UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

INSERVICE TESTING PROGRAM SAFETY EVALUATION REPORT BY THE OFFICE OF NUCLEAR REACTOR REGULATION SUPPORTING AMENDMENT NO. 60 TO FACILITY OPERATING LICENSE NO. DPR-42 AND AMENDMENT NO. 54 TO FACILITY OPERATING LICENSE NO. DPR-60 NORTHERN STATES POWER COMPANY PRAIRIE ISLAND UNIT NOS. 1 & 2 DOCKET NOS. 50-282 AND 50-306

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1.0 INTRODUCTION

1.1 Background

The revision to 10 CFR 50.55a, published in February 1976, required that Inservice Inspection and Testing (ISI/IST) Programs be updated to meet the requirements to the extent practical of the Edition and Addenda of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code* incorporated in the Regulation by reference in paragraph (b). This updating of the programs was required to be done periodically, i.e., every forty months for inservice inspection and twenty months for inservice testing, to reflect the new requirements of the later editions of Section XI.

As specified in the February 1976 revision, for plants with Operating Licenses issued prior to March 1, 1976, the Regulations became effective after September 1, 1976, at the start of the next regular 40-month inspection period. The initial inservice examinations conducted during the first 40-month period, and the initial inservice tests of pumps and valves conducted during the first 20-month period were to comply with the requirements in editions of Section XI and addenda in effect no more than 6 months prior to the date of start of facility commercial operation.

The Regulation recognized that the requirements of the later editions and addenda of the Section XI may not be practical to implement at facilities because of limitations of design, geometry, and materials of construction of components and systems. It therefore permitted determinations of impractical examination or testing requirements to be evaluated and relief granted provided health and safety of the public were not endangered giving due consideration of the burden placed on the licensee if the requirements were

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*Hereinafter referred to as Section XI.

imposed. The Regulation also allows the Commission to require the licensee to follow an augmented inspection or testing program for which it deems that added assurance of structural or system reliability is necessary.

The revision to 10 CFR 50.55a, effective November 1, 1979, modified the time interval for updating ISI/IST programs and incorporated by reference a later edition and addenda of Section XI. The updating intervals for inservice examinations and for inservice testing of pumps and valves were extended from 40 months and 20 months, respectively, to 120 months in order to be consistent with intervals as defined in Section XI. Inservice examinations and inservice tests conducted during the initial 120-month interval are to comply with the requirements of the latest edition and addenda of Section XI, incorporated by reference in the Regulation, in effect 12 months prior to the date of issuance of the operating license.

For plants with Operating Licenses issued prior to March 1, 1976, the provisions of the November 1, 1979 revision are effective after September 1, 1976 at the start of the next one-third of the 120-month interval. During the one-third of an interval and throughout the remainder of the interval, inservice examinations and inservice testing of pumps and valves shall comply with the latest edition and addenda of Section XI, incorporated by reference in the Regulation, on the date 12 months prior to the start of that one-third of an interval.

1.2 Discussion

Our letter dated April 28, 1976 to Northern States Power (the licensee) called attention to the February 1976 revision to 10 CFR 50.55a and requested that we be notified of the dates that the next 40-month inspection period would begin. In addition, our letter pointed out that the revised regulations require inservice inspection and testing to be performed in accordance with the examination and testing requirements set forth in Section XI and addenda thereto. A review of the 1974 edition of ASME Section XI indicated that conflicts may occur between these requirements and the Technical Specifications presently in effect for the licensee's facility. To avoid these and

future conflicts, the licensee was advised, in accordance with 10 CFR 50.55a(g)(5)(ii) to apply to the Commission for amendment of the facility Technical Specifications. Further, any such conflicting Technical Specifications should be replaced with a reference to 10 CFR 50.55a. Sample language for such Technical Specification changes was provided.

The licensee was further advised that if it was determined that conformance with certain Section XI inservice inspection and testing requirements were impracticable, the licensee should submit information to support the determinations in accordance with 10 CFR 50.55a(g)(5)(ii) and (iv). The determinations should separately identify the specific Section XI requirement that is impracticable for each affected component. We indicated that the staff would evaluate each determination, and, if appropriate, grant relief pursuant to 10 CFR 50.55a(g)(6)(i).

The licensee was also advised that, as required by the revised regulations, requests for amendment of Technical Specifications and information to support determinations that conformance with certain Section XI requirements was impracticable were to be submitted at least 6 months prior to the start of the inspection period during which the provisions would become applicable for the facility.

By application transmitted by letters dated October 15, 1976 for Unit 1 and October 12, 1977 for Unit 2 the licensee requested changes to the Technical Specifications (TSs) appended to Facility Operating License Nos. DPR-42 and DPR-60 for the Prairie Island Nuclear Generating Plant Unit Nos. 1 and 2, respectively. In addition to approving the modified IST program, these amendments would revise the TSs to incorporate the provisions of the approved program.

The Commission by letter dated November 14, 1980 issued Amendments No. 43 and 37 revising the Technical Specification Inservice Inspection Program for components to meet the requirements of 10 CFR 50.55a. This safety evaluation covers the pump and valve testing phase of the program known as Inservice Testing Program (IST). By letters dated February 1, 1978, September 15, 1978,

June 8, 1979, April 17, 1980, September 3, 1980, July 31, 1981 and December 23, 1981, the licensee submitted a complete revised IST program upon which we have based this review. The licensee has determined that certain code requirements cannot be implemented at the facility because of component or system design, geometry or material of construction. Pursuant to 10 CFR 50.55a(g)(6)(i) the requested reliefs from the code requirements have been evaluated and our determinations to grant or deny the requests are documented below.

2.0 PUMP TESTING PROGRAM EVALUATION

2.1 The Licensee's Request for Relief from Measuring Pump Bearing Temperature Pursuant to Section XI IWP3110, 3210 and 4310 (Relief Request No. 1)

Affected Components

Safety Injection Pumps 11, 12, 21 and 22, Component Cooling Pumps 11, 12, 21, and 22, Containment Spray Pumps 11, 12, 21, and 22, Diesel Driven Cooling Water Pumps 12 and 22, Residual Heat Removal Pumps 11, 12, 21, and 22, Control Room Chill Water Pumps 121, and 122.

Code Requirement

The bearing temperature of all centrifugal pump bearings and main shaft bearings of reciprocating pumps shall be measured at points selected to be responsive to changes in temperature of bearing. Measurements shall be made one per year.

Licensee's Basis for Relief

There is no instrumentation installed to measure lube oil or bearing temperature. Meaningful temperature data can be determined only with extensive equipment modifications (being able to monitor bearing metal temperature). As the data is required only once a year these modifications are not warranted. Simpler modifications (such as measuring lube oil temperature or bearing housing temperature) would not provide data to any great degree of accuracy or reliability and using this data to judge the operability of the pump could cause operational problems in complying with limiting conditions for operation.

Evaluation

The licensee has shown that the design of these pumps does nct permit meaningful measurement of bearing temperature trend by lube oil or bearing housing. The licensee has agreed to measuring vibration velocity of these pumps monthly. Because the frequency of measurement of this parameter and the code requirement to compare this parameter to reference values, it is judged that bearing degradation will be indicated sooner with vibration velocity measurements than bearing temperature.

Conclusion

Based on the above evaluation, we agree with the licensee that measuring the bearing temperature is impractical. The staff concludes that deletion of the bearing temperature measurement will not significantly decrease the capability of determining the pumps' mechanical condition or the plants' margin of safety. Thus, this relief does not endanger public health and safety. Therefore, relief from this requirement may be granted.

2.2 The Licensee's Request for Relief from Measuring Pump Shaft Vibration Amplitude Pursuant to Section XI IWP-3110,-3210 and-4500 (Relief Request No. 2

Affected Components

Same as those listed in 2.1 and Auxiliary Feedwater Pumps 11, 12, 21, and 22.

Code Requirement

Vibration amplitude shall be measured during each inservice test, nominally at monthly intervals.

Licensee's Basis for Relief

The vibration amplitude is considered inferior to vibration velocity measurements as a method of determining machine condition.

Evaluation

The licensee has used ASME Publication 67-PEM-14, Vibration Tolerance for Industry and the base line vibration data established during the initial plant startup, as guides for establishing alert and required action ranges.

The alert and action ranges which the licensee has been applying since the ASME Section XI Code became effective are as follows:

Vibration Velocity Ranges	Alert Range	Action Range
V_r < .1 in/sec	V_a > .20 in/sec	V_m > .3 in/sec
.8 in/sec < V_r > .1 in/sec	V_a > V_r +.20 in/sec	V_m > V_r +.3 in/sec
V_r > .8 in/sec	-	$V_m \geq$ 1.1 in/sec

where:

V_r is the measured vibration velocity in in/sec during pump testing.

V_a is the alert range in in/sec when the licensee increases the surveillance frequency.

V_m is the action range in in/sec when the licensee declares the pump inoperable.

Notes:

1. V_r > .8 in/sec are never exceeded at the Prairie Island Nuclear Generating Plants.
2. Vibration values are unfiltered.

The test frequency will be as specified by IWP-3000. This relief request is under review by the staff in that further justification is required from the licensee.

2.3 The Licensee's Request for Relief from Instrumentation Accuracy Requirements in Section XI IWP 4110 (Relief Request No. 3)

Affected Components

Component Cooling pumps 11, 12, 21, and 22, Diesel Driven Cooling Water 12 and 22.

Code Requirements

Flow instrumentation shall be accurate to within ± 2%.

Licensee's Basis

The presently installed flow instrumentation has a repeatability of ± 12%. Presently installed instrumentation is accurate enough to detect a change of mechanical or hydraulic condition.

Evaluation

Both the diesel driven cooling water and component cooling systems have over 100% excess pumping capacity based on flow requirements during all operating modes (i.e. cold shutdown, hot standby, DBA, etc.). In addition, the licensee is measuring pump differential pressure, vibration velocity and rotative speed. Given the system excess pumping capacity and other parameters that are measured for these pumps, the licensee concludes that the ability to detect a change of the mechanical or hydraulic condition is ensured. This relief request is under review by the staff in that further justification is required from the licensee.

2.4 The Licensee's Request for Relief from Verifying Pump Operational Readiness as Required in Section XI IWP1000 (Relief Request No. 4)

Affected Components

Diesel driven cooling water pump fuel oil transfer pumps 121 and 222; diesel generator fuel oil transfer pumps 121, 122, 123 and 124.

Code Requirement

The hydraulic and mechanical condition of a pump relative to a previous condition can be determined by attempting to duplicate by testing which establishes a set of reference parameters. To detect change in hydraulic condition rotative speed, flowrate and differential pressure are measured, and to detect change in mechanical condition, vibration amplitude and bearing temperature are measured.

Licensee's Basis for Relief

A performance test on the diesel driven cooling water or diesel generator fuel oil transfer pumps conducted in accordance with Section XI requirements are impractical and unnecessary for the following reasons:

(1) The fuel oil transfer pumps are submerged in approximately 10 feet of diesel oil and are not equipped with instrumentation for measuring bearing temperature or rotor vibration.

(2) Pump discharge pressure is very low, approximately 2 psig, because of low resistance in the discharge line.

(3) There are two fuel oil transfer pumps for each diesel engine. Failure of one transfer pump will cause an alarm requiring manual start of the redundant transfer pump. Between the failure of one pump and the start of the second pump there is in excess of five hours of supply of fuel oil in the day tank at the diesel engine.

(4) Each fuel oil transfer pump is test run at least once each month to verify the pump can supply adequate fuel to the diesel engine day tank.

(5) A flow rate of the transfer pumps requires draining and refilling the diesel day tank. Such draining and refilling requires opening and closing category "E" valves. As an alternate test, an annual flow rate test of the transfer pumps will be performed when the diesel is out of service.

Evaluation

The licensee has committed to functionally test these pumps once per month and perform an annual flow rate test when the diesel is out of service for preventative maintenance. In addition, the licensee has shown that the fuel transfer system has redundant pumps, five hours of reserve fuel in the event of a single pump failure and a malfunction alarm. Since the diesel driven cooling water and diesel generator fuel oil transfer pumps have malfunction alarms, fuel reserves, and redundancy, the licensee has judged that depletion of fuel oil in the day tank supplying fuel oil to diesel engines is unlikely. This relief request is under review by the staff in that additional justification is required from the licensee.

2.5 The Licensee's Relief Request from Locating Vibration Sensor Prescribed by Section XI IWP4510 and IWP4400 (Relief Request No. 23)

Affected Components

Diesel Driven Cooling Water Pumps 12 and 22.

Code Requirement

IWP-4400 requires that the rotative speed of the pump shaft be measured for all pumps other than pumps directly coupled to motor drivers.

IWP-4510 requires that vibration be measured on a bearing housing or its structural support.

Licensee's Basis for Relief

The pump and pump shaft are not accessible to allow measurement of these parameters at this location.

Evaluation

The design of the pump prevents direct access to pump and pump shaft for measurement or vibration velocity and rotative speed. The licensee has agreed to measure these parameters using sensors placed on the diesel pump shaft at right angle drive unit and is part of the IST procedures.

Conclusion

The staff considers that the licensee's alternate test procedure meets the intent of Section XI Code IWP-4400 and IWP-4510. On this basis relief may be granted from the sensor location requirements of the Section XI Code.

2.6 The Licensee's Relief Request from Determining the Pump Hydraulic Conditions as Required by Section XI IWP-3100-2 (Relief Request No. 24)

Affected Components

Diesel driven cooling water pumps 12 and 22.

Code Requirement

The code requires measurement of inlet pressure, differential pressure and/or flow-rate and speed. The measurement of these parameters must meet the acceptable, alert, and required action ranges outlined in IWP-3100-2.

Licensee's Basis for Relief

The acceptance curve for the diesel driven cooling water pump is based upon manufacturer's pump characteristics curve. Due to the large fluctuations in the cooling water flow and the inaccuracies of the instrumentation, the code recommended action range has been expanded. The range has been expanded from 90% (required by the Code) to 80% for the low value and from 103% (required by the Code) to 106% for the high value. Testing has demonstrated that the excess capacity of the cooling water system will allow the diesel cooling water pump to perform its safety function at the expanded ranges.

System design plus the varying cooling water loads do not allow performance of hydraulic tests at specific reference points as required by IWP-3110. Because of the numerous system loading combinations possible it is not practical and is dangerous to plant operations to establish a specific reference point for the pump tests.

Evaluation

This relief request is under review by the staff in that further justification from the licensee is required.

2.7 The Licensee's Relief Request from the Instrumentation Sensitivity Requirements for Measuring Flow Pursuant to Section XI IWP-4114 (Relief Request No. 25)

Affected Components

Diesel Driven Cooling Water Pumps 12 and 22.

Code Requirement

IWP4114 requires that flow measuring instrumentation meet the fluctuation requirement of ± 2%.

Licensee's Basis for Relief

The presently installed flow instrumentation has a fluctuation ± 4% which is accurate enough to detect changes of mechanical or hydraulic conditions that would connote pump deterioration.

Evaluation and Conclusion

Both diesel driven cooling water pumps have low flow alarms to alert the operator of potential problems with the pumps. In addition, the licensee measures pump differential pressure vibration velocity and rotative speeds. Given the system low flow alarms and other parameters that are monitored, the licensee has taken adequate measures to ensure detection of potential pump malfunction. On this basis we conclude that relief from the code may be granted which will not result in a reduction in the margin of safety.

2.8 The Licensee's Relief Request from Pressure Gauge Sensing Location as Required by IWP4200 (Relief Request No. 26)

Affected Components

Diesel Driven Cooling Water Pumps 12 and 22.

Code Requirement

Pressure taps shall be located in a section of the flow path that is expected to have reasonably stable flow as close as practical to the pump. In addition, if a gauge line is such that the presence or absence of a liquid could produce a difference of more than 1/4% in the indicated measurement, means shall be provided to assure the presence or absence of liquid.

Licensee's Basis for Relief

The pressure gauge tap location is close to elbows and a valve which cause turbulance thus preventing conformance with IWP-4212. In addition, the gauge line does not conform with IWP-4210. However, the errors introduced will not prevent us from measuring a pressure which will indicate a degradation in pump condition.

Evaluation

Although the pressure tap locations do not meet the Section XI Code requirements, the pressure errors associated with the existing location are minuscule as compared to the pressure drop that is being measured across the pump (i.e., approximately 100 psi is the pressure across the pump during testing vs. 1 or 2 psi pressure due to taps locations). In addition, any errors introduced because of these pressure tap locations are reasonably constant for periodic testing from which the accumulative data over time is used to determine any degraded condition of the pump. On this basis we agree with the licensee that such errors due to pressure tap locations will not prevent adequate pressure measurements to indicate degradation in pump performance.

Conclusion

Based on the above evaluation, we conclude that the public health and safety will not be enhanced by modifying the system to meet the code. On this basis we conclude that relief from the code may be granted.

2.9 The Licensee's Relief Request from Full Scale Instrument Range as Required by Section XI IWP4111 (Relief Request No. 33).

Affected Components

Auxiliary Feedwater Pumps 11, 12, 21 and 22.

Code Requirement

The full scale range of the instrument shall not be greater than four times the reference value.

Licensee's Basis for Relief

The suction pressure gauge on the Auxiliary Feedwater Pump has a range of 0-150 psig. The reference value can vary between 10 and 80 psig depending upon the source of water to the pump. Normal source is 10 psig when the pump is tested.

Evaluation

The normal source of water for the auxiliary feedwater pumps is the condensate storage tanks. However, during a design basis accident, the auxiliary feedwater pumps take water from the cooling water system. The condensate storage tanks provide an inlet pressure of 10 psig and the cooling water provides an inlet pressure of 80 psig.

In order to allow measurement of inlet pressure from both sources, the full scale range of the instrument exceeds requirements of IWP-4111. To redesign the system to allow dual measurement capabilities would be an undue burden on

the licensee without significant increase in safety. The suction pressure gauge is used to measure the ΔP across the pump which is applied in determining the adequacy of the pump characteristic. Since the ΔP across the auxiliary feedwater pumps is approximately 1000 psi, the existing instrumentation accuracy is adequate for determining changes in the pump characteristics that would indicate a pump malfunction.

Conclusion

We agree with the licensee that to modify the system is an undue burden and impractical and the level of plant safety will not be enhanced by redesign to meet the pressure gauge requirement of IWP 4111. In addition, the public health and safety will not be enhanced by modifying the system to meet the code. On this basis we conclude that relief from the code may be granted.

2.10 The Licensee's Relief Request from Measurements of Pump Inlet Pressure as Prescribed by Section XI IWP-3110 and 3210 (Relief Request No. 40).

Affected Components

Diesel Driven Cooling Water Pumps 12 and 22.

Code Requirement

Inlet pressure shall be measured during each inservice test nominally once each month.

Licensee's Basis for Relief

The pump suction is located in the cooling water intake and suction pressure indication is not available.

Evaluation

The licensee has proposed using the inlet bay level to determine inlet pressure. This calculated value will then be used to determine the differential pressure of the pump. The staff agrees that the alternate testing program proposed by the licensee is adequate to determine both inlet pressure and differential pressure for the diesel driven cooling water pumps.

Conclusion

Based on the above evaluation, we conclude that the alternate testing program is an acceptable alternative for measuring the pump inlet pressure and relief from the code does not endanger public health and safety. Therefore relief from this requirement may be granted.

3.0 VALVE TESTING PROGRAM EVALUATION

3.1 General Considerations

3.1.1 Category A; Valves

(1) All containment isolation valves are category "A" and shall be included in the inservice test program. Containment isolation valves prevent radioactive liquid and air from escaping the containment through lines which penetrate it. As such, an important aspect of these valves is to form a leakage limiting barrier. Therefore, for the purpose of 10 CFR 50.55a(g), these valves have to be classified as category A valves.

(2) All category "A" valves shall be leak tested to Section XI requirements as required by 10 CFR 50.55a(g). In general:

- For category A valves that communicate only with containment atmosphere, Appendix J testing is sufficient to meet Section XI requirements.

- For category A valves that communicate with the primary coolant system, the leak test shall be performed at system functional pressure differential. Exceptions to testing at system functional pressure differential are stated in Section XI and in this safety evaluation as noted in item 3.2.1. The basis for testing at system functional differential pressure is that these Containment Isolation Valves are relied upon to isolate primary coolant system for a loss-of-coolant accident outside containment.

- Containment isolation valves that are passive are relieved from quarterly stroke and stroke timing requirements of Section XI.

The licensee has agreed to include valves in the Appendix J testing program as category "A" valves in the Section XI valve testing program.

3.1.2 Cold Shutdown Testing

Inservice valve testing at cold shutdown is defined as: Valve testing should commence not later than 48 hours after shutdown and continue until complete or plant is ready to return to power. Any testing not completed at the end of one cold shutdown should be performed during the subsequent cold shutdowns to meet the code specified testing frequency.

This point was discussed with the licensee and the licensee agreed to comply with the NRC position on cold shutdown valve testing.

3.2 Specific Relief Requests on the Inservice Inspection and Testing for Valves

3.2.1 The Licensee's Relief Request from Inservice Testing Category "A" Valves Performing a Pressure Isolation Function IWV3420 (Relief Request No. 59)

Table 1

Affected components performing pressure isolation function

Unit 1		Unit 2	
32164	RH Suct FR LP A HL	32192	RH Suct Fr Lp A HC
32165	RH Suct FR LP A HL	32193	RH Suct Fr Lp A HC
32230	RH Suct FR LP B HL	32232	RH Suct Fr LLp B HC
32231	RH Suct FR LP B HL	32233	RH Suct Fr LLp B HC
32066	RH Rtn to CL	32169	RH Rtn to CL
SI-6-1	12 ACC Disch Check	2SI-6-1	22 ACC Disch Check
SI-6-2	11 ACC Disch Check	2SI-6-2	22 ACC Disch Check
SI-6-3	11 ACC Disch Check	2SI-6-3	21 ACC Disch Check
SI-6-4	11 ACC Disch Check	2SI-6-4	21 ACC Disch Check
SI-9-1	SI to LP B CL Check	2SI-9-1	SI to Lp B CL Check
SI-9-2	SI to LP A CL Check	2SI-9-2	SI to Lp A CL Check

SI-9-3	Lo Head SI to Rx Vessel Check	2SI-9-3	Lo Head SI to Rx Vessel Check
SI-9-4	Lo Head SI to Rx Vessel Check	2SI-9-4	Lo Head SI to Rx Vessel Check
SI-9-5	Lo Head SI to Rx Vessel Check	2SI-9-5	Lo Head SI to Rx Vessel Check
SI-9-6	Lo Head SI to Rx Vessel Check	2SI-9-6	Lo Head SI to Rx Vessel Check
SI-16-4	SI to LP B CL Check	2SI-16-4	SI to Lp B CC Check
SI-16-5	SI to LP A CL Check	2SI-16-5	SI to Lp A CC Check
SI-16-6	SI to Rx Vessel Check	2SI-16-6	SI to Rx Vessel Check
SI-16-7	SI to Rx Vessel Check	2SI-16-7	SI to Rx Vessel Check
31447	ACC After Check Test Valve	31459	ACC After Check Test Valve
31449	ACC After Check Test Valve	31461	ACC After Check Test Valve

Code Requirement

The code requires that valve seat leakage be measured by draining the line downstream of valve or by measuring the feed rate to maintain pressure IWV3420(d).

Licensee's Basis for Relief

At our request, the licensee has submitted a listing of valves that perform a pressure boundary between the reactor coolant system and those systems having a design pressure below the reactor coolant system operating pressure. These valves are listed above for Units 1 and 2. The licensee considered leak testing of these valves in accordance with IWV3420 of the applicable edition of the Section XI Code and prepared alternate testing methods for only those valves that because of the plant design and conditions during refueling outage, cannot be tested by methods specified in IWV3420(d) of the Section XI Code. Therefore, all of the above valves listed in Table 1 are tested in accordance with IWV3420 except for those valves listed in Table 2 below. The licensee is requesting relief from the test methods specified in IWV3420(d) of the Section XI code regarding the leak rate measurement of the valve during the pressure testing. This alternate testing method gives an adequate assurance of the valves' ability to perform their intended function. The alternate test method applies to those isolation valves having pressure contact with the

low pressure system that cannot be readily drained in order to measure leak rates as prescribed by IWV3420(d). The valves that fall into this category and for which relief is being requested are shown in Table 2.

Table 2

Unit 1	Unit 2
32165	32193
32231	32233
SI6-1	2SI6-1
SI6-3	2SI6-3
32066	32169

Evaluation

There are several systems connected to the reactor coolant pressure boundary that have design pressures below the reactor coolant system operating pressure. We have required that valves forming the interface between high and low pressure systems have sufficient redundancy to assure that the low pressure systems are not subjected to pressures which exceed their design limits. In this role, the valves are performing a pressure isolation function.

It is our view that the redundancy provided by these valves regarding their pressure isolation function is important. We consider it necessary to provide assurance that the condition of these valves is adequate to maintain system integrity. For this reason we believe that some methods, such as leak testing, should be used to assure their pressure isolation function.

The pipe lines connecting the reactor coolant systems at the Prairie Island Nuclear Generating Plant for Unit Nos. 1 and 2 with the low pressure systems contain at least two isolation valves in series, so that both valves must fail before the high pressure of the reactor coolant system is exposed to the low pressure systems. In all cases the first valve isolating the reactor coolant system pressure is leak tested according to the requirements of Section XI IWV3420 including measuring the leak rate as specified in IWV3420(d). In

addition, the second redundant valves are also exposed to the high pressure of the reactor system during testing but the licensee has requested relief from measuring the leak rate required by IWV3420(d) for these redundant second valves (listed in Table 2) that are exposed to pressure of the low pressure systems. In order to measure the leak rate across these second redundant valves according to the code, the low pressure systems must be drained which because of system design and system conditions during a typical refueling outage is impractical. As an alternate method for measuring the leak rate, the licensee proposes to monitor the pressure rise in the low pressure systems and monitor accumulator level changes during the leak testing period to measure the leak rate. The licensee's method of leak testing indicates that the inboard valves (i.e. RCS side valves) are first tested followed by leak testing the outboard valves (i.e. valve adjacent to low pressure systems). Based on our review, we requested the licensee to reverse the order at which these valves are leak tested in order to minimize valve operation after leak testing the inboard valves. This matter has been discussed with and agreed to by the licensee. In addition, the licensee has agreed to apply the same leak rate criteria for the valves listed in Table 2 as that required by the technical specification (Section 4.3) for the primary coolant system isolation valves.

In the case where two check valves are in series with one motor operated valve which form the isolation barrier between the reactor coolant system and the low pressure systems, the Technical Specification requires the licensee to leak test this configuration more frequently than is required by the Section XI code. For these cases the licensee is to periodic leak test both check valves prior to resuming power operation after each time the plant is placed in the cold shutdown condition for 72 hours or more if testing has not been accomplished in the preceding 9 months and prior to returning the valve to service after maintenance repair or replacement work is performed.

The licensee also performs a daily reactor coolant inventory analysis which serves as a leak test of the pressure isolation function of the first valves as a group that isolate the reactor coolant system from the low pressure systems. The estimated error in this analysis is approximately 0.1 gallon per

minute (GPM) due to the measuring instruments. Typical leakage rates average from 0.1 to 0.5 GPM in each unit. The Prairie Island Technical Specifications require the licensee to identify uncontrolled leaks that exceed 1.0 GPM within four hours or the reactor must be brought to hot shutdown and if the leak is not identified within 48 hours the reactor is to be brought to cold shutdown. When the leakage sources are identified the licensee may continue to operate the reactor provided that results of an evaluation indicate that the operation can continue in a safe manner. If however the leakage source exceeds 10 GPM the licensee must shut down the reactor and take corrective action.

Conclusion

Based on the above evaluation, we have concluded that the licensee does have sufficient redundancy in the interconnecting lines to assure protection of the low pressure systems from the high operating pressure of the reactor coolant system. In addition we consider that the licensee is providing reasonable assurance that the conditions of the high pressure isolation valves are adequately monitored to assure that system integrity is maintained. Such assurance is based on the requirements imposed by the Technical Specifications and the periodic testing imposed by the Section XI Code as interpreted by the licensee. On this basis the staff concludes the alternate test methods will give reasonable assurance that the valves will maintain the pressure isolation function as intended by the code and therefore relief may be granted. In granting this relief we also conclude that the plant safety margin is not reduced and it does not endanger public health and safety.

3.2.2 The Licensee's Relief Request from Inservice Testing of Check Valve Exercising IWV3520(b)(2) (Relief Request No. 5)

Affected components

Unit 1		Unit 2	
SI-6-1	12 Accumulator Outlet Check	2SI-6-1	22 Accumulator Outlet Check
SI-6-2	12 Accumulator Outlet Check	2SI-6-2	22 Accumulator Outlet Check
SI-6-3	11 Accumulator Outlet Check	2SI-6-3	21 Accumulator Outlet Check
SI-6-4	11 Accumulator Outlet Check	2SI-6-4	21 Accumulator Outlet Check
SI-9-1	Loop B Cold Leg Inj Check	2SI-9-1	Loop B Cold Leg Inj Check
SI-9-2	Loop A Cold Leg Inj Check	2SI-9-2	Loop A Cold Leg Inj Check
SI-9-3	RHR Exch to RV Check	2SI-9-3	RHR Exch to RV Check
SI-9-4	RHR Exch to RV Check	2SI-9-4	RHR Exch to RV Check
SI-9-5	RHR Exch to RV Check	2SI-9-5	RHR Exch to RV Check
SI-9-6	RHR Exch to RV Check	2SI-9-6	RHR Exch to RV Check
RH-3-3	12 RHR Pmp Dsch Check	2RH-3-3	22 RHR Pmp Dsch Check
RH-3-4	11 RHR Pmp Dsch Check	2RH-3-4	21 RHR Pmp Dsch Check
SI-10-1	11 SI Pmp Dsch Check	2SI-10-1	21 SI Pmp Dsch Check
SI-10-2	12 SI Pmp Dsch Check	2SI-10-2	22 SI Pmp Dsch Check
SI-7-1	RWST to RHR Pmp Suct Check	2SI-7-1	RWST to RHR Pmp Suct Check
SI-7-2	RWST to RHR Pmp Suct Check	2SI-7-2	RWST to RHR Pmp Suct Check
CW-18-1	D2 Dies Gen Cool Wat Sply Check	2CA-11-1	Caus Add to 21 & 22 CS Pmp
CW-18-4	D1 Dies Gen Cool Wat Sply Check	AF-15-12	22 Aux Fd Pmp Dsch Check
CA-11-1	Caus Add to 11 & 12 CS Pmp	AF-15-11	21 Aux Fd Pmp Dsch Check
ZH-2-1	121 Chl Wat Pmp Check	2MS-15-1	22 SG to 22 Aux Fd Pmp Check
ZH-2-2	122 Chl Wat Pmp Check	2MS-15-2	21 SG to 22 Aux Fd Pmp Check
AF-15-9	11 Aux Fd Pmp Dsch Check		
AF-15-10	12 Aux Fd Pmp Dsch Check		
RS-15-1	12 SG to 11 Aux Fd Pump Check		
RS-15-2	11 SG to 11 Aux Fd Pmp Check		

CS-18	11 Cont Spray Disch Check	CS-48	21 Cont Spray Disch Check
CS-19	12 Cont Spray Disch Check	CS-49	22 Cont Spray Disch Check
AF-15-1	Aux Fd to Stm Gen 11 Check	AF-15-7	Aux Fd to Stm Gen 21 Check
AF-15-2	Aux Fd to Stm Gen 12 Check	AF-15-6	Aux Fd to Stm Gen 22 Check
AF-15-3	Aux Fd to Stm Gen 11 Check	AF-15-8	Aux Fd to Stm Gen 21 Check
AF-15-4	Aux Fd to Stm Gen 12 Check	AF-15-5	Aux Fd to Stm Gen 22 Check
AF-16-1	Aux Fd to 11 Stm Gen Check	AF-16-4	Aux Fd to 21 Stm Gen Check
AF-16-2	Aux Fd to 12 Stm Gen Check	AF-16-3	Aux Fd to 22 Stm Gen Check
ZH-23-1	Lp A Chl Wat Sply Hdr X-Conn		
Zh-23-2	Lp B Chl Wat Sply Hdr X-Conn		
DCWP	FO XFR Pmp Cks (2)		
DG	FO XFR Pmp Cks (4)		

Code Requirements

Check valves will be exercised at least once every 3 months (IWV3520(a)) and check valve operability during exercising shall prove that the disk moves promptly away from the seat by measuring the change in pressure differential across the valve (IWV3520(b)(2)).

(1) Valves SI6-1, 2, 3, and 4; 2SI6-1, 2, 3, and 4

Licensee's Basis for Relief

Stroking of the check valves during plant operation is not possible since flow through the check valve results in boration of the reactor coolant system. Part stroking of the valves during each cold shutdown requires draining of the pressurizer and opening valves which are normally closed to prevent primary system overpressurization.

Evaluation and Consideration

These valves cannot be exercised during normal operation, since it will disrupt the normal pressure control of the primary system including primary

water chemistry control. In addition, these valves cannot be exercised during cold shutdown since by doing so could over pressurize the reactor coolant system during cold conditions.

During refueling operation, with the Reactor Vessel Head removed, a flow path from the refueling water storage tank, through the safety injection pump and through these accumulator check valves will be established. The flow rate through each valve will be measured and used as a baseline for subsequent flow tests. The test is a partial stroke of the check valves. However, adequate flow is passed through the check valves during stroke testing to assure that the valves open to a position which will allow 100% of safety analyses flow under postulated accident condition. The licensee proposed to measure the rate of level change in the accumulators as a means of measuring flow through the valves during stroke testing. We agree with the licensee that these valves can be exercised by flow testing and exercising can only be performed during refueling outages because of plant conditions. We have judged that exercising these valves other than during a refueling outage is impractical and if attempted, the plant could be put into a less safe condition. In addition, we find that the public health and safety is not endangered by this proposed relief and on this basis the relief may be granted.

(2) Valves SI-7-1 and 2, SI-10-1 and 2; SI 9-1, -2, -3, -4, -5 and -6; 2SI-7-1 and 2, 2SI-10-1 and 2; 2S-19-1, -2, -3, -4, -5, and -6

Licensee's Basis for Relief

These valves cannot be exercised during normal plant operation nor during cold shutdown. In addition pressure drop across these valves cannot be measured since proper instrumentation is not available.

Evaluation and Conclusions

These valves cannot be exercised during normal operation, since it will disrupt the normal pressure control of the primary system including primary water chemistry control. In addition, these valves cannot be exercised during cold shutdown since by doing so could over pressurize the reactor coolant system during cold conditions.

As an alternative, the licensee proposes to establish a flow path similar to "(1)" above during each refueling outage and the valves will be exercised to show operability by measuring the flow rate passing through the valves. The flow is initiated by the safety injection pumps and measured by the existing flow measuring devices. Adequate flow passes through the valves during stroke testing to assure that the valves open to a position that will allow 100% of the safety analysis flow under postulated accident conditions. We agreed with the licensee that these valves can be exercised by flow testing and exercising can only be performed during refueling outages because of plant conditions. We have judged that exercising these valves other than during a refueling outage is impractical and if attempted, the plant could be put into a less safe condition. We conclude that the public health and safety is not endangered by this proposed relief and on this basis relief may be granted.

(3) Valves RH3-3 and 4; 2RH3-3 and 4

Licensee's Basis for Relief

The code requires these valves to be exercised by full stroking once every three months. Full stroking of these valves can be achieved only when the reactor is in cold shutdown and Residual Heat Removal (RHR) system is in service.

Evaluations and Conclusion

These valves are located on the RHR pump discharge line. Full stroke exercising of these valves during normal plant operation would require injecting flow into the primary coolant system which is impossible, since the primary coolant system pressure is at much higher pressure than the pressure of RHR system. However, these valves are partially stroked each month when the RHR pumps are run on minimum recirculation flow. The valves are full stroked each cold shutdown when the RHR system is used to cool down the reactor coolant system. We conclude that the public health and safety is not endangered by this proposed relief and on this basis relief may be granted.

(4) Valves CW18-1 and 4

These valves are full stroked at a minimum of once each month when the diesel generator is run for surveillance testing. Relief from full stroking these valves is not necessary since the licensee is meeting the requirements of the Section XI Code (IWV3520(a)(b)).

(5) Valves CA-11-1, 2CA11-1

Licensee's Basis for Relief

The check valve is part stroked each cold shutdown by running demineralized water through the check valve to a floor drain. The valve cannot be full stroked because flow is limited by the size of floor drain (3/8" valve). The valve cannot be partially stroked quarterly since this would remove the redundant supply of caustic solution to the containment spray pumps.

Evaluation and Conclusion

These valves are located on the caustic addition line to the containment spray pumps. Full stroke testing would require feeding solution in caustic addition standpipes through the containment spray pumps and

cleaning solution from pumps after the test. The performance of such a test is not considered practical nor would the test result in a significant increase in safety of the plant.

As an alternate means of testing, the licensee has proposed part stroking these valves each cold shutdown. In addition, to assure the valve operability, the licensee has proposed to inspect the valve internal parts during the first refueling outage for each unit after the issuing date of this amendment. The inspection of the valve internals will be repeated during each refueling outage so long as the inspections reveal defective valve parts. The licensee also proposed that if the inspections show that the internal valve parts are adequate to perform their intended function, then the inspection interval will be lengthened to every 5th refueling outage. In addition, if inspection during any of the 5th refueling outages show defective valve parts, the inspection interval will revert back to each refueling outage so long as the inspections reveal defective valve parts. We find the licensee's proposal for inspecting the valve internals every refueling outage acceptable. We have however deferred our decision lengthening the inspection interval beyond every refueling outage until a technical basis can be established. In order to resolve this matter the licensee has agreed to furnish the staff the inspection results of the initial valve inspection so that an adequate inspection interval can then be established. On this basis we agree that the alternate testing procedure and valve inspections will adequately demonstrate valve operability. On this basis we conclude that the public health and safety is not endangered by the proposed relief and therefore the relief may be granted.

(6) Valves ZH23-1 and 2; ZH 2-1 and 2

Full flow through these valves is verified continuously or at least monthly when the chilled water pump is in operation. Failure of the valve to stroke to the position required for the system to perform its function would cause a system malfunction and initiate alarms. Verifying full flow is judged as a positive means of confirming that the disk moves away from the seat. We conclude that relief from full stroking these valves as prescribed by IWV3520(a)(b) of the Section XI code may be granted.

(7) Valves AF15-9 and 10; AF15-11 and 12

These valves are stroked to a position required for the system to fulfill its safety function. Adequate flow is measured through the valve on a monthly interval to assure a proper stroke function. Relief for full stroking as prescribed by the requirements of Section XI Code IWV3520(a)(b) for these valves may be granted since the valves are stroked to a position for the system to fulfill its safety function.

(8) Valves AF16-1 and 2; AF15-1, 2, 3 and 4; AF16-3 and 4; AF 15-5, 6, 7, and 8

Licensee's Basis for Relief

These valves are stroked each refueling shutdown to a position required for the system to perform its safety function. This is accomplished by

measuring flow through the check valves while the auxiliary feedwater pump is discharging to each steam generator. The valves cannot be partial or full stroked quarterly since this causes thermal shocking of the auxiliary feedwater lines as they enter the steam generator.

Stroking these valves requires cycling of category E valves, the mispositioning of which causes a compromise of the safety function of the system. Such risk is not warranted by increasing the stroke interval of these valves.

Evaluation and Conclusion

These valves are full stroked during each refueling outage when the auxiliary feedwater pumps are tested. Flow through these valves to the steam generator is measured. In addition, these valves are cycled each time the plant is brought to cold shutdown and each time the plant is taken out of cold shutdown so there is no need to exercise these valves during cold shutdown. The staff agrees that measuring flow through these valves is sufficient to confirm that the disk has moved away from the seat. In addition we agree with the licensee that an undue safety risk would exist if the stroke interval is increased. On this basis we conclude that relief from the Section XI Code may be granted.

(9) Valves RS15-1 and 2; 2MS15-1 and 2

Licensee's Basis for Relief

These valves are open prior to going to cold shutdown to a position required for the system to fulfill its safety functions. Sufficient steam passes through the checks to allow the turbine-driven auxiliary feedwater pump to discharge safeguard flow.

Evaluation and Conclusion

These check valves are located on the steam line to the steam-driven auxiliary feedwater pump. During the monthly surveillance test run of the turbine driven auxiliary feedwater pump, these valves pass sufficient steam for the pump and turbine to pass their periodic test. If these valves fail to operate properly, the monthly pump test would detect the failure.

We, therefore, agree that the monthly, and the cold shutdown period test of the auxiliary feedwater pump is an adequate alternative means of verifying the operational readiness of these valves. On this basis we conclude that relief from the Section XI Code may be granted.

(10) Valves CS18 and 19; CS48 and 49

Licensee's Basis for Relief

These valves are part stroked during cold shutdown and refueling outages by measuring water discharging from a vent valve upstream of the check valve. The valve cannot be stroked quarterly since this requires taking a containment spray pump out of service.

Evaluation and Conclusion

Due to the piping configurations, check valves CS-18, CS-19, CS-48 and CS-49 cannot be stroked without spraying large amounts of water into the reactor containment. These valves can only be part stroked using vent lines during cold shutdown and refueling outages. The licensee has demonstrated that full stroking these valves is impractical, and that part stroking during cold shutdown and during each refueling outage offer some assurance on the operability of the valve. However, to further assure valve operability, the licensee has proposed to inspect the valve internal parts during the first refueling outage for each unit

after the issuing date of this amendment. The inspection of the valve internals will be repeated during each refueling outage so long as the inspections reveal defective valve parts. The licensee also proposed that, if the inspections show that the internal parts are adequate to perform their intended function, then the inspection interval will be lengthened to every 5th refueling outage. In addition, if inspections during any of the 5th refueling outages show defective valve parts, the inspection interval will revert back to each refueling outage so long as the inspections reveal defective valve parts. We find the licensee's proposal for inspecting the valve internals every refueling outage acceptable. We have however deferred our decision on lengthening the inspection interval beyond every refueling outage until a technical basis can be established. In order to resolve this matter the licensee has agreed to furnish the staff the inspection results of the initial valve inspection so that an adequate inspection interval can be established. On this basis we conclude that relief from the Section XI Code may be granted.

(11) Valves DCW and DG (Fuel Oil Transfer Pump Check Valves)

These valves open to a position required for the system to perform its safety function monthly. Should a check valve fail to exercise, the system would malfunction and an alarm condition would result. The exercise test is performed at least monthly during transfer of oil from the fuel oil storage tanks to the diesel engine day tanks. The licensee is meeting the requirements of the Section XI Code. Since these valves are exercised monthly to an open position required for the system to perform its intended safety function, relief from the code may be granted.

3.2.3 The Licensee's Relief Request from Check-Valve Exercising During Cold Shutdowns IWV3520(b) (Relief Request No. 7)

Affected components

Unit 1		Unit 2	
SI-6-1	12 Accumulator Outlet Check	2SI-6-1	22 Accumulator Outlet Check
SI-6-2	12 Accumulator Outlet Check	2SI-6-2	22 Accumulator Outlet Check
SI-6-3	11 Accumulator Outlet Check	2SI-6-3	21 Accumulator Outlet Check
SI-6-4	11 Accumulator Outlet Check	2SI-6-4	21 Accumulator Outlet Check
SI-9-1	Loop B Cold Leg Inj Check	2SI-9-1	Loop B Cold Leg Inj Check
SI-9-2	Loop A Cold Leg Inj Check	2SI-9-2	Loop A Cold Leg Inj Check
SI-9-3	RHR Exch to RV Check	2SI-9-3	RHR Exch to RV Check
SI-9-4	RHR Exch to RV Check	2SI-9-4	RHR Exch to RV Check
SI-9-5	RHR Exch to RV Check	2SI-9-5	RHR Exch to RV Check
SI-9-6	RHR Exch to RV Check	2SI-9-6	RHR Exch to RV Check
SI-16-4	Loop B Cold Leg Inj Check	2SI-16-4	Loop B Cold Leg Inj Check
SI-16-5	Loop A Cold Leg Inj Check	2SI-16-6	Loop A Cold Leg Inj Check
SI-16-6	RV Inj Line Check	2SI-16-5	RV Inj Line Check
SI-16-7	RV Inj Line Check	2SI-16-7	RV Inj Line Check

Code Requirement

The code requires that if check valve exercising (full stroking) is not practical during plant operation, then the valves should be part stroke exercised during plant operation and full stroke exercised during cold shutdown (IWV3520(b)).

Relief Request No. 7 is addressed as part of Relief Request No. 5 which appears in this SER as items 3.2.2(1) and (2). Based on the safety evaluation of items 3.2.2(1) and (2), we conclude the relief may be granted which also applies to this relief request.

3.2.4 The Licensee's Relief Request from Valve Exercising at Cold Shutdown IWV3520(b) (Relief Request No. 8)

Affected components

Unit 1	Unit 2
MV-32074 Saf Inj RV Inj Isol	MV-32177 Saf Inj RV Inj Isol
MV-32075 11 Cntmt Smp B Isol A1	MV-32178 21 Cntmt Smp B Isol A1
MV-32076 11 Cntmt Smp B Isol A2	MV-32179 21 Cntmt Smp B Isol A2
MV-32077 11 Cntmt Sump B Isol B1	MV-32180 21 Cntmt Smp B Isol B1
MV-32078 11 Cntmt Smp B Isol B2	MV-32181 21 Cntmt Smp B Isol B2
MV-32067 Saf Inj RV Inj Isol	MV-32170 Saf Inj RV Inj Isol
MV-32069 Saf Inj RV Inj Isol A	MV-32172 Saf Inj RV Inj Isol A
MV-32162 11 Saf Inj Pmp Suct Isol	MV-32190 21 Saf Inj Pmp Suct Isol
MV-32163 12 Saf Inj Pmp Suct Isol	MV-32191 22 Saf Inj Pmp Suct Isol
MV-32206 RHR Exch to 11 Saf Inj Pmp	MV-32208 RHR Exch to 21 Saf Inj Pmp
MV-32207 RHR Exch to 12 Saf Inj Pmp	MV-32209 RHR Exch to 22 Saf Inj Pmp
MV-32202 Saf Inj Test to 11 RWST A	MV-32204 Saf Inj Test to 21 RWST A
MV-32203 Saf Inj Test to 11 RWST B	MV-32205 Saf Inj Test to 21 RWST B
MV-32096 11 Cntmt Spr Pump Suct from RHR Exch	MV-32108 21 Cntmt Spr Pump Suct from RHR Exch
MV-32097 12 Cntmt Spr Pump Suct from RHR Exch	MV-32109 22 Cntmt Spr Pump Suct from RHR Exch
MV-32103 11 Cntmt Spr Pmp Disch	MV-32114 21 Cntmt Spr Pmp Disch
MV-32105 12 Cntmt Spr Pmp Disch	MV-32116 22 Cntmt Spr Pmp Disch
MV-32098 11 Cntmt Spr Pmp Suct from RWST	MV-32110 21 Cntmt Spr Pmp Suct from RWST
MV-32099 12 Cntmt Spr Pmp Suct from RWST	MV-32111 22 Cntmt Spr Pmp Suct from RWST

Code Requirements

Valves shall be exercised at least once every 3 months to the position required to fulfill their function unless such operation is not practical during plant operation IWV3410(a), (b).

(1) Valves MV32074 and MV32177

Licensee's Basis for Relief

These valves are required to be closed for overpressurization protection of the Reactor Coolant System during cold shutdown and, therefore, are not stroked each cold shutdown. The valves are not stroked quarterly since the valves are to be in the open position for normal system operation.

Evaluation and Conclusion

These valves are located on the reactor vessel injection line and are required to be open during normal operation to allow the safety injection system to operate properly. During a cold shutdown these valves are required to be closed to protect the reactor coolant system from over-pressurization. Since operation of these valves during normal operation or cold shutdown could place the plant in an unsafe condition, the staff agrees that due to system design these valves can only be exercised during refueling outages which is required by the licensee's existing program. On this basis we conclude that the public health and safety is not endangered by the proposed relief and therefore the relief may be granted.

(2) Valves MV 32075, 76, 77 and 78; MV32178, 79, 80, and 81

Licensee's Basis for Relief

Stroking these valves requires removal of both safety injection pumps from service since there is no minimum flow protection for the pump.

Evaluation and Conclusion

These valves are located on the containment sump line and serve a dual purpose. During initial LOCA conditions, these valves are closed to provide containment isolation. During the recirculation phase, these valves open to provide emergency core cooling recirculation. The above valves contain interlocks associated with valves MV-32204 and MV-32205, which isolate the nonsafety-related portion of the Safety Injection System test line. Bypassing the interlocks between the valves on the containment sump and MV-32204 and MV-32205 removes the minimum flow protection for the safety injection pumps. We, therefore, agree with the licensee that due to plant design these valves will be cycled during refueling. On this basis we conclude that relief from this code requirement for these valves may be granted.

(3) Valves MV32067 and 069; MV32170 and 172

Licensee's Basis for Relief

These valves are normally closed. Emergency procedures call for these valves to open following a loss of coolant accident to provide an additional flow path to the reactor vessel for safety injection flow (through the upper plenum region injection nozzles). A potential operator error could lead to spurious signal of safety injection which will result in thermal shock to the reactor vessel when these valves are cycled during normal operation.

Evaluation and Conclusion

We agree with the licensee that exercising these valves during normal operation would place the plant in a less safe condition during the valve exercising operation, and therefore this requirement is impractical for these valves. However, after discussing this matter with the licensee, he has agreed to full stroke exercise these valves during cold shutdown conditions and during the refueling outages. On this basis we conclude

that the relief may be granted.

(4) Valves MV32162 and 163; MV32190 and 191

Licensee's Basis for Relief

These valves are normally open and they are closed when the ECCS system is lined up for recirculation phase to permit the SI pump suctions to be supplied with recirculated water from the RHR pumps. If one valve were to stick closed during testing, one SI pump would become inoperable. During the test, it would be necessary to deenergize the associated SI pump to prevent damage in the event of a spurious actuation signal while the suction valve was closed.

Evaluation and Conclusion

We agree with the licensee that cycling these valves during normal plant operation would place the plant in a less safe condition, since during the cycling operation, the valve removes one of the two safety injection pumps from potential service. The present IST program requires the licensee to cycle these valves during each refueling outage. However the licensee has committed to exercising these valves during cold shutdown and during each refueling outage. On this basis we conclude that relief from the code requirement for cycling these valves during normal operation may be granted.

(5) Valves MV32206, 32396, 097 and 32207; MV32208, 108, 109 and 209

Licensee's Basis for Relief

During initial stages of injection phase of ECCS operation, Safety Injection (SI) pumps inject concentrated boric acid from boric acid tanks. Suction valves to boric acid tanks open automatically on an SI signal. Suction

valves to RHR heat exchangers must remain closed to permit boric acid tanks to be drawn down.

If these valves were open, SI pumps would be supplied from the refueling water storage tank and not from the boric acid tank and initial injection of concentrated boric acid would not occur.

Evaluation and Conclusion

For proper operation of the safety injection system, these valves are required to be locked closed by Plant Technical Specifications during power operation. If valves were cycled during cold shutdown, the RHR system would inject into the SI system. We agree with the licensee that if these valves are cycled during normal operation or cold shutdown, the plant would be placed in a less safe condition due to system design. Thus we find cycling these valves during refueling outages is acceptable. On this basis we conclude that relief from the code requirement of cycling these valves more often than each refueling outage may be granted.

(6) Valves MV32202 and 203; MV32204 and 205

Licensee's Basis for Relief

Exercising these valves removes the mini flow protection on the safety injection pumps, therefore, taking both safety injection pumps out of service and placing the plant in a less safe condition.

Evaluation and Conclusion

These valves are located on the safety injection test line and are interlocked with containment sump valves MV-32178, MV-32179, MV-32180 MV-32181, MV-32075, MV-32076, MV-32077 and MV-32078 to ensure proper isolation of the nonsafety-related portion of the test line. Stroking these valves during normal plant operation would remove the minimum flow protection line from service and place the plant

in an unsafe condition. We agree with the licensee that exercising these valves during normal operation would place the plant in a less safe condition during the exercising operation and therefore this requirement is impractical. However after discussing this matter with the licensee, he has agreed to full stroke these valves during cold shutdown and during refueling outages. On this basis we conclude that the licensee is meeting the intent of the code and therefore relief from exercising these valves as required by the code may be granted.

(7) Valve MV32103 and 105; MV32114 and 116

Licensee's Basis for Relief

MV-32103 and MV-32105 (MV-32114 and MV-32116 in Unit No. 2) are normally closed valves which receive automatic opening signals on containment high-high pressure. These valves can be exercised only by disconnecting the controls through the use of electrical jumpers and by removing the associated containment spray pump form service by requiring the closure of a Category E valve.

Evaluation and Conclusion

Exercising these valves during normal operation will place the plant in a less safe condition and the only practical frequency for exercising these valves is during cold shutdown or refueling outages. Placing electrical jumpers on controls during plant operation is not a prudent operating practice. However, the licensee has committed to exercise these valves during cold shutdown and during each refueling outage. On this basis we agree with the licensee that based on the system design, exercising these valves during cold shutdown and refueling outages is acceptable. Therefore relief from the code requirement regarding exercising these valves during normal operation may be granted.

(8) Valves MV32098 and 99 and MV32110 and 111

Licensee's Basis for Relief

Exercising these valves requires the use of electrical jumpers and closing electrical breakers which are required to be opened by the Technical Specifications. Testing these valves would interrupt suction flow for the containment spray pump which must be continuously supplied which is also a Technical Specification requirement. Testing these valves is impractical except at refueling outages.

Evaluation and Conclusion

Based on our review of the containment spray system and its associated controls, we agree with the licensee's basis for relief. In addition, if exercising these valves by the code is followed, the licensee would place the plant in an unsafe condition since the licensee would be removing a safety related system from service which is a Technical Specification violation. Exercising these valves during refueling outages is the only practical time during which these valves can be exercised. On this basis we have judged that exercising these valves during refueling outages is acceptable. Therefore relief from the code requirement regarding exercising these valves other than the refueling outages may be granted.

3.2.5 The Licensee's Relief Request from Stroke Time Power Operated Valves IWV3410(c) (Relief Request No. 9)

Affected components

Unit 1	Unit 2
SV-33133 Clg Water to 121 Safeguards Travel Scrn	SV-33992 21 Post LOCA H_2 Containment Vent
SV-33134 Clg Water to 122 Safeguards Travel Scrn	SV-33993 22 Post LOCA H_2 Containment Vent
SV-33464 12 DC1 Water Pump Air Motor SV A	CV-31683 21 TD Aux Fd Pmp Oil Cir Wtr Inlt
SV-33465 12 DC1 Water Pump Air Motor SV B	CV-31684 22 TD Aux Fd Pmp Oil Cir Wtr Inlt
SV-33466 22 DC1 Water Pump Air Motor SV A	

SV-33467 22 DC1 Water Pump Air Motor SV B
CV-31954 D1 Diesel Generator Air Start A
CV-31955 D1 Diesel Generator Air Start B
CV-31956 D2 Diesel Generator Air Start A
CV-31957 D2 Diesel Generator Air Start B
SV-33990 11 Post LOCA H^2 Containment Vent
SV-33991 12 Post LOCA H^2 Containment Vent
CV-31423 12 DC1 Water Pump Jckt Clr Outlet
CV-31457 22 DC1 Water Pump Jckt Clr Outlet
CV-31682 12 TD Aux Fd Pmp Oil Clr Clg Wtr Inlt
CV-31681 11 TD Aux Fd Pmp Oil Clr Clg Wtr Inlt
SV-33728 121 Cont Room Water Chlr Mtr Clr
SV-33766 122 Cont Room Water Chlr Mtr Clr

Code Requirement

The stroke time of all power operated valves shall be measured to the nearest second or 10% of the maximum allowable time, whichever is less, IVW3410(c)(2).

Licensee's Basis for Relief

All the valves in this Request for Relief have a operating time of less than one second.

A valve failure except for valves SV-33990, SV-33991, SV-33992 and SV-33993 is detected quickly by associated equipment parameters. The equipment requiring proper operation of these valves are tested on a monthly basis. These monthly tests check the valve operation necessary to support the equipment. Parameters such as low pressure, high temperature, or failure to start would indicated to the operator that a problem exists. The fast valve operation, the inaccessible valve stem in some cases, and the assoicated equipment parameters being monitored to indicate valve malfunction makes it impractical and unnecessary to check these valves' stroke time as required by IWV-3410(c).

The valves SV-33990, SV-33991, SV-33992 and SV-33993 do not have associated equipment parameter for detection of failure. These valves operate whenever

its associated motor operated valve is opened to provide a flow path for makeup air to containment when feeding and bleeding to remove hydrogen. These motor operated valves were exempted from testing because they are containment isolation valves and tested per Appendix J. The motor operated valve numbers are MV-32274, MV-32276, MV-32293 and MV-32295.

Evaluation and Conclusion

All of the affected valves have stroke times of approximately one second or less which are considered fast acting valves. In addition failure of these valves to open will be made known to the operator by either alarms, rise in motor bearing temperature, or changes in hydraulic conditions of system. All of the above listed valves related to safety are required by the Technical Specifications to be functionally checked on a monthly basis. This relief request is under review by the staff in that additional justification is required from the licensee.

3.2.6 The Licensee's Relief Request from Valve Exercising (IWV3410(d)) (Relief Request No. 10)

Affected components

Unit 1	Unit 2
CV31652	CV31654
CV31653	CV31655

Code Requirement

Valves that operate at a frequency which would satisfy the exercising requirements of IWV-3410 provided that the observations required for testing are analyzed and recorded at intervals no greater than IWV-3410(a) are exempt from testing requirements of IWV-3410.

Licensee's Basis for Relief

These valves operate at a frequency greater than required by IWV-3410(a). Any malfunction is immediately known because of associated alarms.

Evaluation and Conclusion

The system is continuously monitored and the valves are exercised at a greater frequency than what is prescribed by the code. In addition, the licensee has committed to performing observations described by IWV 3410(d), analyzing the results during operation and record the results at least once every 3 months. The licensee is therefore meeting the code requirements for these valves and relief is not required.

3.2.7 The Licensee's Relief Request from Valve Exercising IWV3520(a)(b) (Relief Request No. 11)

Affected components

Unit 1	Unit 2
SI-7-1 RWST to RHR Pmp Suct Check	2SI-7-1 RWST to RHR Pmp Suct Check
SI-7-2 RWST to RHR Pmp Suct Check	2SI-7-2 RWST to RHR Pmp Suct Check

Code Requirement

Check valves shall be exercised once every 3 months (IWV3520(a)) or during cold shutdown (IWV3520(b)).

Licensee's Basis for Relief

Exercising these valves at cold shutdown requires removal of one loop of RHR system from service and reduces system redundance.

Evaluation and Conclusion

Cycling these valves requires operation of the RHR system. During power operation, these valves cannot be cycled because they cannot overcome RCS pressure. The valves cannot be cycled during cold shutdown because of an increase possibility of overpressurizing the RHR system and the removal of one redundant loop of the RHR system from service. Based on this evaluation, we agree with the licensee that because of the system design, these valves can only be tested during the refueling outage. Therefore we conclude that relief from the code to exercise these valves other than when the plant is in a refueling outage may be granted.

3.2.8 The Licensee's Relief Request from Valve Exercising Frequency IWV3520(b) (Relief Request No. 12)

Affected components

Unit 1	Unit 2
SI-10-1 11 SI Pump Discharge Check	2SI-10-1 21 SI Pump Discharge Check
SI-10-2 12 SI Pump Discharge Check	2SI-10-1 22 SI Pump Discharge Check
AF-15-1 Aux Feed to Steam Generator 11 Check	AF-15-7 Aux Feed to Steam Generator 21 Check
AF-15-2 Aux Feed to Steam Generator 12 Check	AF-15-6 Aux Feed to Steam Generator 22 Check
AF-15-3 Aux Feed to Steam Generator 11 Check	AF-15-8 Aux Feed to Steam Generator 21 Check
AF-15-4 Aux Feed to Steam Generator 12 Check	AF-15-5 Aux Feed to Steam Generator 22 Check
AF-16-1 Aux Feed to 11 Steam Generator Check	AF-16-4 Aux Feed to 21 Steam Generator Check
AF-16-2 Aux Feed to 12 Steam Generator Check	AF-16-3 Aux Feed to 22 Steam Generator Check

Code Requirements

Check valves shall be exercised at least once every 3 months (IWV3520(a)) or during cold shutdown (IWV3520(b)).

(1) Valves SI-10-1 and 10-2; 2SI-10-1 and 10-2

Licensee's Basis for Relief

Exercising these valves at cold shutdown requires removal of safeguards equipment from service and excessive system or component manipulation in order to establish the proper test conditions. This coupled with the possiblity of errors in the restoration of safeguards equipment or the occurrence of an event with abnormal system line-ups could result in unsafe operation of the plant which is not warranted for the type of testing to be accomplished.

Evaluation and Conclusion

These check valves are located on the discharge side of the safety injection pumps. Exercising these valves during power operation requires

manually opening and closing of SI-20-16 and 2SI-20-16. In addition, exercising these valves during cold shutdown requires open valves which must be closed to protect the reactor system against overpressurization as required by the Technical Specification for the protection of the minimum fracture toughness (PT_{ndt}) under Appendix G of 10 CFR Part 50. On this basis if these valves were tested during cold shutdown, the plant would be placed in an unsafe condition. We conclude therefore that these valves can only be tested during refueling outages in order to maintain an adequate level of safety. Thus relief from the code to exercise these valves at refueling outages may be granted.

(2) Valves AF15-1, -2, -3 and -4; AF16-1 and -2; AF15-5, -6, -7 and -8; AF16-3 and 4

The exercising requirements of the Code IWV3520(b) for these valves are addressed under item 3.2.2 part 8 which concludes that relief may be granted.

3.2.9 The Licensee's Relief Request for Verifying the Relief Valve Setpoint (IWV3510a) (Relief Request No. 13)

Affected components

Unit 1	Unit 2
RH8-1 RHR Pump Suct. Relief	2RH8-1 RHR Pump Suct. Relief

Code Requirements

Relief valves shall be tested at the end of each time period as defined in Table IWV-3510-1. Normally the number of valves shall be:

Time period	Number of valves to be tested
Startup through first refueling	Minimum of $N_1$1/60 total valves in this category
First refueling through second refueling	Additional valves to make cumulative testing at least $N_2$1/60 x total valves in this category
Second refueling through third refueling	Additional valves to make cumulative testing at least N_3/60 x total valves in this category
etc.	etc.

Licensee's Basis for Relief

Isolation and removal of this valve, or testing in place, to verify the setpoint of the valve will remove both loops of the RHR system from service. The valve will be tested whenever the core is unloaded.

Evaluation

The RHR system is necessary for safe plant operation during all modes of reactor operation except when the reactor core is unloaded. We agree with the licensee that due to system design this valve be tested only when the reactor core is unloaded. This occurs once every 10 years. On this basis we conclude that relief from the code for these valves may be granted.

3.2.10 The Licensee's Relief Request for Valve Exercising IWV3520(b) (Relief Request No. 14)

Affected components

Unit 1	Unit 2
RH6-1 Ltdn line check	2RH6-1 Ltdn Line Check

Code Requirement

Check valves shall be exercised at least once every 3 months (IWV3520a) or during cold shutdown (IWV3520b).

Licensee's Basis for Relief

Installation of the valves is such that it cannot be adequately exercised during normal plant operation. Isolation of the valves for exercising requires removal of letdown line and one loop of RHR system from service.

Evaluation and Conclusion

Isolation of these valves for testing would remove the letdown line and one loop of RHR system from service. Removing the letdown line from service would remove control of the reactor coolant chemistry. Maintaining primary water chemistry is important from the standpoint of protecting sensitive materials throughout the reactor coolant system, including the cladding of the fuel assemblies. On this basis, we conclude that testing this line during plant operation or during cold shutdown is impractical. We therefore agree with the licensee that these valves will be exercised only during each refueling outage. On this basis we conclude relief from the code requirement may be granted.

3.2.11 Licensee's Relief Request from Verifying Remote Position Indication IWV-3300 (Relief Request No. 16)

Affected components

Unit 1	Unit 2
MV-32075 11 Containment Sump B Isolation Valve A1	MV-32178 Containment Sump B Isolation Valve
MV-32076 11 Containment Sump B Isolation Valve A2	MV-32179 Containment Sump B Isolation Valve

Code Requirement

All valves with remote position indicators, which during plant operation are inaccessible for direct observation, shall be visually observed at the same (or greater) frequency as scheduled refueling outages but not less than once every two years.

Licensee's Basis for Relief

The valves are enclosed by valve enclosures which are part of the containment barrier. It is not considered practical to disassemble these enclosures to verify correct position indication. Proper positioning will be verified by exercised tests (timing) and leak rate tests.

Evaluation and Conclusion

Since the valve closures are part of the containment boundary the disassembly of these closures would place the plant in an unsafe condition. The licensee has proposed to check the position indicators by indirect methods; the closed position indication will be checked during Appendix J leak testing and the open position indication will be verified during stroke testing. In addition, the licensee's program requires that an accurate remote position indication which are required by the code is verified during maintenance whenever disassembly of the valve enclosures is required. On this basis we agree with the licensee that the alternative of valve exercising and leak test gives an adequate indication of valve stem position. On this basis we conclude that relief from the code requirement for these valves may be granted.

3.2.12 Licensee's Relief Request from Torque Delivery to the Valves Disk IWV3520(b)(2) (Relief Request No. 17)

Affected components

Unit 1		Unit 2	
CA-7-1	Vacuum Breaker at Caustic Addition Standpipe	2CA-7-1	Vacuum Breaker at Caustic Addition Standpipe
CA-7-2	Vacuum Breaker at Caustic Addition Standpipe	2CA-7-2	Vacuum Breaker at Caustic Addition Standpipe
CC-65-1	11 Component Cooling Surge Tank Vacuum Breaker	2CC-65-1	21 Component Cooling Surge Tank Vacuum Breaker

We have determined that the above listed valves are not required to safely shut down the plant or to mitigate the consequences of an accident. Therefore we do not require these valves to be part of the licensee's IST program. On this basis relief from the Code is not required.

3.2.13 Licensee's Relief Request from Full Stroke Time IWV3410(c)(1) (Relief Request No. 18)

Affected components

Unit 1		Unit 2	
CV-31941	11 Cntmt Spray Suct from Caus Standpipe Isolation	CV-31939	21 Cntmt Spray Suct from Caus Standpipe Isolation
CV-31938	12 Cntmt Spray Suct from Caus Standpipe Isolation	CV-31940	22 Cntmt Spray Suct from Caus Standpipe Isolation
CV-31838	121/122 Control Room Wtr. Chiller Inlet Xover	CV-31230	Reac Clnt Loop Pzr Ltdn Line Isolation
CV-31837	121/122 Control Room Wtr. Chiller Inlet Xover	CV-31279	Reac Clnt Loop Pzr Ltdn Line Isolation
CV-31226	1 Reac Clnt Loop Prz Ltdn Line Isolation		
CV-31255	1 Reac Clnt Loop Prz Ltdn Line Isolation		

Code Requirement

The limiting value of full stroke time shall be specified by the owner.

Licensee's Basis

There is no manufacturing information available to establish reasonable stroke times for these valves. The valves were exercised as required and stroke time data were obtained during the first 20-month phase of plant operation. This data provides the basis for establishing the limiting values of stroke time. These values have been factored into the exercise test procedures since the time of the first 20-month program update.

Evaluation and Conclusion

The licensee declares the valve inoperable when measured stroke times do not agree with the base line data obtained during the first 20-month phase of plant operation. In addition, the stroke times of all of these control valves affect the controlling parameters such as flow, temperature or pressure. These parameters are periodically monitored by the operator which results in checking the stroke time of the control valves, if these parameters are observed to be controlled improperly.

The staff agrees with the licensee that the alternative approach for measuring the stroke times of these valves are acceptable and, therefore, relief from requirements of IWV-3410(c)(1) for these valves may be granted.

3.2.14 Licensee's Relief Request from Valve Exercising at Cold Shutdown (IWV3410(b)(1)) (Relief Request No. 21)

Affected components

Unit 1	Unit 2
MV-32121 12 Component Cooling HT Exhcanger Outlet	MV-32123 22 Component Cooling HT Exchanger Outlet
MV-32120 11 Component Cooling HT Exhcanger Outlet	MV-32122 21 Component Cooling HT Exchanger Outlet
MV-32266 11/12 RCP Component Cooling Inlet Isol A	MV-32268 21/22 RCP Component Cooling Inlet Isol A
MV-32267 11/12 RCP Component Cooling Inlet Isol B	MV-32269 21/22 RCP Component Cooling Inlet Isol B

Code Requirement

Valves shall be exercised to the extent required to fulfill their function at least once every 3 months unless such operation is impractical during normal plant operation.

Licensee's Basis for Relief

Exercising these valves at power or cold shutdown requires establishing an abnormal system lineup. Should inadvertent isolation of the cross connected portions of the system occur (either through operator error in establishing the lineup or from spurious signals from instrumentation in the valve closure circuitry) considerable damage to the reactor coolant pumps and other reactor auxiliary equipment could result.

Evaluation and Conclusion

Isolation of these valves for exercising would require removing from service or possible damage to the following equipment:

- Reactor Coolant Pump
- Letdown Heat Exchanger
- Seal Water Heat Exchanger
- Boric Acid Evaporator

The present test program requires these valves to be exercised during each refueling outage. Considering the consequences of removing from service or possible damage to equipment, we agree that due to system design, exercising these valves as prescribed by code is impractical and that they should be tested only during each refueling outage. On this basis we conclude that relief from the code may be granted.

3.2.15 Licensee's Relief Request from Stroke Time Valves (IWV3410(c) (Relief Request No. 22)

Affected components

Unit 1	Unit 2
CV-31923 11 Post LOCA H_2 Vent to Annulus	CV31924 21 Post LOCA H_2 Vent to Annulus
CV-31929 12 Post LOCA H_2 Vent to Annulus	CV-31930 22 Post LOCA H_2 Vent to Annulus

Code Requirements

Stroke time for power operated valves shall be measured in accordance with IWV3410(c).

Licensee's Basis for Relief

The valves have operator dependent stroke times. The valves are normally locked closed.

Evaluation and Conclusion

Stroke timing for these valves is impractical since these valves are control valves where the stroke timing varies as a function of the input control signal to the valves. However, the licensee has committed to exercise these valves to the full stroke position and ensure that the valve can perform its throttling function throughout the full range of valve disc travel. This relief is under review by the staff in that further justification is required from the licensee.

3.2.16 The Licensee's Relief Request from Valve Exercising as Required by IWV3520 (Relief Request No. 27

Affected components

Unit 1		Unit 2	
AF-14-1	11 Aux Fd Pmp Suct Check	AF-14-7	21 Aux Fd Pmp Suct Check
AF-14-3	12 Aux Fd Pmp Suct Check	AF-14-5	22 Aux Fd Pmp Suct Check
CC-3-3	Return Line to 11 Comp Cool Pump Check	2CC-3-3	Return Line to 21 Comp Cool Pump Check
CC-3-4	Return Line to 12 Comp Cool Pump Check	2CC-3-4	Return Line to 22 Comp Cool Pump Check
VC-8-2	Charging Ln Check Dwnstrm Regen HK	2VC-8-2	Charging Line Check Dwnstrm Regen HK
VC-17-1	Charging Ln CV-31328 Bypass Check	2VC-17-1	Charging in CV-31420 Bypass Check
F-8-1	FW to 11 Steam Generator Check	2FW-8-1	FW to 21 Steam Generator Check
F-8-2	FW to 12 Steam Generator Check	2FW-8-2	FW to 22 Steam Generator Check

Code Requirement

Check valves normally open during plant operation whose function is to prevent reverse flow shall be tested in a manner that proves that the disk travels promptly to the seat upon cessation of flow.

(1) Valves AF14-1 and 3; AF14-7 and -5

Licensee's Basis for Relief

These are normally open check valves. Verification of valve closure requires taking one of the opposite units auxiliary feedwater pumps out of service and draining approximately 200 feet of 8-in. pipe. Taking one of the unit's auxiliary feedwater pumps out of service requires repositioning of valves, which if not performed properly, could result in a violation of the plant's Technical Specification.

Evaluation and Conclusion

Exercising these valves during normal operation would result in injecting low purity water from the cooling water supply in the secondary system which would disrupt the secondary water chemistry. This is detrimental to sensitive materials in the secondary system (i.e. steam generator and condenser tubes, etc.). The safety-related function of these check valves is to open allowing flow from the condensate storage tank to auxiliary feedwater pump. Therefore, these valves should not be stroked during normal plant operation. The exercising function of these valves is verified by the operation of the auxiliary feedwater system each time the plant is brought to cold shutdown and each time the plant is taken out of cold shutdown. These valves are backed up by motor operated valves (i.e. MV32333 and MV32335 for Unit No. 1 and MV32336 and MV32345 for Unit No. 2) so that if the check valves fail to operate then the motor operated valves can be closed manually to assure an adequate supply of auxiliary feedwater to the steam generators. In addition, the licensee agreed to exercise the motor operated valves during cold shutdown and during each refueling outage. Therefore, due to system design and the licensee's commitment to test the motor operated valves we conclude that relief from requirements of IWV-3520(b)(1) may be granted.

(2) Valve CC-3-3 and 3-4; 2CC3-3 and 4

Licensee's Basis for Relief

The valves are normally open check valves. Verification of valve closure requires isolation of the listed equipment and draining of long sections of piping.

(1) Waste Gas compressor return lines

(2) Steam generator blowdown panel

(3) Seal water heat exchanger

(4) Letdown heat exchanger

(5) Reactor coolant pumps

(6) Excess letdown heat exchanger

Evaluation and Conclusion

These valves are in series with butterfly valves (i.e., CC-1-9 and CC-1-10) and are normally open to allow return flow to the component cooling pumps. If the check valves fail to close, the butterfly valves can always be manually closed to perform the isolation function and the butterfly valves are exercised during each refueling outage. The check valves should not be stroked during normal operation since during stroking, cooling water flow would be reduced to vital components required for normal plant operation. In addition the licensee has shown that isolating these valves would be an undue burden without a significant increase in safety. On this basis we conclude that relief from the code requirement for these valves may be granted.

(3) Valves VC-8-2 and VC17-1; 2VC8-2 and 17-1

Licensee's Basis for Relief

These are normally open check valves. Verification of closure requires removal of boric acid flow path to the core and draining approximately 150 ft of piping. The drainage operation requires entrance to a high radiation zone (100 mr/hr).

Evaluation and Conclusion

Valve VC-8-2 is a check valve downstream of the regenerative heat exchanger; valve VC-17-1 is the bypass check valve for CV-31328 downstream of the regenerative heat exchanger. These are normally open valves whose safety-

related function is to close isolating a failure in the charging line. Exercising these valves during power operation or cold shutdown is impractical because such exercising would remove the letdown line from service and require draining 150 feet of piping in a high radiation zone. In addition isolating these valves during power operation would disrupt water chemistry control that would lead to a violation of the Technical Specifications. Exercising these valves during power operation or cold shutdown is judged by the staff as being unsafe. The licensee did however agree to exercise these valves during each refueling cycle. On this basis we conclude that relief from the code requirement for exercising these valves during normal operation or cold shutdown may be granted.

(4) Valves FW8-1 and 2; 2FW8-1 and 2

Licensee's Basis for Relief

Stroking these valves requires operation of the auxiliary feedwater pumps and draining approximately 300-400 feet of 16 in. pipe. Such an effort is not warranted to verify the check valve closure.

Evaluation and Conclusion

These valves are located on the feedwater injection line to the stream generators and function to prevent back flow and overpressurization of the electric feedwater pumps when the auxiliary feedwater pumps are operating. Plant Technical Specifications require that full flow from the auxiliary feedwater pumps be demonstrated each year. During this test, should these check valves fail to close, the resulting

backflow into the main feedwater lines would be immediately known. In adddition these valves are exercised each time the unit is brought to cold shutdown and each time the unit is taken out of cold shutdown. The staff agrees with the licensee that due to system design exercising these valves quarterly or at cold shutdown is impractical. In addition, the staff concludes that the yearly full flow test of the auxiliary feedwater pumps is sufficient to verify the operational readiness of these valves. On this basis we conclude the licensee relief from the code requirement for exercising these valves may be granted.

3.2.17 The Licensee's Relief Request from Valve Exercising as Required by IWV3520(b) (Relief Request No. 32)

Affected components

Unit 1	Unit 2
CS-18 Cntmt Spray Pump 11 Discharge Check	CS-48 Cntmt Spray Pump 21 Discharge Check
CS-19 Cntmt Spray Pump 12 Discharge Check	CS-49 Cntmt Spray Pump 22 Discharge Check

Relief Request No. 32 is addressed as part of Relief Request No. 5 (Item 3.2.2(10)) of this SER) which is concerned with check valves exercising once every 3 months for the above listed valves. The licensee requested that Relief Request No. 32 be deleted from the IST Program. We find this request acceptable since valves CS-18, -19 for Unit No. 1 and CS-48, -49 for Unit No. 2 are addressed in this SER under Item 3.2.2(10).

3.2.18 The Licensee's Relief Request for Valve Exercising (IWV3410) (Relief Request No. 34)

Affected components

Unit 1	Unit 2
CV-31768 122 Cont Rm A/C Chl Water Return	CV-31767 101 SWGR Room Fan Coil Train A
CV-31786 121 Cont Rm A/C Chl Water Return	CV-31755 22 SWGR Room Fan Coil Train B
CV-31759 122 N Relay Room Fan Coil Trn B	CV-31756 25 SWGR Room Fan Coil Train A
CV-31760 121 N Relay Room Fan Coil Trn A	CV-31757 16 SWGR Room Fan Coil Train B
CV-31761 122 S Relay Room Fan Coil Trn B	CV-31758 15 SWGR Room Fan Coil Train A
CV-31762 121 S Relay Room Fan Coil Trn A	CV-31751 22 RHR Room Fan Coil Train B
CV-31764 202 SWGR Room Fan Coil Train B	CV-31752 21 RHR Pit Fan Coil Unit Train A
CV-31765 201 SWGR Room Fan Coil Train A	CV-31753 12 RHR Pit Fan Coil Unit Train B
CV-31766 102 SWGR Room Fan Coil Train B	CV-31754 11 RHR Pit Fan Coil Unit Train A

We have determined that the above listed valves are not required to safely shut down the plant or to mitigate the consequences of an accident. Therefore we do not require these valves to be part of licensee's IST program. On this basis relief from the code is not required.

3.2.19 The Licensee's Relief Request from Valve Exercising (IWV3410(b)(1) (Relief Request No. 35)

Affected components

Unit 1	Unit 2
CV-31226 Reac Cool Lp Prz Ltdn Ln Iso	CV-31230 Reac Cool Lp Prz Ltdn Ln Iso
CV-31255 Reac Cool Lp Prz Ltdn Ln Iso	CV-31279 Reac Cool Lp Prz Ltdn Ln Iso

Code Requirements

These valves shall be exercised at least once every three months during normal plant operation or during cold shutdown if valve exercising is impractical during normal plant operations.

Licensee's Basis for Relief

Extensive operational problems are created in exercising these valves during normal operations or during cold shutdown as the letdown line must be removed from service. Exercising these valves other than during refueling outage is impractical.

Evaluation and Conclusion

These valves are located on the letdown line from the reactor. The letdown line allows reactor coolant to flow to the chemical volume control system for control of reactor coolant chemistry. Considering the consequence of removing the letdown line from service (i.e., removing control of reactor coolant chemistry), the NRC staff agrees with the licensee's basis. Therefore, due to system design, relief from exercising this valve during normal operation and cold shutdown may be granted.

3.2.20 The Licensee's Relief Request from Check Valve Exercising IWV3520(b) (Relief Request No. 39)

Affected components

Unit 1	Unit 2
VC-8-6 12 RCP Seal Line Check	2VC-8-6 22 RCP Seal Line Check
VC-8-7 11 RCP Seal Line Check	2VC-8-7 21 RCP Seal Line Check

Code Requirements

These check valves shall be exercised at least once every three months during normal plant operation or during cold shutdown if valve exercising is impractical during normal plant operations.

Licensee's Basis for Relief

Installation of these valves is such that they cannot be adequately exercised during normal plant operation or during cold shutdown. Isolation of these valves for exercising requires removal of the RCP seal injection line from service.

Evaluation

The seal injection water minimizes the out-leakage of the primary system water into the pump seal cavity. Testing these valves would remove the RCP seal injection line from service impacting on primary water chemistry control. We agree with the licensee that exercising these valves other than during refueling outage is impractical. On this basis due to system design, relief from exercising these valves during normal plant operations or during cold shutdown may be granted.

3.2.21 The Licensee's Relief on Stroke Time for Control Valve IWV3410C (Relief Request No. 53)

Affected components

Unit 1	Unit 2
CV 31381 Clg Wtr From 11 Comp Clg Ht Exch	CV-31383 Clg Wtr from 21 Comp Clg Ht Exch
CV 31411 Clg Wtr From 12 Comp Clg Ht Exch	CV-31584 Clg Wtr from 22 Comp Clg Ht Exch
CV 31785 122 Cont Rm Chlr Cdsr Cool Wtr Outl	
CV 31769 121 Cont Rm Chlr Cdsr Cool Wtr Outl	

Code Requirement

The limiting value of full stroke time of each power-operated valve shall be specified by the owner. The stroke time of all power-operated valves shall be measured to the nearest second or 10% of the maximum allowable stroke time, whichever is less.

Licensee's Basis for Relief

The processes with which these CV (control valves) interface are under continuous monitoring. Failure of a valve to function properly is immediately known.

Evaluation and Conclusion

These valves are in regular use. The valves are designed to provide a throttling function for the associated equipment. The licensee has shown that the processes controlled by these valves are continuously monitored and proposes that valve operability be based on satisfactory performance of associated equipment. This relief request is under review by the staff in that further justification is required from the licensee.

3.2.22 The Licensee's Relief Request from Valve Exercising Frequency (IWV3410) (Relief Request No. 57)

Code Requirement

These valves shall be exercised at least once every three months during normal plant operation or during cold shutdown if valve exercising is impractical during normal plant operation.

3.2.22a

Affected components

Unit 1	Unit 2
(Shown in Appendix A of this SER.)	

Licensee's Basis for Relief

These valves will be exercised each refueling shutdown at the same time a leak rate test of these valves is performed. Verifying valve closure is not warranted at intervals more often than at the time when leak testing is performed, since leak tightness is paramount to proper functioning of the valves.

Evaluation and Conclusion

These valves perform the containment isolation function during normal plant operation and are not required to change position during accident conditions. To assure leak tightness throughout the operating cycle, these valves are used only when absolutely necessary. The licensee cannot assure the high degree of containment integrity if the valves are exercised as required by the code since sealant quality of the valves may change by repeated use. Therefore such valve exercising during normal plant operation and during cold shutdown would put the plant in a less safe condition. We agree with the licensee that valve exercising may be limited to refueling outages since the valves are passive valves during accident conditions and because of system design. On this basis code relief from valve exercising may be granted.

3.2.22b Affected Components

Unit 1	Unit 2
CV-31318 PRT Sample to GA	CV-31926 Post LOCA to GA Isol
CV-31319 PRT Sample to GA	CV-31928 Post LOCA to GA Isol
CV-31339 Lt Down Cntmt Isol	CV-31643 Air Sample FR RD Cntmt Isol
CV-31325 Lt Down Orifice Isol	CV-31642 Air Sample FR RD Cntmt Isol
CV-31326 Lt Down Orifice Isol	CV-31303 Przr Stm Space Sample Valve A
CV-31327 Lt Down Orifice Isol	CV-31304 Przr Stm Space Sample Valve B

Unit 1	Unit 2
CV-31092 Air Sample to RD Cntmt Isol	CV-31305 Przr Liq Space Sample Valve A
CV-31022 Air Sample to RD Cntmt Isol	CV-31306 Przr Liq Space Sample Valve B
CV-31019 Air Sample to RD Cntmt Isol	CV-31307 RCS Hot Leg Sample Valve A
CV-31750 Air Sample to RD Cntmt Isol	CV-31308 RCS Hot Leg Sample Valve B
CV-31296 Przr Stm Space Sample Valve A	CV-31430 Lt Down Cntmt Isol
CV-31297 Przr Stm Space Sample Valve B	CV-31347 Lt Down Orifice Isol
CV-31298 Przr Liq Space Sample Valve A	CV-31348 Lt Down Orifice Isol
CV-31299 Przr Liq Space Sample Valve B	CV-31349 Lt Down Orifice Isol
CV-31300 RCS Hot Leg Sample Valve A	CV-31129 Air Sample to RD Cntmt Isol
CV-31301 RCS Hot Leg Sample Valve B	CV-31644 Air Sample to RD Cntmt Isol
CV-31925 Post LOCA to GA Isol	CV-31344 Prt Sample to GA
CV-31927 Post LOCA to GA Isol	CV-31345 Prt Sample to GA

Licensee Basis for Relief

The licensee proposed to exercise these valves during cold shutdown and during each refueling cycle. These valves cannot be exercised during power operation since the leak tightness capability of the valve could be jeopardized as the result of the exercising test. These valves perform dual functions which are to maintain containment integrity during plant operation and are required to open to perform a safety function.

Evaluation and Conclusion

These valves perform the containment isolation function during normal plant operation when leak tightness must be assured. The licensee has however committed to exercise these valves during cold shutdown as well as during each refueling outage. We agree with the licensee that exercising these valves during normal operation could result in putting the plant in a less safe condition. We have judged that exercising these valves during cold shutdown and during each refueling outage assures that the valves will perform their safety function. On this basis code relief from exercising these valves during normal operation may be granted.

3.2.22c Affected Components

Unit 1

CV-31740 1 Cntmt Inst Air Isol Valve A
CV-31741 1 Cntmt Inst Air Isol Valve B

Unit 2

CV-31742 1 Cntmt Inst Air Isol Valve A
CV-31743 1 Cntmt Inst Air Isol Valve B

Licensee Basis for Relief

These valves will be exercised each refueling shutdown at the same time a leak rate test of the valve is performed. Verifying valve closure at intervals more often than test of the leak tightness of the valve is not warranted, since leak tightness is paramount to the proper functioning of the valve.

Evaluation and Conclusion

These valves are normally opened but are required to close, isolating the containment and later to open to perform a safety function. Exercising these valves during normal operation or during cold shutdown will isolate instrument air supply causing all of the air operated valves in containment to fail. We agree with the licensee that such a transient will place the plant in an unsafe condition even during cold shutdowns. We have judged that these valves can be exercised only during refueling outages. On this basis code relief from exercising these valves during normal operation and during cold shutdown may be granted.

3.2.23 The Licensee's Relief Request from Valve Exercising IWV3410 (Relief Request No. 58)

Affected components

Unit 1	Unit 2
CS-11 11 Cntmt Spray Pumps to RWST Recirc	CS-41 21 Cntmt Spray Pump to RWST Recirc
CS-12 12 Cntmt Spray Pumps to RWST Recirc	CS-42 22 Cntmt Spray Pump to RWST Recirc

We have determined that the above listed valves are not required to safely shut down the plant or mitigate the consequences of an accident. Therefore we do not require these valves to be part of the licensee's IST program. On this basis relief from the code is not required.

3.2.24 The Licensee's Relief Request from Valve Exercising Frequency (IWV3520) (Relief Request No. 61)

Affected components

Unit 1
CLG Water to 22 AFWP 32030
CLG Water to 12 AFWP 32027
CLG Water to 21 AFWP 32026
CLG Water to 11 AFWP 32025

Code Requirements

These valves shall be exercised at least once every three months during normal plant operation or during cold shutdown if valve exercising is impractical during normal plant operations.

Licensee's Basis for Relief

The purpose of these valves is to provide a backup supply of makeup to the steam generators. Normal supply is demineralized water from the condensate storage tanks (Technical Specification lower volume limit of 100,000 gallons) with backup supply from the river.

These valves receive no auto open signal. They are manually opened. Stroking the valves breaks one of the barriers between the demineralized water and the chemically contaminated river water.

Evaluation and Conclusion

These valves are in a system which provides backup water supply from contaminated river water to the steam generators. Exercising these valves once every three months could result in disrupting the secondary water chemistry which is detrimental to the protection of the steam generator tubes. The licensee proposes, as an alternative, to stroke these valves during each cold shutdown provided that flushing to remove contaminated river water can be achieved. We agree with the licensee's alternative exercising frequency provided that, if flushing cannot be performed during cold shutdown, then these valves are to be exercised during each refueling outage. The licensee has agreed to modify his proposed alternative on the valve exercising frequency so that valve exercising will be done during each refueling outage if such exercising cannot be performed during cold shutdown. We have judged that based on the system design and the alternative exercising frequency for these valves as agreed upon by the licensee is acceptable. On this basis, we conclude that relief from the code on the exercising frequency for these valves may be granted.

3.2.25 The Licensee's Relief Request from Valve Exercising Frequency (IWV3520) (Relief Request No. 62)

Affected components

Unit 1	Unit 2
MV-32064 React Vsl Inj Fr RHR	MV-32167 React Vsl Inj Fr RHR
MV-32065 React Vsl Inj Fr RHR	MV-32168 React Vsl Inj Fr RHR

Code Requirement IWV3520

Normally closed valves should be exercised at least once every three months, except those valves that cannot operate during normal plant operations shall be exercised during cold shutdown.

Licensee's Basis for Relief

These valves are normally closed and are opened automatically upon receipt of an SI signal. These valves can be opened during normal plant operations but in a closed position they afford an additional degree of protection for the low pressure residual heat removal system (RHR).

During periodic exercising of these valves, both valves would have to be stuck open a significant amount to threaten RHR piping with overpressurization. While this possibility is remote, the licensee will revise the valve testing program to eliminate this potential hazard by scheduling tests during cold shutdown outages when the reactor coolant system is depressurized and cooled down.

Evaluation and Conclusion

We agree with the licensee that these valves should be exercised only when the reactor system pressure is below the design pressure of the RHR system that is during cold shutdown thus eleminating the possiblity of over pressurizing the RHR system. Although these valves can be operated during normal plant operation, it is not the intent of the code to place a plant system in a less safe condition when scheduling the valve exercising frequency. Thus the code allows such flexibility in scheduling the valve exercising frequency for the reasons given by the licensee in his basis. Therefore, the licensee is meeting the code requirements and relief is not necessary.

3.2.26 The Licensee's Relief Request from Valve Exercising Frequency (IWV3510a) (Relief Request No. 65)

Affected components

Unit 1	Unit 2
VC-24-1 Vct Relief	2VC-24-1 VCT Relief

Code Requirement

The code requires that the setpoint of these relief valves be verified once every five years.

Evaluation and Conclusion

These relief valves are located on the volume control tank which is part of the waste gas holdup system. We have determined that these valves are not required to safely shutdown the plant or mitigate the consequence of an accident. Therefore we do not require these valves to be part of the licensee's IST program. On this basis relief from the code is not required. However, we recommend that the licensee select a time within a five year period when the volume control tank is in an operating condition conducive to verifying the setpoints of these relief valves.

4.0 Conclusion

Based on our review, we have concluded that the proposed IST Program conforms to the 1974 Section XI of the ASME B&PV Code through the Summer 1975 Addenda to the extent practical for the facility. Our review consists of completing our safety evaluation of all items identified by the licensee in his IST program requiring relief from the ASME Section XI Code. The review resulted in identifying items which are complete because (1) the licensee has met the code requirements, (2) items fall outside our criterion for the IST program for which relief is not required, or (3) the staff granted the relief request. For items where the licensee's justification for the relief request was not adequate, the licensee changed his IST program so that the relief request was found acceptable to us. Based on this safety evaluation, we are granting this relief based on our review of the information submitted to support the determination that ASME code requirements would be impractical for the facility. We have given due consideration to the burden that could result if these requirements were imposed on the facility. We have concluded that the granting of this relief is authorized by law, will not endanger life or property or the common defense and security and is in the public interest considering the burden on the licensee if the relief were not granted.

The licensee has agreed to review his IST program and modify it accordingly as it may result from any future modifications to the safety related systems or components. The licensee has further agreed that any changes to the IST program that would result from these future modifications will meet the ASME Code requirements for IST or that he will request appropriate relief. On the basis of this review we find the licensee's IST program acceptable and it is approved. Therefore, we determined that by approving the modified IST program the amendments revising the TSs incorporates the provisions of the approved program.

We have determined that this action does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that this action involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR Section 51.5(d)(4) that an environmental impact statement or negative declaration and environment impact appraisal need not be prepared in connection with this amendment action.

We have concluded, based on the considerations discussed above, that (1) because this action does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, this action does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this action will not be inimical to the common defense and security or to the health and safety of the public.

Safety Evaluation Report IST Program

Appendix A

Prairie Island Nuclear Generating Plant

Units Nos 1 and 2

Affected Components (Relief Request No. 57-3.2.22a)

(A) Unit 1

RC-3-1	RMU Water to PRT
RC-5-1	PRT N_2 Support Isol
CV-31321	RMU Water to PRT Isol
CV-31221	PRT N_2 Supply Isol
MV-32073	1 REAC SAF INJ Cold Leg Isol
CV-31440	N_2 Supply to ACC Cntmt Isol
CV-31242	N_2 Supply Line to ACC HCV
CV-31441	N_2 Supply to 11 ACC Isol
CV-31444	N_2 Supply to 12 ACC Isol
VC-8-4	12 RCP Seal Inj Check
VC-8-5	11 RCP Seal Inj Check
VC-14-1	12 RCP Seal Inj Throttle Vlv
VC-14-2	11 RCP Seal Inj Throttle Vlv
MV-32199	Seal Return Cntmt Isol
MV-32166	Seal Return Cntmt Isol
VC-8-1	Chg Line Cntmt Check
VC-7-11	Chg Line RCV Isol
VC-7-10	Chg Line HCV Bypass
CV-31198	Chg Line HCV
HC-2-1	Inst & Emerg Air to Inside Cntmt Vessel
HC-2-2	Inst & Emerg Air to Inside Cntmt Vessel
CV-31436	RCDT Pmp Disch Cntmt Isol
CV-31437	RCDT Pmp Disch Cntmt Isol
CV-31434	RCDT to VH Cntmt Isol
CV-31435	RCDT to VH Cntmt Isol
CV-31545	RCDT to GA Cntmt Isol
CV-31546	RCDT to GA Cntmt Isol
CV-31438	Sump A Disch Cntmt Isol
CV-31439	Sump A Disch Cntmt Isol
CS-18	11 Cntmt Spray Pmp Disch Check
CS-19	12 Cntmt Spray Pmp Disch Check
CV-31569	Cntmt Purge Exh Isol B
CV-31570	Cntmt Purge Exh Isol A
Cv-31312	Cntmt Purge Supply Isol B
CV-31313	Cntmt Purge Supply Isol A
CV-31310	Inservice Purge Exh Isol B
CV-31311	Inservice Purge Exh Isol A
CV-31633	Inservice Purge Supply Isol B
CV-31634	Inservice Purge Supply Isol A

Continued

(B) Unit 2

CV-31574 Cntmt Purge Exh Isol B
CV-31575 Cntmt Purge Exh Isol A
CV-31316 Cntmt Purge Supply Isol B
CV-31317 Cntmt Purge Supply Isol A
CV-31314 Inservice Purge Exh Isol B
CV-31315 Inservice Purge Exh Isol A
CV-31635 Inservice Purge Supply Isol B
CV-31636 Inservice Purge Supply Isol A
CS-48 #22 Cntmt Spray Pump Disch Check
CS-49 #21 Cntmt Spray Pump Disch Check
2HC-2-1 Inst & Emerg Air to Inside Cntmt Vessel
2HC-2-2 Inst & Emerg Air to Inside Cntmt Vessel
CV-32176 2 Reac SAF Inj Cold Leg Isol
CV-31554 N_2 Supply to ACC Cntmt Isolg
CV-31244 N_2 Supply Line to ACC HCV
CV-31511 N_2 Supply to 11 ACC Isol
CV-31512 N_2 Supply to 12 ACC Isol
MV-32210 Seal Return Cntmt Isol
MV-32194 Seal Return Cntmt Isol
2VC-8-1 Chg Line Cntmt Check
2VC-7-11 Chg Line HCV Isol
2VC-7-10 Chg Line HCV Bypass
CV-31211 Chg Line HCV
CV-31735 RCDT Pump Disch Cntmt Isol
CV-31736 RCDT Pump Disch Cntmt Isol
CV-31733 RCDT to VH Cntmt Isol
CV-31734 RCDT to VH Cntmt Isol
CV-31731 RCDT to GA Cntmt Isol
CV-31732 RCDT to GA Cntmt Isol
CV-31619 Sump A Disch Cntmt Isol
CV-31620 Sump A Disch Cntmt Isol
2RC-3-1 RMU Water to PRT
2RC-5-1 PRT N_2 Supply Isol
CV-31342 RMU Water To Prt Isol.
CV-31209 Prt N_2 Supply Isol.
2VC-8-4 12 RCP Seal Inj Check
2VC-8-5 11 RCP Seal Inj Check
2VC-14-1 12 RCP Seal Inj Throttle Vlv
2VC-14-2 11 RCP Seal Inj Throttle Vlv