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Licensee: Northern States Power Company

Plant Unit(s) and Docket No(s): Prairie Island 2 (05000306)Prairie Island 1 (05000282)

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Project Title:

L-PI-26-040 Prairie Island Nuclear Generating Plant Units 1 and 2 Inservice Testing Sixth Interval Proposed
Alternative RR-03 in Accordance with 10 CFR 50.55a(z)(2)

Request Type:

10 CFR 50.55a(z)(2)

Inservice Inspection (ISI) or Inservice Testing (IST)

Inservice Testing (IST)

Requested Completion Date:

July 15, 2026

Proposed Alternative Number or Identifier:

IST Sixth Interval RR-03

Brief Description of Proposed Alternative

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), hereby requests NRC authorization of this 10 CFR 50.55a alternative for the Prairie Island Nuclear Generating Plant (PINGP) Units 1 and 2. The proposed alternative is to defer the quarterly testing of certain valves in the safeguards Cooling Water (CL) and non-safeguards Containment and Auxiliary Building Chilled Water (ZX) systems until December 1, 2026, when river temperatures will support operating without a ZX chiller.

Proposed Duration of Alternative (in terms of ISI/IST Program Interval with Start and End Dates):

The duration of this request will continue in the IST Sixth Interval until December 1, 2026.

Applicable ASME Code Requirements

ISTC-3521 Category A and Category B Valves.

(a) full-stroke exercising of Category A and Category B valves during operation at power to the position(s) required to fulfill its function(s).

ISTC-3560 Fail-Safe Valves. Valves with fail-safe actuators shall be tested by observing the operation of the actuator upon loss of valve actuating power in accordance with the exercising frequency of ISTC-3510. AOV fail-safe test frequency shall meet the requirements of Division 1, Mandatory Appendix IV.

ISTC-5130 Pneumatically Operated Valves. Active AOVs shall meet the requirements of Division 1, Mandatory Appendix IV.

IV-3420 Stroke Testing. Stroke testing shall be performed as follows:

(a) All AOVs within the scope of this Appendix, shall have a stroke test performed quarterly if practicable as follows:

(1) Stroke test valves during operation at power to the position(s) are required to fulfill its function(s) in accordance with ISTA-1100.

Applicable American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPV Code), or ASME Operation and Maintenance of Nuclear Power Plants (OM Code), Edition and Addenda

ASME OM Code 2020 Edition

Current ISI or IST Program Interval Number and Start/End Dates

Prairie Island Sixth IST Interval for Units 1 and 2 started December 21, 2025, until December 20, 2037.

Applicable ASME Code Components and/or System Description

See the list of CL and ZX valves in Table 1 of Attachment 1.

Reason for Request

The ZX system provides non-safeguards chilled water to coolers including the containment fan coil units (FCUs) and the control rod drive mechanism shroud coolers. ZX is supported by two chillers, the 11 and 21 chiller. The 21 ZX chiller has been out of service since September 2025. The timeline for 21 ZX chiller repairs is currently unknown, but not expected to be completed during the duration of this proposed alternative.

NSPM has operating experience that system perturbations associated with testing the subject components have been associated with ZX chiller trips. The consequence of a trip and failure to restart the remaining operational ZX chiller with corresponding high river temperatures would be a rise in containment temperatures. The temperature rise would be predicted to exceed the maximum operability temperature of the Units 1 and 2 containments, requiring entry into Technical Specifications 3.6.1, Condition A, and if containment cannot be restored to operable within one hour, the affected unit(s) must be in MODE 3 in 6 hours and MODE 5 within 36 hours.

The proposed alternative defers testing of the specified valves in order to reduce the likelihood of a ZX chiller trip and preserve operating margin through the high electricity demand summer and fall months.

Full Description of Proposed Alternative

For the Units 1 and 2 CL and ZX valves listed in Table 1 of Attachment 1, NSPM proposes to defer ASME OM Code required Testing under the Sixth Interval PINGP IST Program until the components can be tested with river conditions that reduce the consequence of a ZX chiller trip, but no later than December 1, 2026.

The duration of the alternative includes the expected time needed to complete ASME OM Code required testing of all the specified valves once river temperature is low enough to eliminate the operational consequence of a ZX chiller trip.

Description of Basis for Use

The request is made in accordance with 10 CFR 50.55a(z)(2), "Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety." Testing the affected components per the ASME OM Code for the duration of the proposed alternative would result in a hardship imposed by potential for a trip of the remaining ZX chiller leading to containment temperatures increasing beyond their operability limits and the resultant TS required shutdown of Units 1 and 2.

The proposed alternative provides an acceptable level of quality and safety as the performance of the included components has been acceptable with stable trends or their performance is expected to remain acceptable for the duration of the proposed alternative as noted in the Valve Performance Trend Data provided in Attachment 1.

Include Any Additional Information

None

Precedents

NRC letter dated July 17, 2025, Subject: Prairie Island Nuclear Generating Plant, Unit 2 – Authorization and Safety Evaluation for Alternative Request No. IST Fifth Interval RR-13 (EPID L-2025-LLR-0069) (NRC Agencywide Documents Access and Management System (ADAMS) Accession No. ML25197A798)

References

1. ASME OM Code 2020
2. Prairie Island Nuclear Generating Plant ASME Inservice Testing Program

Attachments

002_L-PI-26-040_PI_IST_6-RR-03_Attachment.pdf