



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 21, 2022

**MONTICELLO NUCLEAR GENERATING PLANT – AUTHORIZATION AND SAFETY
EVALUATION FOR ALTERNATIVE REQUEST NO. VR-05 (EPID L-2021-LLR-0063)**

LICENSEE INFORMATION

Recipient's Name and Address: Mr. Thomas A. Conboy
Site Vice President
Northern States Power Company - Minnesota
Monticello Nuclear Generating Plant
2807 West County Road 75
Monticello, MN 55362

Licensee: Northern States Power Company

Plant Name: Monticello Nuclear Generating Plant

Docket No.: 50-263

APPLICATION INFORMATION

Submittal Date: August 31, 2021

Submittal Agencywide Documents Access and Management System (ADAMS) Accession No.: ML21243A299

Alternative Provision: The applicant requested an alternative under Title 10 of the *Code of Federal Regulations* (10 CFR), paragraph 50.55a(z)(1).

Applicable Code Edition and Addenda: American Society of Mechanical Engineers (ASME), Operation and Maintenance of Nuclear Power Plants (OM) Code, 2017 Edition with no Addenda.

Applicable Inservice Inspection (ISI) or Inservice Testing (IST) Program Interval and Interval Start/End Dates: Sixth 10-year IST interval currently scheduled to begin on October 1, 2022, and end on May 31, 2032.

IST Requirement: ASME OM Code, Subsection ISTC, paragraph ISTC-3522, Category C, Check Valves, states, in part, "Category C check valves shall be exercised as follows: (a) During operation at power, each check valve shall be exercised or examined in a manner that verifies obturator travel by using the methods in paragraph ISTC-5221... (c) If exercising is not practicable during operation at power and cold shutdown outages, it shall be performed during refueling outages [RFOs]." ASME OM Code, Subsection ISTC, paragraph ISTC-3630, Leakage Rate for Other Than Containment Isolation Valves, states, in part, "Category A valves with a leakage requirement not based on an Owner's 10 CFR 50, Appendix J, program, shall be

tested to verify their seat leakages within acceptable limits. Valve closure before seat leakage testing shall be by using the valve operator with no additional closing force applied." ASME OM Code, Subsection ISTC, paragraph ISTC-3630(a), Frequency, states, "Tests shall be conducted at least once every 2 yr."

Brief Description of the Proposed Alternative: Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter NSPM or the licensee), hereby requests the U.S. Nuclear Regulatory Commission (NRC) authorization of this 10 CFR 50.55a request to support the implementation of the sixth IST interval for Monticello Nuclear Generating Plant (Monticello). Proposed Alternative No. VR-05 requests authorization for an alternative to the conduct of pressure isolation valve (PIV) testing each RFO and instead proposes to adopt a performance-based testing approach similar to that established under 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," Option B, "Performance-Based Requirements."

For additional details on the licensee's request, please refer to the document located at the ADAMS Accession No. identified above.

STAFF EVALUATION

ASME OM Code 2017 Edition, paragraph ISTC-3630(a), requires that valves within the scope of the ASME OM Code that have specific leakage criteria (other than containment isolation valves that are tested in accordance with 10 CFR Part 50, Appendix J) are required to be leak rate tested at least once every 2 years. The request proposed an alternative test in lieu of this requirement for the 11 specific pressure isolation valves listed. Specifically, the request proposes to functionally test and verify the leakage rate of 11 valves using a 10 CFR Part 50, Appendix J, Option B, performance-based schedule. Valves would initially be tested at the required interval schedule which is currently every RFO or 2 years as specified by ASME OM Code, Subsection ISTC, paragraph ISTC-3630(a). Valves that have demonstrated good performance for two consecutive cycles may have their test interval extended to 75 months with a permissible extension for non-routine emergent conditions of 9 months (84 months total). Any valve leakage test failure would require the component to return to the initial interval of every 30 months until good performance can again be established.

Regulation 10 CFR Part 50, Appendix J, Option B, is a performance-based containment leakage test program. Guidance for implementation of acceptable leakage rate test methods, procedures, and analyses, is provided in NRC Regulatory Guide (RG) 1.163, "Performance Based Containment Leak Test Program" (ADAMS Accession No. ML003740058). RG 1.163 endorses Nuclear Energy Institute (NEI) Topical Report (TR) 94-01, Revision 0, "Industry Guideline for Implementing Performance Based Option of 10 CFR 50, Appendix J," dated July 26, 1995, with the limitation that Type C components test interval cannot extend greater than 60 months. The current version of NEI 94-01 is Revision 3-A (ADAMS Accession No. ML12221A202), which allows Type C containment isolation valves test intervals to be extended to 75 months with a permissible extension for non-routine emergent conditions of 9 months (84 months total). In letters dated June 8, 2021, and December 6, 2012, the NRC staff found the guidance in NEI 94-01 Revision 3-A, to be acceptable (see ADAMS Accession Nos. ML121030286 and ML12226A546, respectively) with the following conditions:

- 1) Extended interval for Type C local leak rate tests (LLRTs) may be increased to 75 months with the requirement that a licensee's post-outage report include the margin between Type B and Type C leakage rate summation and its regulatory limit. In

addition, a corrective action plan shall be developed to restore the margin to an acceptable level. Extensions of up to 9 months (total maximum interval of 84 months for Type C tests) are permissible only for non-routine emergent conditions. This provision (9-month extension) does not apply to valves that are restricted and/or limited to 30-month intervals in Section 10.2 (such as BWR (boiling-water reactor) main steam isolation valves) or to valves held to the base interval (30 months) due to unsatisfactory LLRT performance.

- 2) When routinely scheduling any LLRT valve interval beyond 60-months and up to 75-months, the primary containment leakage rate testing program trending or monitoring must include an estimate of the amount of understatement in the Type B & C total and must be included in a licensee's post-outage report. The report must include the reasoning and determination of the acceptability of the extension, demonstrating that the LLRT totals calculated represent the actual leakage potential of the penetrations.

This same alternative request was recently authorized on July 15, 2020 (ADAMS Accession No. ML20174A545), for the remainder of Monticello fifth IST interval which is currently scheduled to end on September 30, 2022. The NRC staff review completed for the sixth IST interval at Monticello, along with this previous authorization, remains the same with no additional comments or conditions. Based on its review the NRC staff finds that proposed alternative VR-05 for a process to justify an extension of the leakage testing intervals for these PIVs at Monticello provides an acceptable level of quality and safety in accordance with 10 CFR 50.55a(z)(1).

CONCLUSION

The NRC staff has determined that the proposed alternative in the licensee's request referenced above would provide an acceptable level of quality and safety.

The NRC staff concludes that the licensee has adequately addressed the regulatory requirements set forth in 10 CFR 50.55a(z)(1).

The NRC staff authorizes the use of proposed alternative VR-05 at Monticello for the sixth 10-year IST interval currently scheduled to begin on October 1, 2022, and end on May 31, 2032.

All other ASME OM Code requirements for which an alternative was not specifically requested and approved remain applicable.

Principal Contributor: Michael F. Farnan

Date: January 21, 2022

Nancy L. Salgado, Chief
Plant Licensing Branch III
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

cc: Listserv

**MONTICELLO NUCLEAR GENERATING PLANT – AUTHORIZATION AND SAFETY
EVALUATION FOR ALTERNATIVE REQUEST NO. VR-05 (EPID L-2021-LLR-0063) DATED
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