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10 CFR 50.55a

U S Nuclear Regulatory Commission
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Prairie Island Nuclear Generating Plant Units 1 and 2
Dockets 50-282 and 50-306
Renewed License Nos. DPR-42 and DPR-60

10 CFR 50.55a Requests RR-01, RR-03, RR-05, RR-06 and RR-07 Associated with the Fifth Ten-Year Interval for the Inservice Test Program

Pursuant to 10 CFR 50.55a, Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), hereby requests NRC approval of 10 CFR 50.55a Requests numbered RR-01, RR-03, RR-05, RR-06 and RR-07 for the fifth ten-year interval for the Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2, Inservice Test Program (ISTP). The details of these 10 CFR 50.55a requests are provided in the enclosure to this letter. Requests RR-01, RR-03 and RR-05 were previously approved by the NRC for the PINGP fourth ten-year interval ISTP; the correlation of previous request numbers is shown on page 1 of the enclosure. Requests RR-06 and RR-07 are new for the PINGP fifth ten-year interval ISTP.

NSPM requests approval of these 10 CFR 50.55a requests by December 21, 2014, based on the start of the PINGP ISTP fifth ten-year interval on that date.

If there are any questions or if additional information is needed, please contact Mr. Dale Vincent, P.E., at 651-267-1736.

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments.

Kevin Davison
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosures (1)

cc: Administrator, Region III, USNRC
Project Manager, PINGP, USNRC
Resident Inspector, PINGP, USNRC

Enclosure

10 CFR 50.55a Requests RR-01, RR-03, RR-05, RR-06 and RR-07 Associated with the Fifth Ten-Year Interval for the Inservice Test Program (ISTP)

Pursuant to 10 CFR 50.55a, Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), hereby requests NRC approval of 10 CFR 50.55a Requests listed in the table below for the fifth ten-year interval for the Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2, Inservice Test Program (ISTP).

5th Interval RR No.	Title	4th Interval RR No.
RR-01	Cooling Water and Component Cooling Use of Code Case OMN-16, "Use of a Pump Curve for Testing"	6 and 8
RR-02	(Not used)	
RR-03	Vertical Line Shaft Cooling Water Pump Vibration	1
RR-04	(Not used)	
RR-05	Smooth Running Pumps	12
RR-06	Code Case OMN-20	NA
RR-07	Main Steam Safety Valve Testing	NA

10 CFR 50.55a Request RR-01
Cooling Water and Component Cooling Use of Code Case OMN-16, "Use of a Pump Curve for Testing"

Proposed Alternative in Accordance with 10 CFR 50.55a (a)(3)(i) Alternate Provides Acceptable Level of Quality and Safety

1. American Society of Mechanical Engineers (ASME) Code Component(s) Affected

Pump	Description	Class	Category
145-121	11 Component Cooling Pump	3	A
145-122	12 Component Cooling Pump	3	A
245-121	21 Component Cooling Pump	3	A
245-122	22 Component Cooling Pump	3	A
045-091	121 Motor-Driven Cooling Water Pump	3	A
145-392	12 Diesel-Driven Cooling Water Pump	3	B
245-392	22 Diesel-Driven Cooling Water Pump	3	B

Component/System Function

The Component Cooling (CC) system removes heat from the Residual Heat Removal system (RHR) by providing component cooling water to the RHR heat exchangers during RHR system operation. The CC system removes heat from the RHR, Safety Injection (SI), Containment Spray (CS) and Reactor Coolant (RCS) systems by providing component cooling water to the system pumps during their operation. Per the Updated Safety Analysis Report (USAR) Section 10.4.2.2, essential cooling loads also include spent fuel pool heat exchangers and primary sample coolers.

The 121 vertical motor-driven (MD) cooling water (CL) pump serves as a diverse means of providing cooling water that is independent of the diesel-driven CL pumps. The Station Blackout / Electrical Safeguards Upgrade modification upgraded the 121 MDCL pump to safeguards status and changed the power supply to an essential safeguards diesel-backed power supply.

Each of the diesel-driven (DD) CL pumps, 12 DDCL pump and 22 DDCL pump, are capable of supplying all essential cooling water loads during an accident. Only one cooling water pump is required for the safe shutdown of both units (accident in only one unit). The DDCL pumps are capable of providing a safeguards water supply to the Auxiliary Feedwater pumps. Each DDCL pump is capable of supplying sufficient cooling to the Unit 1 emergency diesel generators (EDG), air compressors, CC heat exchangers, containment fan-coil units, and the auxiliary building unit coolers.

RR-01 (continued)

2. Applicable Code Edition and Addenda

ASME Operation and Maintenance (OM) Code-2004 Edition, with Addenda through OMb Code-2006.

3. Applicable Code Requirements

ISTB-5121, "Group A Test Procedure" (Centrifugal Pumps)

ISTB-5121(b) states, "The resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to its reference value. Alternatively, the flow rate shall be varied until the differential pressure equals the reference point and the flow rate determined and compared to the reference flow rate value."

ISTB-5222, "Group B Test Procedure" (Vertical Line Shaft Centrifugal Pumps)

ISTB-5222(c) states, "System resistance may be varied as necessary to achieve the reference point."

ISTB-5123, "Comprehensive Test Procedure" (Centrifugal Pumps)

ISTB-5123(b) states, ". . . the resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to its reference value. The differential pressure shall then be determined and compared to its reference value. Alternatively, the flow rate shall be varied until the differential pressure equals the reference point and the flow rate determined and compared to the reference flow rate value."

ISTB-5221, "Group A Test Procedure" (Vertical Line Shaft Centrifugal Pumps)

ISTB-5221(b) states, "The resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to its reference value. Alternatively, the flow rate shall be varied until the differential pressure equals the reference point and the flow rate determined and compared to the reference flow rate value."

ISTB-5223, "Comprehensive Test Procedure" (Vertical Line Shaft Centrifugal Pumps)

ISTB-5223(b) states, "The resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to its reference value. Alternatively, the flow rate shall be varied until the differential pressure equals the reference point and the flow rate determined and compared to the reference flow rate value."

RR-01 (continued)

4. Reason for Request

In order to perform accurate trending and data analysis, the use of an accurate reference value is very important. The complexities of the flow control system used for these pumps make exact duplication of the reference points very difficult.

CL and CC pumps operate during a variety of flow rates, differential pressure conditions and changing system loading conditions due to plant heat loads, thus it is not practical to duplicate the exact reference point for each pump test.

5. Proposed Alternative and Basis for Use

Pursuant to 10 CFR 50.55a (a)(3)(i), NSPM proposes using a reference curve in lieu of a reference point during the performance of CC and CL pump testing per the alternative requirements set forth in Code Case OMN-16, Revision 1, "Use of a Pump Curve for Testing" as an alternative test method for the Comprehensive, Group A, and Group B pump tests, as required by ASME OM Code, Subsection ISTB.

Plotting a pump curve for flow and differential pressure over the range of conditions expected during the systems' normal operation would allow evaluation of the pump in as-found system conditions. The proposed alternatives will adequately indicate normal pump degradation.

6. Duration of Proposed Alternative

The proposed alternative identified in this 10 CFR 50.55a request shall be implemented during the fifth ten-year ISTP interval beginning December 21, 2014.

7. Precedents

The alternative method of testing, using pump curves, was previously requested for PINGP for the third ten-year ISTP interval as 10 CFR 50.55a request five (5) for the CL pumps, and for the fourth ten-year ISTP interval as 10 CFR 50.55a request number six (6) for the CC pumps and 10 CFR 50.55a request number eight (8) for the CL pumps. These requests were approved by the NRC in References 1 and 2, respectively.

8. **References**

1. Letter from A. Randolph Blough, NRC, "Approval of Third 10-Year Inservice Testing Program Relief Requests for Pumps and Valves – Prairie Island Nuclear Generating Plant, Units 1 and 2 (TAC Nos. M86807 and M86808)", to Roger O. Anderson, Northern States Power Company, dated December 8, 1993.

RR-01 (continued)

2. Letter from Mahesh L. Chawla, NRC, "Prairie Island Nuclear Generating Plant, Units 1 and 2 - Issuance of Safety Evaluation for the Fourth 10-Year Inservice Testing (IST) Program Interval (TAC Nos. MC4509 AND MC4510)", to Joseph M. Solymossy, Nuclear Management Company, LLC, dated July 25, 2005, (ADAMS Accession Number ML051790258).

10 CFR 50.55a Request RR-03
Vertical Line Shaft Cooling Water Pump Vibration

Proposed Alternative in Accordance with 10 CFR 50.55a (a)(3)(i)
Alternate Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Pump	Description	Class	Category
045-091	121 MDCL Pump	3	A
145-392	12 DDCL Pump	3	B
245-392	22 DDCL Pump	3	B

Component/System Function

The 121 vertical MDCL pump serves as a diverse means of providing cooling water that is independent of the DDCL pumps. The Station Blackout / Electrical Safeguards Upgrade modification upgraded the 121 MDCL pump to safeguards status and changed the power supply to an essential safeguards diesel-backed power supply.

Each of the DDCL pumps, 12 DDCL pump and 22 DDCL pump, are capable of supplying all essential cooling water loads during an accident. Only one cooling water pump is required for the safe shutdown of both units (accident in only one unit). The DDCL pumps are capable of providing a safeguards water supply to the Auxiliary Feedwater pumps. Each DDCL pump is capable of supplying sufficient cooling to the Unit 1 EDGs, air compressors, CC heat exchangers, containment fan-coil units, and the auxiliary building unit coolers.

2. Applicable Code Edition and Addenda

ASME OM Code-2004 Edition, with Addenda through OMb Code-2006.

3. Applicable Code Requirement

ISTB-3540, "Vibration" (Vertical Line Shaft Pumps)

ISTB-3540(b) requires that vibration measurements shall be taken on the upper motor-bearing housing in three approximately orthogonal directions, one of which is the axial direction.

4. Reason for Request

The motor-bearings are inaccessible due to pump design.

RR-03 (continued)

DDCL pumps: The driver for the 12 and 22 DDCL pumps are diesel engines coupled to a right angle drive. The pump bearings are inaccessible for vibration measurements.

MDCL pump: The design of the MDCL pump limits access to the upper thrust bearing housing of the motor to take vibration readings with a portable instrument while the pump is running. Climbing on top of the motor while it is running is a potential personnel hazard. Additionally, to remove the bearing housing cover is a potential personnel hazard while the pump is running and thus taking direct readings is not practical.

5. Proposed Alternative and Basis for Use

Vibration measurements for the DDCL pumps 12 and 22 will be taken on the right angle drive. The thrust from the pump and driver would be transmitted to the right angle drive, thus monitoring vibration at this location will give an acceptable indication of pump degradation. Vibration measurements will be taken in three orthogonal directions one of which is the axial direction. An additional vibration measurement will be taken on each the diesel engines.

Vibration measurements for the 121 MDCL pump will be taken on the motor housing in three orthogonal directions, one of which is the axial direction. Vibration readings on the motor housing will give an acceptable indication of pump degradation. The axial reading will be taken on the side of the motor housing, midway between the upper and lower bearing.

6. Duration of Proposed Alternative

The proposed alternative identified in this 10 CFR 50.55a request shall be implemented during the fifth ten-year ISTP interval beginning December 21, 2014.

7. Precedents

This alternative vibration measurement method was previously requested for the third ten-year ISTP interval as 10 CFR 50.55a request number four (4) and for the fourth ten-year ISTP interval as 10 CFR 50.55a request number one (1). These requests were approved by the NRC in References 1 and 2, respectively.

8. References

1. Letter from A. Randolph Blough, NRC, "Approval of Third 10-Year Inservice Testing Program Relief Requests for Pumps and Valves – Prairie Island Nuclear Generating Plant, Units 1 and 2 (TAC Nos. M86807 and M86808)", to Roger O. Anderson, Northern States Power Company, dated December 8, 1993.

RR-03 (continued)

2. Letter from Mahesh L. Chawla, NRC, "Prairie Island Nuclear Generating Plant, Units 1 and 2 - Issuance of Safety Evaluation for the Fourth 10-Year Inservice Testing (IST) Program Interval (TAC Nos. MC4509 AND MC4510)", to Joseph M. Solymossy, Nuclear Management Company, LLC, dated July 25, 2005 (ADAMS Accession Number ML051790258).

10 CFR 50.55a Request RR-05
Smooth Running Pumps

Proposed Alternative in Accordance with 10 CFR 50.55a (a)(3)(i)
Alternate Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Pump	Description	Class	Category
045-591	121 Control Room Chilled Water Pump	3	A
045-592	122 Control Room Chilled Water Pump	3	A

Component/System Function

These pumps provide cooling water flow for the control room chillers to maintain control room habitability.

2. Applicable Code Edition and Addenda

ASME OM Code-2004 Edition, with Addenda through OMb Code-2006.

3. Applicable Code Requirements

ISTB-3300, "Reference Values"

ISTB-3300(a) states, "Initial reference values shall be determined from the results of testing meeting the requirements of ISTB-3100, 'Preservice Testing,' or from the results of the first inservice test."

ISTB-3300(d) states, "Reference values shall be established at a point(s) of operation (reference point) readily duplicated during subsequent tests."

ISTB-3300(f) states, "All subsequent test results shall be compared to these initial reference values or to new reference values established in accordance with ISTB-3310, ISTB-3320, or ISTB-6200(c)."

ISTB-5120, "Inservice Testing" (Centrifugal Pumps, Except Vertical Line Shaft Centrifugal Pumps)

ISTB-5121 (e), "Group A Test Procedure," and ISTB-5123(e), "Comprehensive Test Procedure," state, "All deviations from the reference values shall be compared with the ranges of Table ISTB-5121-1 and corrective action taken as specified in ISTB-6200. Vibration measurements shall be compared to both the relative and absolute criteria shown in the alert and required action ranges of

RR-05 (continued)

Table-ISTB-5121-1. For example, if vibration exceeds either 6 V_r, or 0.7 in./sec (1.7 cm/sec) the pump is in the required action range."

4. Reason for Request

The ASME OM Code, paragraph ISTB-3540, requires that for centrifugal pumps, vibration measurements shall be taken in a plane approximately perpendicular to the rotation shaft in two orthogonal directions on each accessible pump-bearing housing. Measurement shall also be taken in the axial direction on each accessible pump thrust bearing housing. The paragraph requires that for vertical line shaft pumps that the vibration measurements are taken on the upper motor-bearing housing in three orthogonal directions including the axial directions. These measurements are required to be compared with the ASME OM Code vibration acceptance criteria as specified in Table ISTB-5121-1 (Reference 1) to determine if the measured values are acceptable.

Table ISTB-5121-1 states that if during an inservice test, a vibration measurement exceeds 2.5 times the previously established reference value (V_r), the pump is considered in the alert range. The frequency of testing is then doubled in accordance with paragraph ISTB-6200(a), until the cause of the deviation is determined and the condition is corrected and the vibration level returns to the acceptable range level. Pumps whose vibrations is measured as greater than 6 times V_r are considered to be in the required action range, and must be declared inoperable until the cause of the deviation has been determined and the condition is corrected. Per ISTB-3300(c) (Reference 2), the vibration reference values shall be established only when the pump is known to be operating acceptably.

For pumps whose absolute magnitude of vibration is an order of magnitude below the absolute vibration limits in Table ISTB-5121-1 for pumps greater than or equal to 600 rpm, a relatively small increase in vibration magnitude may cause the pump to enter the alert or required action range. These instances may be attributed to variation in flow, instrument accuracy, or other noise sources that would not be representative of actual pump degradation. Pumps that operate in this region are typically referred to as "smooth-running." Based on a small acceptance range, a smooth running pump could be subjected to unnecessary corrective action.

The control room chilled water pumps are in the PINGP Inservice Test Program. Each of these pumps has at least one V_r value that is currently less than 0.05 in/sec. In order to avoid unnecessary corrective actions, a minimum value for V_r of 0.05 in/sec is proposed. This minimum value would be applied to individual vibration locations for those pumps with reference vibration values less than or equal to 0.05 in/sec. Therefore, the smallest ASME OM Code acceptable range limit for any ISTP pump vibration measurement location would be no lower than 2.5 times V_r, or 0.125 in/sec, which is within the "fair" range of the "General Machinery Vibration Severity Chart" (Reference 3). Likewise, the smallest ASME OM Code alert range limit for

RR-05 (continued)

any ISTP pump vibration measurement location for which the pump would be inoperable would be no lower than 6 times V_r, or 0.300 in/sec.

ASME OM, Table ISTB-5121-1 specifies a vibration acceptable range of 0.325 to 0.7 in/sec for pumps ≥ 600 rpm. These limits are equivalent to the vibration severity chart range of "good" to "very rough." Pumps that fall within this range have their test frequency doubled to monitor the vibration trend. The limits proposed by this 10 CFR 50.55a request are well below these limits.

In addition to the requirements of ISTB for inservice testing, the pumps in the PINGP Inservice Test Program are also included in the PINGP Predictive Maintenance (PdM) Program. The PINGP PdM Program currently employs predictive monitoring techniques for vibration monitoring and analysis when evaluating IST vibration data for these pumps.

If the measured parameters are outside the normal operating range or are determined by analysis to be trending toward an unacceptable degraded state, appropriate actions are taken that may include: initiation of a Corrective Action Program (CAP) action request; increased monitoring to establish a rate of change; review of component specific information to identify the cause of the condition; and removal of the pump from service to perform maintenance. Precedence set by approved NRC safety evaluations for other plants document that changes in vibration levels in the range of 0.05 in/sec do not normally indicate significant degradation in pump performance.

Note that pumps in the Inservice Test Program would remain in the PINGP PdM Program even if certain pumps have very low vibration readings and are considered to be smooth running pumps.

5. Proposed Alternative and Basis for Use

In lieu of applying the vibration acceptance criteria ranges specified in Table ISTB-5121-1, smooth running pumps with a measured reference value at or below 0.05 in/sec for a particular vibration measurement location would have subsequent test results for that location compared to an acceptable range limit of 0.125 in/sec and an alert range limit of 0.300 in/sec (based on a minimum reference value 0.05 in/sec). These proposed ranges would be applied to vibration test results during both Group A tests and comprehensive tests.

The alternative proposed in this 10 CFR 50.55a request will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety without unnecessarily imposing corrective action because changes in vibration levels in the range of 0.05 in/sec do not normally indicate significant degradation in pump performance.

RR-05 (continued)

Using the provisions of this 10 CFR 50.55a request as an alternative to the vibration acceptance criteria ranges specified in Table ISTB-5121-1 provides an acceptable level of quality and safety since the alternative provides reasonable assurance of pump operational readiness and the ability to detect pump degradation.

6. Duration of Proposed Alternative

The proposed alternative identified in this 10 CFR 50.55a request shall be implemented during the fifth ten-year ISTP interval beginning December 21, 2014.

7. Precedents

This alternative was previously requested for the fourth ten-year ISTP interval as 10 CFR 50.55a request number twelve (12). This request was approved by the NRC by letter dated May 17, 2012 (ADAMS Accession Number ML12109A249) for the fourth ten-year ISTP interval.

8. References

1) Table ISTB-5121-1, "Centrifugal Pump Test Acceptance Criteria".

2) ISTB-3300, "Reference Values".

3) General Machinery Vibration Severity Chart provided by IRD Mechanalysis, Inc.

10 CFR 50.55a Request RR-06
Code Case OMN-20

Proposed Alternative in Accordance with 10 CFR 50.55a (a)(3)(ii)
Hardship or Unusual Difficulty
without Compensating Increase in Level of Quality or Safety

1. ASME Code Component(s) Affected

All Pumps and Valves contained within the Inservice Testing Program scope.

2. Applicable Code Edition and Addenda

ASME OM Code-2004 Edition, with Addenda through OMb Code-2006.

3. Applicable Code Requirements

This request applies to the frequency specifications of the ASME OM Code. The frequencies for tests given in the ASME OM Code do not include a tolerance band.

ISTA-3120	Inservice Test Interval ISTA-3120(a), "The frequency for inservice testing shall be in accordance with the requirements of Section IST."
ISTB-3400	Frequency of Inservice Tests
ISTC-3510	Exercising Test Frequency
ISTC-3540	Manual Valves
ISTC-3630	Leakage Rate for Other than Containment Isolation Valves Test Frequency ISTC-3630(a), "Tests shall be conducted at least once every 2 years."
ISTC-3700	Position Verification Testing
ISTC-5221	Valve Obturator Movement ISTC-5221(c)(3), "At least one valve from each group shall be disassembled and examined at each refueling outage; all valves in each group shall be disassembled and examined at least once every 8 years."
Appendix I, I-1320	Test Frequencies, Class 1 Pressure Relief Valves
Appendix I, I-1330	Test Frequency, Class 1 Nonreclosing Pressure Relief Devices

RR-06 (continued)

Appendix I, I-1340	Test Frequency, Class 1 Pressure Relief Valves That Are Used for Thermal Relief Application
Appendix I, I-1350	Test Frequency, Classes 2 and 3 Pressure Relief Valves
Appendix I, I-1360	Test Frequency, Classes 2 and 3 Nonreclosing Pressure Relief Devices
Appendix I, I-1370	Test Frequency, Classes 2 and 3 Primary Containment Vacuum Relief Valves
Appendix I, I-1380	Test Frequency, Classes 2 and 3 Vacuum Relief Valves, Except for Primary Containment Vacuum Relief Valves
Appendix I, I-1390	Test Frequency, Classes 2 and 3 Pressure Relief Devices That Are Used for Thermal Relief Application
Appendix II, II-4000(a)(1)	Performance Improvement Activities
Appendix II, II-4000(b)(1)(e)	Optimization of Condition-Monitoring Activities

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards," paragraph (a)(3)(ii), relief is requested from the frequency specifications of the ASME OM Code. The basis of the 10 CFR 50.55a request is that the Code requirement presents an undue hardship without a compensating increase in the level of quality or safety.

ASME OM Code Section IST establishes the inservice test frequency for all components within the scope of the Code. The frequencies (e.g., quarterly) have always been interpreted as "nominal" frequencies (generally as defined in the Table 3.2 of NUREG 1482, Revision 1) and Owners routinely applied the surveillance extension time period (i.e., grace period) contained in the plant Technical Specifications (TS) Surveillance Requirements (SRs). The TS typically allow for a less than or equal to 25% extension of the surveillance test interval to accommodate plant conditions that may not be suitable for conducting the surveillance (SR 3.0.2). However, regulatory issues have been raised concerning the applicability of the TS "grace period" to ASME OM Code required inservice test frequencies irrespective of allowances provided under TS Administrative Controls (PINGP TS 5.5.7, "Inservice Testing Program," invokes SR 3.0.2 for various OM Code frequencies).

Lack of a tolerance band on the ASME OM Code inservice test frequency restricts operational flexibility. There may be a conflict where a surveillance test could be required (that is, its Frequency could expire), but where it is not possible or not

RR-06 (continued)

desired that it be performed until sometime after a plant condition or associated TS Limiting Condition for Operation (LCO) is within its applicability. Therefore, to avoid this conflict, the surveillance test should be performed when it can be and should be performed.

The NRC recognized this potential issue in the TS by allowing a frequency tolerance as described in TS SR 3.0.2. The lack of a similar tolerance applied to OM Code testing places an unusual hardship on the plant to adequately schedule work tasks without operational flexibility.

Thus, just as with TS required surveillance testing, some tolerance is needed to allow adjusting OM Code testing intervals to suit the plant conditions and other maintenance and testing activities. This assures operational flexibility when scheduling surveillance tests that minimize the conflicts between the need to complete the surveillance and plant conditions.

5. Proposed Alternative and Basis for Use

ASME OM Code establishes component test frequencies that are based either on elapsed time periods (e.g., quarterly, 2 years, etc.) or on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.)

a. Components whose test frequencies are based on elapsed time periods shall be tested at the frequencies specified in ASME Code Section IST with a specified time period between tests as shown in the following table.

Frequency	**Specified Time Period Between Tests (all values are 'not to exceed'; no minimum periods are specified)**
Quarterly	92 days (or every 3 months)
Semiannually	184 days (or every 6 months)
Annually	366 days (or every year)
x Years	x calendar years where 'x' is a whole number of years ≥ 2

b. The specified time period between tests may be extended as follows:

RR-06 (continued)

i. For periods specified as less than 2 years, the period may be extended by up to 25% for any given test. This is consistent with PINGP TS Section 5.5.7, "Inservice Testing Program."

ii. Period extensions may also be applied to accelerated test frequencies (e.g., pumps in Alert Range).

iii. For periods specified as greater than or equal to 2 years, the period may be extended by up to 6 months for any given test.

c. Components whose test frequencies are based on the occurrence of plant conditions or events (e.g., cold shutdown, refueling outage, upon detection of a sample failure, following maintenance, etc.) may not have their period between tests extended except as allowed by the ASME OM Code.

6. Duration of Proposed Alternative

The proposed alternative identified in this 10 CFR 50.55a request shall be implemented during the fifth ten-year ISTP interval beginning December 21, 2014.

7. Precedents

This 10 CFR 50.55a request has previously been approved by the NRC for use at the Quad Cities Nuclear Plant by letter dated February 14, 2013 (ADAMS Accession Number ML13042A348).

10 CFR 50.55a Request RR-07
Main Steam Safety Valve Testing

Proposed Alternative in Accordance with 10 CFR 50.55a (a)(3)(ii)
Hardship or Unusual Difficulty
without Compensating Increase in Level of Quality or Safety

1. ASME Code Component(s) Affected

Relief Valve	Description	Class	Category
RS-21-1	11 Steam Relief Header	2	C
RS-21-2	11 Steam Relief Header	2	C
RS-21-3	11 Steam Relief Header	2	C
RS-21-4	11 Steam Relief Header	2	C
RS-21-5	11 Steam Relief Header	2	C
RS-21-6	12 Steam Relief Header	2	C
RS-21-7	12 Steam Relief Header	2	C
RS-21-8	12 Steam Relief Header	2	C
RS-21-9	12 Steam Relief Header	2	C
RS-21-10	12 Steam Relief Header	2	C
RS-21-11	21 Steam Relief Header	2	C
RS-21-12	21 Steam Relief Header	2	C
RS-21-13	21 Steam Relief Header	2	C
RS-21-14	21 Steam Relief Header	2	C
RS-21-15	21 Steam Relief Header	2	C
RS-21-16	22 Steam Relief Header	2	C
RS-21-17	22 Steam Relief Header	2	C
RS-21-18	22 Steam Relief Header	2	C
RS-21-19	22 Steam Relief Header	2	C
RS-21-20	22 Steam Relief Header	2	C

Component/System Function

The primary purpose of the main steam safety valves (MSSVs) is to provide overpressure protection for the steam generators. The MSSVs also provide

RR-07 (continued)

protection against over pressurizing the reactor coolant pressure boundary (RCPB) by providing a heat sink for the removal of energy from the RCS if the preferred heat sink, provided by the condenser and circulating water system, is not available.

2. Applicable Code Edition and Addenda

ASME OM Code-2004 Edition, with Addenda through OMb Code-2006.

3. Applicable Code Requirement(s)

In ASME OM Code Mandatory Appendix I, "Inservice Testing of Pressure Relief Devices in Light Water Reactor Nuclear Power Plants," Section I-1350, "Test Frequency, Classes 2 and 3 Pressure Relief Valves," paragraph (a), "PWR [pressurized water reactor] main steam safety valves shall be tested in accordance with I-1320." Section I-1320, "Test Frequencies, Class 1 Pressure Relief Valves," paragraph (a), "5-Year Test Interval" states that a minimum of 20% of the pressure relief valves are to be tested within any 24 month interval. This 20% shall consist of valves that have not been tested during the current 5-year interval, if they exist. The test interval for any individual valve shall not exceed 5 years."

NSPM proposes to extend the test interval for these valves from 5 years to 6 years (with a 6-month grace period) while still maintaining the required 24-month/20% sampling requirement.

4. Reason for Request

In accordance with 10 CFR 50.55a(a)(3)(ii), NSPM requests approval of an alternative to the 5-year test interval requirements of ASME OM Code, Appendix I, Section I-1320(a), for the main steam header relief valves (MSSVs) for PINGP Units 1 and 2. NSPM requests that the test interval be increased from 5 years to 72 months in accordance with ASME OM Code Case, OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief / Safety Valves," so that the test interval for any individual valve that is in service shall not exceed 72 months except that a 6-month grace period is allowed to coincide with refueling outages to accommodate extended shutdown periods.

Current fuel cycle lengths are at an approximate 20 month frequency; however NSPM is considering extending the cycle length to 24 months during the fifth ten-year interval. In doing so, this will create a hardship for testing the valves as the number of available refueling outages to complete testing will decrease, and result in testing half of the MSSV each outage thereafter (5 of 10 valves). In lieu of this, additional flexibility is required in order to allot for periodic testing of the valves and to allow for disassembly, inspection, and testing of a number of valves to which PINGP has three maintained spare valves. This is consistent with past practices prior to instituting the "*in situ*-testing" practices of disassembly and refurbishment of the valves.

RR-07 (continued)

5. Proposed Alternative and Basis for Use

NSPM proposes that the MSSVs for PINGP Units 1 and 2 be tested in accordance with the provisions of OMN-17, "Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves." A minimum of 20% of the pressure relief valves will be tested within any 24-month interval and this 20% will consist of valves that have not been tested during the current 72 month interval, if they exist. The test interval for any individual valve that is in service shall not exceed 72 months except that a 6-month grace period is allowed to coincide with refueling outages to accommodate extended shutdown periods. This alternative test frequency is consistent with the alternative test frequency provided in ASME Code Case OMN-17.

The relief valve testing at PINGP will consist of removal of the MSSV component requiring testing and transport to an off-site facility for testing. Upon receipt at the off-site facility the valves are subject to an as-found inspection and set pressure testing. Prior to the return of the complement of MSSVs for installation in the plant, the valves are disassembled and inspected to verify that internal surfaces and parts are free from defects or service induced wear prior to the start of the next test interval. During this process, anomalies or damage are identified and dispositioned for resolution. Damaged or worn parts, springs, gaskets, and seats are replaced as necessary. The valve seats are relapped as needed. Following reassembly, the valve's set pressure is recertified. This process is in accordance with ASME OM Code Case OMN-17 paragraphs (d) and (e).

NSPM also proposes to comply with all other OMN-17 requirements for the MSSVs including requirements for replacement with pretested valves, requirements for testing additional valves, maintenance requirements, and requirements for disassembly and inspection.

This proposed alternative will provide for disassembly and inspection of the MSSVs to verify parts are free from defects resulting from time-related degradation or maintenance induced. This maintenance will also help to reduce the potential for setpoint drift, and increase the reliability of these safety relief valves to perform their design requirement functions. Consistent with the special maintenance requirement in Code Case OMN-17, critical components will be inspected for wear and defects, and the critical dimensions will be measured during the inspection.

Table 1, MSSV Testing History, below, provides the testing history for the fourth ten-year ISTP interval for the MSSV being discussed.

6. Duration of Proposed Alternative

The proposed alternative identified in this 10 CFR 50.55a request shall be implemented during the fifth ten-year ISTP interval beginning December 21, 2014.

RR-07 (continued)

7. Precedents

This 10 CFR 50.55a request has previously been approved by the NRC for use at the following facilities:

Beaver Valley Power Station, Units 1 and 2, 10 CFR 50.55a Request VRR4, by letter dated February 7, 2012, (ADAMS Accession Number ML120330329).

Dresden Nuclear Power Station, Units 2 and 3, 10 CFR 50.55a Request RV-02C, by letter dated October 31, 2013 (ADAMS Accession Number ML13297A515).

Oyster Creek Nuclear Generating Station, 10 CFR 50.55a Request VR-01, by letter dated March 22, 2012, (ADAMS Accession Number ML120050337).

Monticello Nuclear Generating Plant, 10 CFR 50.55a Request VR-04 relating to the fifth Ten-Year Interval Inservice Testing Program, by letter dated September 26, 2012, (ADAMS Accession Number ML12244A272).

Table 1
MSSV Testing History

Valve	Set Pressure (psig)	As-Found Date	As-Found Set-Pressure (psig)	Results (%)	As-Found Date	As-Found Set-Pressure (psig)	Results (%)
RS-21-1	1077	11/4/2004	1060	98.4215	9/10/2009	1055.3	97.9851
RS-21-2	1093	11/3/2004	1086	99.3596	9/10/2009	1065.6	97.4931
RS-21-3	1110	2/12/2008	1137.73	102.498	12/15/2012	1118	100.721
RS-21-4	1120	2/12/2008	1133.34	101.191	11/14/2012	1135	101.339
RS-21-5	1131	2/12/2008	1120.57	99.0778	12/14/2012	1145	101.238
RS-21-6	1077	5/9/2006	1094	101.578	4/28/2011	1094.8	101.653
RS-21-7	1093	11/3/2004	1069	97.8042	9/10/2009	1092.15	99.9222
RS-21-8	1110	2/11/2008	1082.56	97.5279	12/14/2012	1106	99.6396
RS-21-9	1120	5/8/2006	1124	100.357	4/28/2011	1109.38	99.0518
RS-21-10	1131	5/9/2006	1132	100.088	4/28/2011	1127	99.6463
RS-21-11	1077	9/18/2008	1079.1	100.195	9/17/2013	1067.5	99.1179
RS-21-12	1093	9/18/2008	1083.2	99.1034	9/17/2013	1102.2	100.842

RR-07 (continued)

Valve	Set Pressure (psig)	As-Found Date	As-Found Set-Pressure (psig)	Results (%)	As-Found Date	As-Found Set-Pressure (psig)	Results (%)
RS-21-13	1110	11/29/2006	1105	99.5496	2/20/2012	1102.1	99.2883
RS-21-14	1120	9/18/2008	1099.4	98.1607	9/17/2013	1124.4	100.393
RS-21-15	1131	9/18/2008	1139.9	100.787	9/17/2013	1146.9	101.406
RS-21-16	1077	5/24/2005	1079	100.186	4/15/2010	1077.9	100.084
RS-21-17	1093	5/23/2005	1104	101.006	4/15/2010	1089.4	99.6706
RS-21-18	1110	11/28/2006	1098	98.9189	2/20/2012	1085.7	97.8108
RS-21-19	1120	5/23/2005	1117	99.7321	4/15/2010	1103.5	98.5268
RS-21-20	1131	11/29/2006	1118	98.8506	2/20/2012	1144.9	101.229
RS-21-13	1110			**	9/17/2013	1104.9	99.5405

**Valve was tested to align testing going forward if this 10 CFR 50.55a request is not granted.