



2807 West County Road 75
Monticello, MN 55362

July 31, 2023

L-MT-23-032
10 CFR 50.55a

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Monticello Nuclear Generating Plant
Docket No. 50-263
Renewed Facility Operating License No. DPR-22

10 CFR 50.55a(z)(2) Request Regarding MO-2397, VR-11

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter NSPM), hereby requests the U.S. Nuclear Regulatory Commission (NRC) authorization of this 10 CFR 50.55a(z)(2) request during the sixth Inservice Testing (IST) program ten-year interval for the Monticello Nuclear Generating Plant (MNGP). NSPM requests authorization, per the Enclosure, for an alternative to the currently specified ten-year test frequency for Periodic Verification Testing (PVT) for MO-2397 (Reactor Water Clean-up Inboard Isolation Valve).

Summary of Commitments

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

If there are any questions or if additional information is required, please contact Mr. Ron Jacobson at (612) 330-6542 or ronald.g.jacobson@xcelenergy.com.

A handwritten signature in black ink, appearing to read 'Gregory D. Brown'.

Gregory D. Brown
Plant Manager, Monticello Nuclear Generating Plant
Northern States Power Company – Minnesota

Enclosure

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

1. Project Title:

10 CFR 50.55a(z)(2) Request Regarding MO-2397, VR-11 (L-MT-23-032)

2. Licensee:

NSPM

3. Licensee Contact:

Ron Jacobson

4. Licensee Contact Phone Number:

(612) 330-6542

5. Licensee Contact e-mail:

ronald.g.jacobson@xcelenergy.com

6. Request Type:

10 CFR 50.55a(z)(2)

7. Inservice Inspection or Inservice Testing:

Inservice Testing (IST)

8. Document Sensitivity:

Non-Sensitive

9. Select Units That Apply for this Submission:

Monticello (05000263)

10. Requested Completion Date:

10/8/2023

11. Proposed Alternative Number or Identifier:

IST Request VR-11

12. Brief Description of Proposed Alternative:

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter NSPM), hereby requests the U.S. Nuclear Regulatory Commission (NRC) authorization of this 10 CFR 50.55a request during the sixth IST ten-year interval for the Monticello Nuclear Generating Plant (MNGP). NSPM requests authorization for an alternative to the currently specified ten-year test frequency for Periodic Verification Testing (PVT) for MO-2397 (Reactor Water Clean-up Inboard Isolation Valve). NSPM proposes instead to test at a frequency of twelve years until the completion of the MNGP spring 2025 refueling outage.

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

The duration of this request will continue in the sixth IST ten-year interval until the completion of the MNGP spring 2025 refueling outage, which is scheduled to start in April 2025.

14. Applicable ASME Code Requirements:

MANDATORY APPENDIX III-3310, Inservice Test Interval part (c) states, "The maximum inservice test interval shall not exceed 10 yr. MOV [motor operated valve] inservice tests conducted per para. III-3400 may be used to satisfy this requirement."

MANDATORY APPENDIX III-3722, LSSC [Low Safety Significance Component] MOVs part (d) states, "LSSC MOVs shall be inservice tested at least every 10 yr in accordance with para. III-3310."

15. Applicable ASME BPV Code, or ASME OM Code Edition and Addenda:

American Society of Mechanical Engineers (ASME) Operation and Maintenance of Nuclear Power Plants (OM) Code, 2017 edition (no addenda) [Reference 1].

16. Current ISI or IST Program Interval Number and Start/End Dates (as Applicable):

The MNGP IST 6th Interval started on October 1, 2022 and is scheduled to end on May 31, 2032.

17. Applicable ASME Code Components and/or System Description:

The affected component is MO-2397, Reactor Water Clean-Up (RWCU) Inlet Inboard Isolation, which is a motor-operated double-disc gate valve and is an LSSC MOV with its safety function being in the close direction only (torque-controlled). This valve's safety function is to close to provide containment isolation during emergency and accident conditions. This normally open valve is located in the RWCU supply line from

the reactor recirculation loops and reactor bottom head drain line to the regenerative and non-regenerative heat exchangers and also provides a suction flow path to the cleanup recirculation pumps. MO-2397 receives a Group 3 isolation signal to close upon any one of the following conditions:

- Reactor low-low water level
- High Drywell pressure
- High RWCU flow
- High RWCU room temperature

18. Reason for Request:

ISTC-5120, Motor-Operated Valves [MOVs] states, "Active MOVs shall meet the requirements of Mandatory Appendix III of this Division."

MANDATORY APPENDIX III-3300, Inservice Test part (b) states, "Inservice tests shall be conducted in the as-found condition. Activities shall not be conducted if they invalidate the inservice test results. If maintenance is needed between the inservice tests, see para. III-3400. As-found testing is not required prior to maintenance activities as long as the MOV is not due for an inservice test. If maintenance activities are scheduled concurrently with an MOVs inservice test, then the inservice test shall be conducted in the as-found condition, prior to the maintenance activity."

The as-found PVT with subsequent mechanical preventive maintenance (PM) was scheduled for MO-2397 during the MNGP spring 2023 refueling outage. Due to a human performance issue, the mechanical PM was performed prior to the as-found PVT, which precluded the completion of the PVT in accordance with III-3300. The previous PVT for MO-2397 was completed on 4/8/2013, thus a PVT was required during the 2023 refueling outage per III-3310 and III-3722 to satisfy the ten-year frequency requirement.

ISTA-3170, Inservice Examination and Test Frequency part (a)(2) states, "For periods specified as greater than or equal to 2 yr, the period may be extended by up to 6 months for any given test", thus the periodic as-found PVT becomes overdue per ISTA-3170(a)(2) on 10/8/2023.

19. Full Description of Proposed Alternative:

NSPM proposes pursuant to 10 CFR 50.55a, "Codes and standards," paragraph (z)(2), "Alternatives to codes and standards requirements," an alternative to the 2017 ASME OM Code frequency requirement for the PVT on MO-2397. Based on review of trending data, past performance, and past margin values the proposed alternative is to extend the 10-year PVT frequency for MO-2397 required by III-3310 and III-3722 to 12 years and perform the PVT during the 2025 spring refueling outage, at the completion of which the valve would return to the required Mandatory Appendix III frequency. All other ASME OM code requirements for MO-2397 remain applicable.

20. Description of Basis for Use. For requests under 10 CFR 50.55a(z)(1), describe how the proposed alternative would provide an acceptable level of quality and safety. For requests under 10 CFR 50.55a(z)(2), describe how compliance with the specified requirements would result in a hardship or unusual difficulty without compensating increase in the level of quality and safety.

The proposed alternative provides an acceptable level of quality and safety because, based on the 2017 replacement of the actuator and subsequent valve preventative maintenance history, valve functional margin is expected to remain positive for the duration of the alternative.

This valve does not qualify for ASME Code Case OMN-26 [Reference 2] use. OMN-26 provides guidance for longer test intervals more aligned with MOV Division Outage scheduling considerations based on risk and functional margin, allowing high margin valves to go beyond 10 years to an interval of 12 years; the code case specifies the qualifying as-left functional margin as that determined at the start of the testing interval, which for MO-2397 was in 2013. With the last performed PVT in 2013, the as-left functional margin of MO-2397 was less than the 10% required by OMN-26.

However, in the 2017 refueling outage, the MO-2397 actuator was replaced. No as-found PVT was conducted then. This valve was diagnostically tested and an as-left test performed, which showed a positive functional margin of 15.2% with measured packing load. The next post-maintenance testing performed occurred in the spring 2023 refueling outage and resulted in the valve with an as-left functional margin of 11.0% with measured packing load.

Test year	Valve Operating Requirement* (thrust, lbs)	Measured Capability* (thrust, lbs)	Packing Loads* (measured / assumed, lbs)	MOV Functional Margin* (using assumed packing load)	MOV Functional Margin* (using measured packing load)
2017	14108	15715	779 / 1250	11.4%	15.2%
2023	14108	14443	151 / 1250	2.4%	11.0%

* In the closed (safety function) direction

Calculation of MOV functional margin is per ASME Mandatory Appendix III-6000, using motor operator capability at the current torque switch setting. An assumed packing load (the maximum assumed packing load taken into account when determining valve operating requirement thrust) of 1250 lbs was factored into the valve operating requirement thrust. In calculating the valve functional margin, the valve operating requirement thrust is lowered by the difference between the measured and assumed packing loads. Variations between the 2017 and 2023 tests are in-part due to equipment errors, such as thrust measuring device, test box, and torque switch repeatability. MO-2397 torque switch setting has not been changed from previous tests.

Though testing and documentation do not support implementation of OMN-26 with MO-2397 since the start of test interval as-left margin was less than 10%, the as-left functional margin has been greater than 10% since actuator replacement in 2017 using measured packing loads and current acceptance criteria, thus MO-2397 valve functional margin is expected to remain positive for the duration of the proposed alternative.

MO-2397 is in the Drywell, which is a Locked High Radiation Area, so performance of a PVT requires a unit outage to access the valve. Performing the PVT on MO-2397 also requires installation and removal of scaffolding and shielding. During the 2023 refueling outage, approximately 4.2 Rem was received erecting scaffolding and installing shielding, performing the PM, supporting maintenance activities, and testing. During a refueling outage additional safety scaffold and shielding are in place to improve the safety of Drywell activities. While a forced outage would present an opportunity to perform an as-found PVT, performing the test during a forced outage would result in additional radiation exposure and personnel safety risk. In addition, the data obtained from a mid-cycle as-found PVT would not be representative of a typical as-found PVT because there has been less than two years of inservice time since the mechanical PM was performed. Compliance with Mandatory Appendix III PVT requirements prior to the 2025 refueling outage would be a hardship due to the radiological dose associated with the activity without a compensating increase in the level of quality and safety.

21. Include Any Additional Information:

Although the ASME Mandatory Appendix III PVT requirement was not met, the 2023 MO-2397 Appendix J testing was accomplished.

22. Precedents:

None.

23. References:

1. American Society of Mechanical Engineers, "Operation and Maintenance of Nuclear Power Plants," 2017 edition.
2. American Society of Mechanical Engineers OM Code Case OMN-26, "Alternate Risk-Informed and Margin Based Rules for Inservice Testing of Motor Operated Valves."

24. Attachments

None.