-operated valves fail-open on loss of air or power. Normal opening removes power to the pilot solenoid valve, simulating a loss of power. On loss of power, the solenoid vents the air operator and CRD-AOV-CV126 and CRD-AOV-CV127 are spring-driven open. Thus, each time a scram signal is give, the valves "experience" a loss of air/power to verify each valve's fail-safe open feature. In effect, scram testing meets or exceeds the functional testing requirements of Section XI to assess operational readiness. Individual stroke time measurements of CRD-AOV-CV126 and CRD-AOV-CV127 is impractical due to their rapid acting operation and the absence of remote position indication that is needed for measuring stroke time.

One hundred percent of the valves cannot be tested more often than each refueling outage. To test 100% of the valves would result in a full reactor scram. An excess number of scrams performed routinely could cause thermal and reactivity transients, which could lead to fuel, vessel, CRD, or piping damage. The CRDs cannot be tested during cold shutdown because the control rods are inserted and must remain inserted.

RELIEF REQUEST RV-06 (Continued)

ALTERNATIVE TEST: Scram testing per Technical Specifications will be substituted for all Section XI requirements. The test frequency will be 10% each 16 weeks and 100% each refueling cycle. Valve stroke times will not be measured.

RELIEF REQUEST RV-07

VALVE: 1/2" CRD-CV-115 (typical of 137 each)

CLASS: 2

FUNCTION: Prevent bypassing scram water (from the accumulator) to charging water header (if depressurized); open to charge accumulators following scram.

REQUIRED TEST: Exercise quarterly or each cold shutdown in accordance with IWV-3522 (IWV-3521 and IWV-3522).

BASIS FOR RELIEF: Exercising these valves requires depressurization of the control rod drive charging water header. This is imprudent during normal plant operation due to the potential for pressure variations in the CRD System during the test evolution.

Exercising these valves at cold shutdown intervals would place an undue burden on plant personnel.

ALTERNATIVE TEST: These valves will be tested during each reactor refueling in the reverse flow direction (closed position) by isolating each of the CRD scram accumulators and venting pressure on the upstream side of the check valve. Accumulator pressure decay would be observed should the respective valve fail to close properly. Open position testing will also be performed during each reactor refueling by verifying the valve's associated accumulator returns to normal pressure after depressurization.

RELIEF REQUEST RV-08

(Withdrawn)

RELIEF REQUEST RV-09

VALVE: 10" SW-CV-35CV
10" SW-CV-36CV
10" SW-CV-37CV
10" SW-CV-38CV

CLASS: ANSI B31.1

FUNCTION: Diesel Generator Service Water (DG-SW) inlet supply check valves for engine cooling and diesel generator room cooling units.

REQUIRED TEST: Exercise to assess operational readiness every quarter (IWV-3521 and IWV-3522).

BASIS FOR RELIEF: These check valves are in the lines that supply cooling water to the emergency diesels. Diesel temperatures are monitored during monthly testing. Should these valves fail to open or provide adequate flow for DG cooling, the problem would be observed during this monthly test. Should DG operational temperature exceed specification, corrective action would be required per the surveillance procedure.

There is already a surveillance procedure in place to visually inspect the DG-SW check valves once every three years. This was in response to IE Bulletin 83-03.

ALTERNATIVE TEST: Each valve will be disassembled and visually inspected every three years during a refueling outage.

RELIEF REQUEST RV-10

(Withdrawn)

RELIEF REQUEST RV-11

VALVE: Excess Flow Check Valves

1" NBI-10-BCV to 47-BCV	(Drawing 2026)
1" RR-10-CV to 13-CV	(Drawing 2027)
1" RR-15-CV to 18-CV	(Drawing 2027)
1" RR-27-CV to 28-CV	(Drawing 2027)
1" RR-30-CV to 33-CV	(Drawing 2027)
1" NBI-48-BCV	(Drawing 2028)
1" MS-10-BCV to 17-BCV	(Drawing 2041)
1" HPCI-10-BCV to 11-BCV	(Drawing 2041)
1" RCIC-10-BCV to 13-BCV	(Drawing 2041)
1" CS-16-BCV to 17-BCV	(Drawing 2045)

CLASS: 2

FUNCTION: These valves are installed in instrument lines that provide signals for operation of safety-related valves and pumps. They prevent excess flow of reactor water should an instrument line break outside containment.

REQUIRED TEST: Test in accordance with Section XI, IWV-3521, and IWV-3522.

BASIS FOR RELIEF: Uninterrupted function of these valves is essential for safety. Routine testing in accordance with Section XI would cause instrument line interruptions. This would disable instruments required for safe plant operations, safety-system actuation, reactor shutdown, or sensing accident conditions.

The excess flow check valves are tested using a modified leak-rate test to assess operability. Testing is performed at least once each operation cycle in accordance with Technical Specification 4.7.D.1.d. Testing more frequently could jeopardize the safety of the reactor.

ALTERNATIVE TEST: In lieu of Section XI testing, a modified leak-rate test will be performed at least once each operation cycle.

RELIEF REQUEST RV-12

(Withdrawn)

RELIEF REQUEST RV-13

(Withdrawn)

RELIEF REQUEST RV-14

VALVE: 2" CS-CV-12
2" CS-CV-13
2" CS-CV-14
2" CS-CV-15

CLASS: 2

FUNCTION: Core Spray (CS) Loop A and Loop B pressure maintenance check valves from the condensate supply system.

REQUIRED TEST: Each check valve shall be exercised to the position required to fulfill its function (IWV-3522).

BASIS FOR RELIEF: These valves are normally open check valves (with two in series). They are required to be open to keep the CS system in a solid standby condition. When the CS pumps start, these valves should close to ensure maximum flow to the reactor. The current system design does not allow testing to ensure both valves have closed.

The surveillance procedure for CS pump testing provides adequate testing to verify the open position for these valves. Prior to pump testing, system vent valves are opened and flow is observed. This flow will verify the pressure maintenance valves are open and operating properly.

When a CS pump is started, should both valves fail to close, a relief valve would lift or a pressure sensor would alarm on the condensate supply side of the valves.

ALTERNATIVE TEST: Current CNS surveillance procedure testing of both valves simultaneously will serve to assess valve operational readiness of at least one valve of each pair.

RELIEF REQUEST RV-15

VALVE: 4" RHR-CV-18
4" RHR-CV-19
4" RHR-CV-24
4" RHR-CV-25

CLASS: 2

FUNCTION: Residual Heat Removal (RHR) Loop A and Loop B pressure maintenance check valves from the condensate supply system.

REQUIRED TEST: Each check valve shall be exercised to the position required to fulfill its function (IWV-3522).

BASIS FOR RELIEF: These valves are normally open check valves (with two in series). They are required to be open to keep the RHR system in a solid standby condition. When the RHR pumps start, these valves should close to ensure maximum flow to the reactor. The current system design does not allow testing to ensure both valves have closed.

The surveillance procedure for RHR pump testing provides adequate testing to verify the open position for these valves. Prior to pump testing, system vent valves are opened and flow is observed. This flow will verify the pressure maintenance valves are open and operating properly.

When a RHR pump is started, should both valves fail to close, a relief valve would lift or a pressure sensor would alarm on the condensate supply side of the valves.

ALTERNATIVE TEST: Current CNS surveillance procedure testing of both valves simultaneously will serve to assess valve operational readiness of at least one valve of each pair.

RELIEF REQUEST RV-16

VALVE: 2" HPCI-CV-18
2" HPCI-CV-19

CLASS: 2

FUNCTION: High Pressure Coolant Injection (HPCI) pressure maintenance check valves from the condensate supply system.

REQUIRED TEST: Each check valve shall be exercised to the position required to fulfill its function (IWV-3522).

BASIS FOR RELIEF: These valves are normally open check valves in series. They are required to be open to keep the HPCI system in a solid standby condition. When the HPCI pump starts to inject water to the reactor, these valves should close to ensure maximum flow to the reactor. The current system design does not allow testing to ensure both valves have closed.

The surveillance procedure for HPCI pump testing provides adequate testing to verify the open position for these valves. Prior to pump testing, system vent valves are opened and flow is observed. This flow will verify the pressure maintenance valves are open and operating properly.

When the pump is started, should both valves fail to close, a relief valve would lift or a pressure sensor would alarm on the condensate supply side of the valves.

ALTERNATIVE TEST: Current CNS surveillance procedure testing of both valves simultaneously will serve to assess valve operational readiness of at least one of the valves.

RELIEF REQUEST RV-17

VALVE: 14" RHR-CV-20

CLASS: 2

FUNCTION: The 14" RHR-CV-20 check valve is the emergency Service Water (SW) (river water) supply for core flooding.

REQUIRED TEST: Exercise each quarter or cold shutdown in accordance with IWV-3522(b).

BASIS FOR RELIEF: Routine exercising with SW flow could potentially allow corrosive materials and sand to be introduced into the Reactor Coolant system via RHR. This could lead to poor water purity, loss of chemical control, fuel degradation, and mechanical fouling of the reactor, associated pumps, piping, and valves. This would lead to reactor and/or system damage. Therefore, RHR-CV-20 cannot be exercised with flow during operations or cold shutdown. The history of previous inspection results justifies decreasing the test frequency to once every two years.

ALTERNATIVE TEST: At least once every two years during a refueling outage, this valve will be disassembled and manually full-stroke exercised.

RELIEF REQUEST RV-18

VALVE: 1.5" SLC-CV-12
1.5" SLC-CV-13

CLASS: 1

FUNCTION: Inboard and outboard containment isolation valves which must open to allow injection of sodium pentaborate (poison) for reactivity control.

REQUIRED TEST: Exercise each check valve quarterly or cold shutdown.

BASIS FOR RELIEF: To test SLC-CV-12 and SLC-CV-13 quarterly would require manually valving out the sodium pentaborate (poison) suction to the SLC pumps, flushing the system with demineralized water, and injecting cold demineralized water into a hot operator reactor vessel.

Injecting cold water into a hot reactor vessel could cause excessive thermal stresses in the piping or the reactor vessel nozzles and could potentially lead to reactor damage, fuel damage, and potential release of radioactive material. Also, Technical Specifications require the reactor to be in cold shutdown within 24 hours after the SLC System is declared inoperative (valving out pump suction).

To test these valves during cold shutdown would require firing the squib valves or valve disassembly. It would also require flushing the SLC System lines to remove any trace of poison. Introduction of residual poison could lead to degradation of reactivity control and potential reactor damage.

ALTERNATIVE TEST: SLC-CV-12 and SLC-CV-13 will be exercised open during each refueling outage. Both valves will be verified closed during leak rate testing during each refueling outage.

RELIEF REQUEST RV-19

(Withdrawn)

RELIEF REQUEST RV-20

VALVE: 16" HPCI-CV-11

CLASS: 2

FUNCTION: This valve is the HPCI pump suction line check valve from the torus and is normally closed.

REQUIRED TEST: Exercise each quarter or cold shutdown in accordance with IWV-3522(b).

BASIS FOR RELIEF: Partial or full-stroke exercising this valve is not possible with the existing system design. It would necessitate a system design change to permit recirculation to and from the torus.

Also, routine circulation of torus water through the HPCI System could potentially lead to system fouling, corrosion, and degradation. Degradation and damage to the HPCI could lead to a larger problem if the HPCI System was needed for an emergency. In order to preserve the integrity of the HPCI System, this valve will not be exercised with flow on a routine basis. The history of previous inspection results justifies decreasing the test frequency to once every two years.

ALTERNATIVE TEST: This valve will be disassembled and manually full-stroke exercised at least once every two years during a refueling outage.

RELIEF REQUEST RV-21

VALVE: 20" HPCI-LVSC-44
2" HPCI-LVSC-50

CLASS: 2

FUNCTION: 20" HPCI-LVSC-44 is a containment isolation stop check valve from the HPCI turbine exhaust to the torus.

2" HPCI-LVSC-50 is a containment isolation stock check valve from the HPCI turbine drain to the torus.

These valves are normally closed and the manual operators are locked open to allow free disk movement. They open during HPCI pump operability testing and are required to close for containment isolation.

REQUIRED TEST: Exercise each quarter or cold shutdown.

BASIS FOR RELIEF: The operators on these valves are manual operators. Should the stop check stems be exercised to the closed position quarterly to verify the disk is in the closed position, the HPCI System would be rendered inoperable during the time the stems are closed. Having HPCI unavailable, should an accident occur, could lead to reactor damage and potential release of radioactive material.

ALTERNATIVE TEST: The above valves will be verified as closed while performing leak rate testing during refueling outages.

RELIEF REQUEST RV-22

VALVE: 2" HPCI-CV-24
2" HPCI-CV-25
2" HPCI-CV-26
2" HPCI-CV-27

CLASS: 2

FUNCTION: Check valves required to open for vacuum relief of the HPCI turbine exhaust line to the torus.

REQUIRED TEST: Exercise each quarter of cold shutdown.

BASIS FOR RELIEF: The HPCI turbine exhaust vacuum breaker checks are located inside the torus. These valves are inaccessible or access is extremely hazardous for mechanical exercising during operations and cold shutdowns. The torus is highly contaminated and normally inerted with nitrogen during operations and cold shutdowns.

Exercising each refueling cycle would serve to adequately assess valve operational readiness and not unduly expose personnel to excess radiation exposure and safety hazards.

ALTERNATIVE TEST: Exercising will be performed each refueling outage.

RELIEF REQUEST RV-23

VALVE: 6" RCIC-CV-11

CLASS: 2

FUNCTION: This valve is the RCIC pump suction line check valve from the torus and is normally closed.

REQUIRED TEST: Exercise each quarter or cold shutdown.

BASIS FOR RELIEF: Partial or full-stroke exercising this valve is not possible with the existing system design. It would involve a system design change to permit recirculation to and from the torus.

Also, routine circulation of torus water through the RCIC system could potentially lead to system fouling, corrosion, and degradation. Degradation and damage to the RCIC System could lead to a larger problem if the RCIC System was needed for an emergency. In order to preserve the integrity of the RCIC System, this valve will not be exercised with flow on a routine basis. The history of previous inspection results justifies decreasing the test frequency to once every two years.

ALTERNATIVE TEST: This valve will be disassembled and manually full-stroke exercised at least once every two years during a refueling outage.

RELIEF REQUEST RV-24

VALVE: 2" RCIC-CV-18
2" RCIC-CV-19

CLASS: 2

FUNCTION: Reactor Core Isolation Cooling (RCIC) pressure maintenance check valves from the condensate supply system.

REQUIRED TEST: Exercise each quarter or cold shutdown.

BASIS FOR RELIEF: These valves are normally open check valves in series. They are required to be open to keep the RCIC system in a solid standby condition. When the RCIC pump starts, these valves should close to ensure maximum flow to the reactor. The current system design does not allow testing to ensure both valves have closed.

The surveillance procedure for RCIC pump testing provides adequate testing to verify the open position for these valves. Prior to pump testing, system vent valves are opened and flow is observed. This flow will verify the pressure maintenance valves are open and operating properly.

When the pump is started, should both valves fail to close, a relief valve would lift or a pressure sensor would alarm on the condensate supply side of the valves.

ALTERNATIVE TEST: Current CNS surveillance procedure testing of both valves simultaneously will serve to assess valve operational readiness of at least one of the valves.

RELIEF REQUEST RV-25

VALVE: 8" RCIC-LVSC-37
2" RCIC-LVSC-42

CLASS: 2

FUNCTION: 8" RCIC-LVSC-37 is a containment isolation stop check valve from the RCIC turbine exhaust to the torus.

2" RCIC-LVSC-42 is a containment isolation stop check valve from the RCIC vacuum pump to the torus.

These valves are normally closed and the manual operators are locked open to allow free disk movement. They open during monthly RCIC pump operability testing and are required to close for containment isolation.

REQUIRED TEST: Exercise each quarter or cold shutdown.

BASIS FOR RELIEF: The operators on these valves are manual operators. Should the check stems be exercised to the closed position quarterly to verify the disk is in the closed position, the RCIC System would be rendered inoperable during the time the stems are closed. Having the RCIC System unavailable, should an accident occur, could cause reactor damage and potential release of radiation.

ALTERNATIVE TEST: The above valves will be verified as closed while performing leak rate testing during refueling outages.

RELIEF REQUEST RV-26

VALVE: 1.5" RCIC-CV-22
1.5" RCIC-CV-23
1.5" RCIC-CV-24
1.5" RCIC-CV-25

CLASS: 2

FUNCTION: Check valves required to open for vacuum relief of the RCIC turbine exhaust line to the torus.

REQUIRED TEST: Exercise each quarter or cold shutdown.

BASIS FOR RELIEF: The RCIC turbine exhaust vacuum breaker checks are located inside the torus. These valves are inaccessible or access is extremely hazardous for mechanical exercising during operations and cold shutdowns. The torus is highly contaminated and normally inerted with nitrogen during operations and cold shutdowns.

Exercising each refueling cycle would serve to adequately assess valve operational readiness and not unduly expose personnel to excess radiation exposure and safety hazards.

ALTERNATIVE TEST: Exercising will be performed each refueling outage.

RELIEF REQUEST RV-27

VALVE:	6" MS-RV-71A	6" MS-RV-71E
	6" MS-RV-71B	6" MS-RV-71F
	6" MS-RV-71C	6" MS-RV-71G
	6" MS-RV-71D	6" MS-RV-71H

CLASS: 1

FUNCTION: Main steam power operated safety relief valves.

REQUIRED TEST: Full-stroke exercise and stroke-time each quarter or cold shutdown.

BASIS FOR RELIEF: These valves are power actuated and serve as safety relief valves for the main steam lines. Each valve is currently exercised during the Automatic Depressurization System Manual Valve Actuation Surveillance Test. Exercising these valves during reactor operations can cause pressure, temperature, and reactivity transients.

Exercising during each cold shutdown is not practical since steam temperature and pressure may affect operability. The valve supplier does not recommend exercising these valves below 150 psig steam pressure because of the risk of valve seat damage and resultant leakage. Technical Specifications require testing once each refueling cycle at a reactor pressure $\geq$100 psig, which is adequate to assess the operation readiness of these valves.

Relief valves are quick acting and their stroke-time cannot be measured by conventional means. Successful exercising will verify adequate stroke-time. Should a relief valve fail to function as designed, corrective action is required.

ALTERNATIVE TEST: Full stroke exercise these valves, without stroke timing, during each refueling outage.

RELIEF REQUEST RV-28

VALVE:	1" MS-CV-20	1" MS-CV-24	1" MS-CV-28	1" MS-CV-32
	1" MS-CV-21	1" MS-CV-25	1" MS-CV-29	1" MS-CV-33
	1" MS-CV-22	1" MS-CV-26	1" MS-CV-30	1" MS-CV-34
	1" MS-CV-23	1" MS-CV-27	1" MS-CV-31	1" MS-CV-35

CLASS: 2

FUNCTION: Check valves required to open for vacuum relief of the Main Steam Relief lines to the containment.

REQUIRED TEST: Exercise each quarter or cold shutdown.

BASIS FOR RELIEF: These vacuum breaker check valves are located inside containment. They are inaccessible for mechanical exercising during normal station operations.

Exercising these valves each refueling outage would serve to adequately assess valve operational readiness.

ALTERNATIVE TEST: Exercising will be performed each refueling outage.

RELIEF REQUEST RV-29

VALVE:	1" IA-CV-17	1" IA-CV-21
	1" IA-CV-18	1" IA-CV-22
	1" IA-CV-19	1" IA-CV-36
	1" IA-CV-20	1" IA-CV-37

CLASS: ANSI B31.1

FUNCTION: Instrument Air accumulator inlet check valves for Main Steam relief valve operators.

REQUIRED TEST: Exercise every quarter or cold shutdown.

BASIS FOR RELIEF: These valves are located inside the drywell and inaccessible or extremely difficult to access during normal operations or cold shutdown. They cannot be exercised during each cold shutdown because the drywell is not routinely de-inerted each cold shutdown.

ALTERNATIVE TEST: An extended time/pressure decay procedure will be used to verify each valve's closure. This will be done by venting the upstream side of the check valve and monitoring accumulator pressure to ensure each check valve functions properly. The above valves will be tested to verify open and closed positions at least once every two years during refueling outages.

RELIEF REQUEST RV-30

VALVE: 4" RWCU-CV-15

CLASS: 1

FUNCTION: Normally open Reactor Water Cleanup (RWCU) return line check valve and containment isolation valve.

REQUIRED TEST: Exercise each quarter or cold shutdown.

BASIS FOR RELIEF: This valve cannot be verified as being closed upon reversal or stopping of flow without opening and venting the line on the upstream side of the check valve. Opening or venting the RWCU line during operations could cause a leak of high pressure reactor coolant and potentially lead to the release of radioactive material.

Stopping RWCU flow during normal operations or cold shutdown for an extended period would lead to a degradation of reactor water purity. This would add to the radioactive contamination in the reactor coolant system and could lead to additional exposure of site personnel. It is essential that RWCU remain in operation as much as possible and RWCU-CV-15 be exercised to the closed position only during refueling outages.

ALTERNATIVE TEST: 4" RWCU-CV-15 will be verified closed while performing leak rate testing during refueling outages.

RELIEF REQUEST RV-31

VALVE:	3/4" CRD-CV-13 3/4" CRD-CV-14 3/4" CRD-CV-15 3/4" CRD-CV-16
CLASS:	2
FUNCTION:	Containment isolation valves for Control Rod Drive seal injection water for the Reactor Recirculation (RR) pumps.
REQUIRED TEST:	Exercise each quarter or cold shutdown.
BASIS FOR RELIEF:	These valves cannot be exercised during operation. Stopping or reversal of flow would impose a severe thermal transient on the RR pump seals, which could possibly lead to premature seal failure. During cold shutdown, there is insufficient pressure in the seal to verify flow reversal; thus, testing is impractical.
ALTERNATIVE TEST:	Each valve will be verified as operating properly (closing) during the leak rate test performed each refueling outage.

RELIEF REQUEST RV-32

(Withdrawn)

RELIEF REQUEST RV-33

(Withdrawn)

RELIEF REQUEST RV-34

VALVE: 18" SW-MO-89A
18" SW-MO-89B

CLASS: ANSI B31.1

FUNCTION: Loop A and B outlet isolation for the Service Water booster pump cooling water to the RHR heat exchangers.

REQUIRED TEST: Full-stroke and stroke-time quarterly or each cold shutdown (IWV-3413).

BASIS FOR RELIEF: These valves are exercised during quarterly Service Water booster pump flow testing to the position required to satisfy Technical Specification flow requirements. Assessing operational readiness has been performed by CNS for over ten years.

The SW System is continuously in service and each of the above valves is in the position required to support reactor shutdown. The valves are in their normal position related to safety. They are also easily accessible, and should they fail to operate, repair could be immediate.

ALTERNATIVE TEST: These valves will be full-stroke exercised every three months, but stroke times will not be measured.

RELIEF REQUEST RV-35

(Withdrawn)

RELIEF REQUEST RV-36

VALVE:	20" PC-CV-13 20" PC-CV-14
CLASS:	2
FUNCTION:	Torus Vacuum Relief
REQUIRED TEST:	Exercise each quarter or cold shutdown.
BASIS FOR RELIEF:	Access to these valves is extremely difficult and hazardous. Despite the personnel hazard, they have been tested quarterly for over ten years and have never experienced a failure. The valves do not experience excessive use or stress which could lead to valve degradation. For these reasons, the testing frequency will be changed to once each refueling outage.
ALTERNATIVE TEST:	Exercise once each refueling outage.

RELIEF REQUEST RV-37

(Withdrawn)

RELIEF REQUEST RV-38

VALVE: 2" HPCI-CV-16
4" HPCI-CV-17
20" HPCI-CV-15

CLASS: 2

FUNCTION: 2" HPCI-CV-16 - Closes for primary containment isolation.

4" HPCI-CV-17 - Open to provide a flowpath for HPCI pump minimum flow; closes for primary containment isolation.

20" HPCI-CV-15 - Opens to provide an exhaust path for the HPCI Turbine; closes for primary containment isolation.

REQUIRED TEST: Check valves shall be exercised at least once every three months, except as provided by IWV-3522 (IWV-3521).

BASIS FOR RELIEF: These valves are simple check valves, and thus, have no mechanism by which valve closure can be verified. Thus, the only practical method of testing in the closed position is to impress a reverse differential pressure on the valves and measure the seat leakage.

Performing such a test renders the HPCI system inoperable, thus it is not practical to perform during plant operation. Performing such a test at cold shutdowns could increase and complicate the outage workscope considerably and prove to be an undue burden on the plant staff.

ALTERNATIVE TEST: These valves will be verified to the closed position during each refueling outage in conjunction with Appendix J leak rate testing activities.

RELIEF REQUEST RV-39

VALVE: 2" RCIC-CV-12
2" RCIC-CV-13
8" RCIC-CV-15

CLASS: 2

FUNCTION: 2" RCIC-CV-12 - Provides a flowpath from the RCIC vacuum pump to the torus; closes for primary containment isolation.

2" RCIC-CV-13 - Opens to provide a flowpath for RCIC pump minimum flow; closes for primary containment isolation.

8" RCIC-CV-15 - Opens to provide an exhaust path for the RCIC turbine; closes for primary containment isolation.

REQUIRED TEST: Check valves shall be exercised at least once every three months, except as provided by IWV-3522 (IWV-3521).

BASIS FOR RELIEF: These valves are simple check valves, and thus, have no mechanism by which valve closure can be verified. Thus, the only practical method of testing in the closed position is to impress a reverse differential pressure on the valves and measure the seat leakage.

Performing such a test renders the RCIC System inoperable, thus it is not practical to perform during plant operation. Performing such a test at cold shutdowns could increase and complicate the outage workscope considerably and prove to be an undue burden on the plant staff.

ALTERNATIVE TEST: These valves will be verified to the closed position during each refueling outage in conjunction with Appendix J leak rate testing activities.

RELIEF REQUEST RV-40

VALVE:	24" MS-AO-80A	24" MS-AO-86A
	24" MS-AO-80B	24" MS-AO-86B
	24" MS-AO-80C	24" MS-AO-86C
	24" MS-AO-80D	24" MS-AO-86D

CLASS: 1

FUNCTION: Inboard and Outboard Main Steam Isolation Valves (MSIV) for loops A, B, C, and D.

REQUIRED TEST: When practical, valves with fail-safe actuators shall be tested by observing the operation of valves upon loss of acutator power (IWV-3415).

BASIS FOR RELIEF: Fail-safe testing during normal operations would cause power transients and possibly reactor scram due to MSIV closure. The additional procedural requirements to perform fail-safe testing of these valves represents an excessive operational burden. Confirmation of the capability of these valves to function with only their accumulator air supply once per reactor refueling is adequate.

ALTERNATIVE TEST: Fail-safe testing of the MSIVs (accumulator air supply only) will be performed each refueling outage.

RELIEF REQUEST RV-41

VALVE: 12" REC-CV-16

CLASS: 3

FUNCTION: This valve closes to prevent backflow into the non-critical Reactor Building Closed Cooling Water (RBCCW) return header from the suction of the RBCCW pumps.

REQUIRED TEST: Check valves shall be exercised at least once every three months, except as provided by IWV-3522 (IWV-3521).

BASIS FOR RELIEF: To test CV-16 in the closed direction requires depressurization of the non-critical REC return header. This, in turn, would interrupt cooling to important equipment, including the control rod drive pumps, RWCU pumps and heat exchangers, drywell ventilation coolers, reactor recirculation pumps, and the recirculation pump motor generator sets. This could not be done during normal operation without subjecting major equipment to damage from overheating.

During cold shutdown periods, it is not unusual to maintain these critical systems/components in operation. Thus, in most instances, testing during cold shutdown is not practical.

ALTERNATIVE TEST: During each reactor refueling interval, this valve will be exercised to the closed position.

RELIEF REQUEST RV-42

VALVE: Diesel Generator Air Start Valves

DG-SOV-DG1 (20 SAL)
DG-SOV-DG2 (20 SAL)
DGSA-AOV-AV1
DGSA-AOV-AV2
DGSA-AOV-AV3
DGSA-AOV-AV4
DGSA-AOV-AV5
DGSA-AOV-AV6
DGSA-AOV-AV7
DGSA-AOV-AV8
DG-SOV-DG1 (20 SAR)
DG-SOV-DG2 (20 SAR)

CLASS: ANSI B31.1

FUNCTION: Direct starting air to the emergency diesel generators.

REQUIRED TEST: The stroke time of all power operated valves shall be measured to the nearest second...(IWV-3413(b)).

BASIS FOR RELIEF: It is impractical to measure the stroke time of the air start valves directly, since there is no visible stem movement and the valves have no position indicators.

ALTERNATIVE TEST: Starting the standby emergency diesel generators using the air start system will be considered demonstration of proper operation of the air start valves. Therefore, the air start valves will be tested when the diesel generators are tested in accordance with Technical Specifications. Each air start valve train will be exercised during this testing at least quarterly.

RELIEF REQUEST RV-43

VALVE: 20" SCV-NRV-20 through
20" SCV-NRV-31

CLASS: ANSI B31.1

FUNCTION: These are the pressure suppression chamber to drywell vacuum breaker valves which open to equalize the pressure between the two volumes should the drywell pressure decrease below that of the suppression chamber. These valves, in conjunction with the torus to Reactor Building vacuum breakers, protect the drywell if the drywell pressure becomes less than the Reactor Building.

REQUIRED TEST: Check valves shall be exercised at least once every three months, except as provided by IWV-3522 (IWV-3521).

Valves that are normally closed during plant operation and whose function is to open on reversal of pressure differential shall be tested by proving that the disk moves promptly away from the seat when the closing pressure differential is removed and flow through the valve is initiated, or when a mechanical opening force is applied to the disk. If the test is made without flow through the valve, a mechanical exerciser shall be used to move the disk. The force or torque delivered must be limited to less than 10% of the equivalent force....., except that for vacuum breaker valves, the exerciser force or torque delivered to the disk may be equivalent to the desired functional pressure differential force. This implies that force or torque measurements are required.

BASIS FOR RELIEF: These valves are located inside the torus, and as such, are not readily accessible for obtaining the required measurements during reactor operation or when the containment is inerted.

Technical Specifications require each valve be exercised through an opening-closing cycle every 30 days to ensure operability.

ALTERNATIVE TEST: The valves will be stroked quarterly during plant operation using installed air operators without any quantitative setpoint measurements. Additionally, each will be tested to open with a mechanical exerciser verifying the setpoint requirement at least once each refueling cycle.

RELIEF REQUEST RV-44

VALVE: .5" IA-CV-28 through CV-35
.5" IA-CV-47 and CV-48

CLASS: ANSI B31.1

FUNCTION: IA-CV-28 through CV-35 - Open to provide operating gas for inboard and outboard Main Steam Isolation Valves (MSIVs); close to isolate individual valve accumulator for emergency gas supply.

IA-CV-47 and CV-48 - Open to provide operating gas for torus-Reactor Building vacuum breaker valves; close to isolate individual valve accumulator for emergency gas supply.

REQUIRED TEST: Exercise every quarter or cold shutdown (IWV-3521).

BASIS FOR RELIEF: These check valves have no position indicators. The only practical method to verify valve closure is a leak test. The complexity of the leak test (test set-up, ALARA, etc.) dictates the test be performed during refueling outages. Furthermore, testing of the MSIV accumulator checks requires entry into the drywell and the steam tunnel, which makes them inaccessible or extremely hazardous to access during normal operations or cold shutdowns.

ALTERNATIVE TEST: A pressure decay procedure (leak rate test) will be used to verify each valve's closure function. This will be accomplished by venting the upstream side of the check valve and monitoring accumulator pressure.

These check valves will be tested to verify open and closed positions at least once every two years during refueling outages.

RELIEF REQUEST RV-45

VALVE:	Penetration	Valves
	X-7A	MS-AO-80A, MS-AO-86A
	X-7B	MS-AO-80B, MS-AO-86B
	X-7C	MS-AO-80C, MS-AO-86C
	X-7D	MS-AO-80D, MS-AO-86D
	X-8	MS-MO-74, MS-MO-77
	X-9A	RF-CV-15, RCIC-AO-22, RCIC-MO-17, RWCU-CV-15
	X-9B	RF-CV-13, HPCI-AO-18, HPCI-MO-57
	X-10	RCIC-MO-15, RCIC-MO-16
	X-11	HPCI-MO-15, HPCI-MO-16
	X-12	RHR-MO-18, RHR-MO-17
	X-13A	RHR-MO-25A, RHR-MO-27A
	X-13B	RHR-MO-25B, RHR-MO-27B
	X-14	RWCU-MO-15, RWCU-MO-18
	X-16A	CS-MO-11A, CS-MO-12A
	X-16B	CS-MO-11B, CS-MO-12B
	X-18	RW-AO-94, RW-AO-95
	X-19	RW-AO-82, RW-AO-83
	X-25	PC-MO-232, PC-AO-238
	X-25	ACAD-MO-1305, ACAD-MO-1306
	X-26	PC-MO-231, PC-AO-246, PC-MO-306, ACAD-MO-1310
	X-39A	RHR-MO-26A, RHR-MO-31A
	X-39B	RHR-MO-26B, RHR-MO-31B
	X-39B	ACAD-MO-1311, ACAD-MO-1312
	X-41	RR-AO-740, RR-AO-741
	X-42	SLC-CV-12, SLC-CV-13
	X-205	PC-MO-233, PC-AO-237
	X-205	PC-AO-243, PC-CV-13
	X-205	PC-AO-244, PC-CV-14
	X-205	ACAD-MO-1303, ACAD-MO-1304
	X-210A	RCIC-MO-27, RCIC-CV-13
	X-210A	RHR-MO-16A, RHR-CV-10, RHR-CV-12
	X-210B	HPCI-MO-25, HPCI-CV-17
	X-210B	RHR-MO-16B, RHR-CV-11, RHR-CV-13
	X-210A, 211A	RHR-MO-34A, RHR-MO-38A, RHR-MO-39A
	X-210B, 211B	RHR-MO-34B, RHR-MO-38B, RHR-MO-39B
	X-211B	ACAD-MO-1301, ACAD-MO-1302
	X-212	RCIC-CV-15, RCIC-LVSC-37
	X-214	HPCI-CV-15, HPCI-LVSC-44
	X-214	RHR-MO-166A, RHR-MO-167A
	X-214	RHR-MO-166B, RHR-MO-167B
	X-214	HPCI-AO-70, HPCI-AO-71
	X-220	PC-MO-230, PC-AO-245, PC-MO-305, ACAD-MO-1308
	X-221	RCIC-CV-12, RCIC-LVSC-42
	X-222	HPCI-CV-16, HPCI-LVSC-50

CLASS: 1, 2

FUNCTION: Primary Containment Isolation Valves

RELIEF REQUEST RV-45 (Continued)

REQUIRED TEST: Category A valves shall be seat leak tested to a specific maximum amount for each valve in the closed position for fulfillment of their safety function at least once every two years (IWV-3421, 3426).

BASIS FOR RELIEF: The configuration of the piping systems is such that individual testing of these valves is not possible.

ALTERNATIVE TEST: The valves will be tested in multiple arrangements with a maximum leakage rate established for each combination of valves, as appropriate.

RELIEF REQUEST RV-46

PUMP:	3/8" NMT-NVA-104A 3/8" NMT-NVA-104B 3/8" NMT-NVA-104C 3/8" NMT-NVA-104D
CLASS:	2
FUNCTION:	Closes to prevent reactor coolant from reaching the drive mechanism if a leak were to develop in the reactor core.
REQUIRED TEST:	Valves with remote position indicators shall be observed at least once every two years to verify that valve operation is accurately indicated (IWV-3300).
BASIS FOR RELIEF:	These valves are encapsulated solenoid operated ball valves. There is no means of verifying physical position of the ball valve. Other positive indication of the valve's position, such as flow or pressure, is not practical since this is a guidance tube without a process medium (i.e., liquid or gas). Also, access to these valves is limited due to ALARA concerns. A person would receive a dosage in excess of 1000 mR/hr. A position indication test is not possible with the existing design.
ALTERNATIVE TEST:	A position indication test will not be performed for these valves.

TECHNICAL JUSTIFICATION TJV-01

VALVES: 3" RHR-920-MV
3" RHR-921-MV

CLASS: 2

FUNCTION: Provide redundant isolation of main steam to the Augmented Off Gas (AOG) System.

BASIS FOR TECHNICAL JUSTIFICATION: The steam supply cannot be isolated during normal plant operation without causing significant AOG System transients. Transients could include a fast or uncontrolled burn of hydrogen gas in the AOG piping buried underground and leading outside the plant. Also, routine quarterly testing of either of these two valves could cause a release of radioactive material several magnitudes above normal release activities.

ALTERNATIVE TEST: The test frequency will be during cold shutdown in accordance with IWV-3412(a).

TECHNICAL JUSTIFICATION TJV-02

VALVE: 20" RHR-MO-17
20" RHR-MO-18

CLASS: 2

FUNCTION: Reactor vessel return to the RHR pump suction and containment isolation during reactor operations. They are only opened for low pressure shutdown cooling.

BASIS FOR TECHNICAL JUSTIFICATION: Valves RHR-MO-17 and RHR-MO-18 are interlocked for pressure isolation during plant operation. Opening these valves during operations could possibly allow high pressure reactor coolant water into the low pressure suction lines of the RHR system. Therefore, it is essential that these valves remain closed during plant operations.

ALTERNATIVE TEST: The test frequency will be during cold shutdowns in accordance with IWV-3412(a).

TECHNICAL JUSTIFICATION TJV-03

(Deleted)

TECHNICAL JUSTIFICATION TJV-04

VALVE: 28" RR-MO-53A
28" RR-MO-53B

CLASS: 1

FUNCTION: Reactor Recirculation Pump 1A and 1B Discharge Isolation

BASIS FOR TECHNICAL JUSTIFICATION: Closure of either of the RR pump discharge valves would reduce recirculation flow and result in reactor water temperature transients and reactivity transients. These transients would reduce control of power distribution and fuel usage. This could lead to decreased fuel reliability and increase the possibility of a fuel element failure. In addition, failure of these valves during operation would require reactor shutdown due to inaccessibility.

ALTERNATIVE TEST: Valve stroke-time testing will be performed each cold shutdown in accordance with IWV-3412(a).

TECHNICAL JUSTIFICATION TJV-05

VALVE: 10" CS-AO-13A and B
24" RHR-AO-68A and B

CLASS: 1

FUNCTION: These valves open for Core Spray or LPCI injection and close for isolation of the low pressure systems from the primary system.

BASIS FOR TECHNICAL JUSTIFICATION: These valves are normally closed to isolate the related low pressure systems from the Reactor Recirculation System and the reactor vessel. Opening these valves during plant power operation would reduce the level of protection of the Core Spray and RHR systems from overpressurization as a result of leakage from the primary system.

ALTERNATIVE TEST: These valves will be exercised during cold shutdown periods in accordance with IWV-3522.

TECHNICAL JUSTIFICATION TJV-06

VALVE: 10" CS-MO-12A and 12B

CLASS: 1

FUNCTION: These valves open for Core Spray injection and close to isolate the Core Spray System piping from the high pressure primary system.

BASIS FOR TECHNICAL JUSTIFICATION: These valves are normally closed during plant operation at power. Opening either of these valves at operating pressure could reduce the level of protection of the low pressure core spray piping from overpressurization as a result of valve failure or leakage from the high pressure primary system.

ALTERNATIVE TEST: These valves will be exercised during cold shutdown periods in accordance with IWV-3412(a).

TECHNICAL JUSTIFICATION TJV-07

VALVE: 24" RHR-MO-25A and 25B

CLASS: 1

FUNCTION: These valves open for LPCI initiation and close to isolate the Residual Heat Removal System piping from the high pressure primary system.

BASIS FOR TECHNICAL JUSTIFICATION: These valves are normally closed during plant operation at power. Opening either of these valves at operating pressure could reduce the level of protection of the low pressure residual heat removal piping from overpressurization as a result of valve failure or leakage from the high pressure primary system.

ALTERNATIVE TEST: These valves will be exercised during cold shutdown periods in accordance with IWV-3412(a).

TECHNICAL JUSTIFICATION TJV-08

VALVE:

14" HPCI-MO-19
14" HPCI-MO-20
10" HPCI-MO-15
10" HPCI-MO-16
16" HPCI-MO-17

CLASS:

14" HPCI-MO-19 - Class 2
14" HPCI-MO-20 - Class 2
10" HPCI-MO-15 - Class 1
10" HPCI-MO-16 - Class 1
16" HPCI-MO-17 - Class 2

FUNCTION:

14" HPCI-MO-19 - Opens to provide a flowpath for HPCI into the feedwater system.

14" HPCI-MO-20 - Provides a flowpath for HPCI into the feedwater system.

10" HPCI-MO-15 and 16 - Open to supply steam to the HPCI turbine; close for containment isolation.

16" HPCI-MO-17 - Open for HPCI pump suction from the emergency condensate storage tanks.

BASIS FOR TECHNICAL JUSTIFICATION: Testing any of these valves places the plant in a condition such that failure of a valve in its closed position would render the HPCI System inoperable. (NOTE: Operation of HPCI-MO-19 would require closure of HPCI-MO-20.) Due to the unique function of the HPCI System, this is considered to be imprudent when the plant is operating at power.

ALTERNATIVE TEST: These valves will be exercised during cold shutdown periods in accordance with IWV-3412(a).

TECHNICAL JUSTIFICATION TJV-09

VALVE:

6" RCIC-MO-18
4" RCIC-MO-20
3" RCIC-MO-15
3" RCIC-MO-16
4" RCIC-MO-21

CLASS:

6" RCIC-MO-18 - Class 2
4" RCIC-MO-20 - Class 2
4" RCIC-MO-21 - Class 2
3" RCIC-MO-16 - Class 1
3" RCIC-MO-15 - Class 1

FUNCTION:

4" RCIC-MO-21 - Opens to provide a flowpath for RCIC into the feedwater system.

4" RCIC-MO-20 - Provides a flowpath for RCIC into the feedwater system.

3" RCIC-MO-15 and 16 - Open to supply steam to the RCIC turbine; close for containment isolation.

6" RCIC-MO-18 - Open for RCIC pump suction from the emergency condensate storage tanks.

BASIS FOR TECHNICAL JUSTIFICATION: Testing any of these valves places the plant in a condition such that failure of a valve in its closed position would render the RCIC System inoperable. (NOTE: Operation of RCIC-MO-21 would require closure of RCIC-MO-20.) Due to the unique function of the RCIC System, this is considered to be imprudent when the plant is operating at power.

ALTERNATIVE TEST: These valves will be exercised during cold shutdown periods in accordance with IWV-3412(a).

TECHNICAL JUSTIFICATION TJV-10

VALVE: 10" REC-MO-700
8" REC-MO-702

CLASS: ANSI B31.1

FUNCTION: REC isolation to drywell and non-critical service water loads.

BASIS FOR TECHNICAL JUSTIFICATION: Closing these valves isolates cooling water to critical, but non-safety related equipment, including drywell cooling units, reactor recirculation pumps and MG sets, reactor water cleanup heat exchangers and pumps, and control rod drive pumps. Interruption of cooling water to these components could cause equipment damage and lead to a plant trip or forced shutdown.

ALTERNATIVE TEST: These valves will be exercised during cold shutdown periods. Testing may be deferred, however, if the associated cooling loads are in operation and require cooling water flow.

TECHNICAL JUSTIFICATION TJV-11

VALVE: 2" DG-SA-14-CV
2" DG-SA-15-CV
2" DG-SA-16-CV
2" DG-SA-17-CV

CLASS: ANSI B31.1

FUNCTION: Open to provide sufficient starting air to start the diesel generators on loss of site electrical power and close to provide system isolation and redundancy.

BASIS FOR TECHNICAL JUSTIFICATION: Testing these valves requires isolating both emergency diesel generator starting air receivers causing the related emergency diesel generator to be considered inoperable during the test. Due to the importance of the diesel generator with respect to plant safety, intentionally causing a generator to be inoperable during plant operation at power is considered to be imprudent.

ALTERNATIVE TEST: These valves will be tested during cold shutdown periods in accordance with IWV-3522.

ADDITIONAL CHANGES TO THE IST PROGRAM

1. The Table of Contents was revised to reflect Program content changes.

2. The existing Rev. 5 Introduction has been deleted. A new Introduction, Section I of the Program, has been added and includes introductory statements that are similar in context to the old statements.

3. The existing Rev. 5 IST Pump Summary Listing (Tabs 1, 2, and 3), the General Pump Testing Procedure, Pump Schedule, Pump Listing, Listing by Procedure, and Listing by System sections have been deleted from the Program. Two new sections (Sections II and III), Testing Program for Pumps and Pump Summary Listing, have been added. Section II, Testing Program for Pumps, describes aspects of the pump testing program. Section III, Pump Summary Listing, is similar in form and context as the old Listing by System section.

4. The existing Rev. 5 IST Valve Summary Listing (Tabs 1, 2, and 3), the General Valve Testing Procedure, Valve Schedule, Valve Listing, Listing by Procedure, Listing by System, and Listing by Category sections have been deleted. Two new sections, Testing Program for Valves (Section IV) and Valve Summary Listing (Section V) have been added. Section IV describes aspects of the valve testing program. Section V is similar in form and context as the old Listing by System section, but contains additional information on specific valve tests.

5. The Appendices section, which includes Tab A and B information, has been deleted. This information is not required to be a part of the Program document itself, but will be kept on file.

6. Following is a list of valves that have been deleted from the IST Program not previously addressed. These valves were evaluated and determined not to have a safety-related function, and therefore, do not require testing per Section XI.

A.	CS-MO-15A and CS-MO-15B:	Bypass valves for the testable check valves, CS-AO-13A and 13B.
B.	RHR-RV-16:	RHR head spray relief valve to torus. (Removed from plant.)
C.	RHR-MO-274A and RHR-MO-274B:	Bypass valves for the testable check valves, RHR-AO-68A and 68B.
D.	RHR-MO-20:	RHR loop A and B cross-connect.
E.	CRD-CV-19, 20, 21, and 22:	Scram accumulator vent-vacuum breaker check valves.
F.	REC-CV-15:	REC to containment cooling units.

7. Following is a list of valves that have been added to the IST Program not previously addressed. These valves were evaluated and determined to have a safety-related function. As a result of these additions, Relief Request RV-44 was drafted and is contained in Attachment 2.

   A. IA-CV-28 through IA-CV-35: Accumulator check valves for the main steam isolation valves. (RV-44 applies.)

   B. IA-CV-47 and IA-CV-48: Accumulator check valves for the torus vacuum relief valves, PC-243 and PC-244. (RV-44 applies.)

   C. IA-CV-50, 51, 52, and 53: Accumulator check valves for drywell sump pumps equipment and drain valves, RW-AO-82, 83, 94, and 95.

   D. SGT-CV-10: SGT suction from Reactor Building exhaust.

   E. SGT-CV-14 and SGT-CV-15: SGT units "A" and "B" fan exhaust check valves.

8. Following is a list of new or revised relief requests not previously addressed. Additional reviews of the IST Program have identified the need for these new or revised relief requests. In some cases, changes to existing relief requests were made for clarification.

   A. RP-02 SLC Pump Inlet Pressure Measurement

   B. RP-03 SW Pump Vibration Measurement

   C. RP-11 Required Action Range-High and Alert Range-High Limits

   D. RP-12 CS, RHR, HPCI, and RCIC Pumps Suction Pressure Gauge Range

   E. RP-13 CS, RHR, HPCI, RCIC, SW, and SWB Pumps Instrument Accuracy

   F. RV-01 Valve Leak Rate Test Method and Criteria

   G. RV-05 Reactor Feedwater Check Valve Reverse Flow Test

   H. RV-07 Check Valve CRD-CV-115 Testing Relief

   I. RV-11 Excess Flow Check Valves Testing Relief

   J. RV-14 Core Spray Pressure Maintenance Check Valves Testing to the Closed Position (CS-CV-12, 13, 14, and 15)

   K. RV-16 HPCI Pressure Maintenance Check Valves Testing to the Closed Position (HPCI-CV-18 and 19)

L. RV-18 SLC-CV-12 and SLC-CV-13 Test Frequency

M. RV-21 HPCI-LVSC-44 and HPCI-LVSC-50 Testing to the Closed Position

N. RV-22 HPCI-CV-24, 25, 26, and 27 Test Frequency

O. RV-24 RCIC-CV-18 and 19 Testing to the Closed Position

P. RV-26 RCIC-CV-22, 23, 24, 25 Test Frequency

Q. RV-27 Main Steam Relief Valve Exercising Test Frequency

R. RV-29 IA Accumulator Check Valve Testing/Frequency (IA-CV-17, 18, 19, 20, 21, 22, 36, and 37)

S. RV-30 RWCU-CV-15 Test Frequency

T. RV-31 CRD-CV-13, 14, 15, and 16 Exercise Test Frequency

U. RV-34 Service Water Motor Operated Valves to RHR (SW-MO-89A and 89B) Testing Relief

V. RV-36 PC-CV-13 and 14 Test Frequency

W. RV-38 HPCI-CV-15, 16, and 17 Testing to the Closed Position

X. RV-39 RCIC-CV-12, 13, and 15 Testing to the Closed Position

Y. RV-40 Main Steam Isolation Valves (MS-AO-80A, B, C, D; 86A, B, C, D) Fail Safe Test Frequency

Z. RV-43 Suppression Chamber Vacuum Breaker Check Valves Open Test Frequency

AA. RV-45 Group Leak Rate Testing of Primary Containment Isolation Valves

BB. RV-46 TIP Ball Valves Position Indication Test

9. Following is a list of new Technical Justifications not previously addressed. Additional reviews of the IST Program have identified the need for these cold shutdown Technical Justifications.

A. TJV-05 CS-AO-13A and 13B; RHR-AO-68A and 68B

B. TJV-06 CS-MO-12A and 12B

C. TJV-07 RHR-MO-25A and 25B

D. TJV-08 HPCI-MO-15, 16, 17, 19, and 20

E. TJV-09 RCIC-MO-15, 16, 18, 20, and 21

F. TJV-11 DG-SA-CV-14, 15, 16, and 17

10. Other minor changes have been made to the valve listing (such as correction of the valve identification number, valve nomenclature, etc.) which does not change the intent of the IST Program.