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10 CFR 50.55a

U S Nuclear Regulatory Commission
ATTN: Document Control Desk
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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

Supplement to 10 CFR 50.55a Requests (RR) 1-RR-4-9 and 2-RR-4-9 (TACs MF4795 and MF4796) Associated with Prairie Island Nuclear Generating Plant (PINGP) Fourth Ten-Year Interval Inservice Inspection (ISI) Program

By letter dated September 3, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14247A639), Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), submitted for NRC approval 10 CFR 50.55a requests associated with the fourth ten-year interval for the Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2, Inservice Inspection (ISI) Program. By email dated December 18, 2014 (ML14356A140), the NRC requested additional information (RAIs) to complete the review of these requests. The enclosure to this letter provides the responses to the NRC Staff RAIs for 1-RR-4-9 and 2-RR-4-9.

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)

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

Enclosure

Supplement to 10 CFR 50.55a Requests (RR) 1-RR-4-9 and 2-RR-4-9 (TACs MF4795 and MF4796) Associated with Prairie Island Nuclear Generating Plant (PINGP) Forth Ten-Year Interval Inservice Inspection (ISI) Program

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NRC RAI RR-(4-9)-1:

The licensee in Section 5 "Proposed Alternative and Basis for Use" of Enclosure to the relief request cited IWC-5210, IWA-5210, and IWC-5200 for which relief was requested and alternative was proposed. The requirements under IWC-5210, IWA-5210, or IWC-5200 have several sub-paragraphs. Discuss specific subparagraph(s) of IWC-5210, IWA-5210, and IWC-5200 for which the relief was requested.

NSPM response:

Relief is requested from the following paragraphs and subparagraphs of IWC-5210, "TEST":

- (a) Pressure retaining components shall be tested at the frequency stated in, and visually examined by the methods specified in Table IWC-2500-1, Examination Category C-H:

- (b)(1) The system pressure tests and visual examinations shall be conducted in accordance with IWA-5000 and this Article. The contained fluid in the system shall serve as the pressurizing medium.

Specifically, NSPM requests relief from the requirement to use the "contained fluid" as the pressurizing medium. When in service the contained fluid is nitrogen. NSPM performs local leak rate testing (LLRT) with station air.

Relief is requested from the following paragraphs and subparagraphs of IWA-5210, "TEST" and IWA-5211, "Test Description":

Pressure retaining components within each system boundary shall be subject to the following applicable system pressure tests referenced in Table IWA-5210-1 under which conditions a VT-2 visual examination is performed in accordance with IWA-5240 to detect leakage:

- (a) a system leakage test conducted while the system is in operation, during a system operability test, or while the system is at rest conditions using an external pressurization source;

Specifically, NSPM requests relief from the requirement to perform a VT-2 visual examination. LLRT utilizes instrumentation to detect and measure leakage.

Relief is requested from the following paragraphs and subparagraphs of IWC-5200, "SYSTEM TEST REQUIREMENTS" and IWC-5210, "TEST":

- (a) Pressure retaining components shall be tested at the frequency stated in, and visually examined by the methods specified in Table IWC-2500-1, Examination Category C-H:
- (b)(1) The system pressure tests and visual examinations shall be conducted in accordance with IWA-5000 and this Article. The contained fluid in the system shall serve as the pressurizing medium.

Specifically, NSPM requests relief from the requirement to use the "contained fluid" as the pressurizing medium. When in service, the contained fluid is nitrogen. NSPM performs testing (LLRT) with station air.

NRC RAI RR-(4-9)-2:

American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (ASME Code), Section XI, Table IWC-2500-1, Examination Category C-H, requires a system leakage test is performed according to IWC-5220 and a visual examination be performed according to IWA-5240 during each inspection period. IWC-5220 contains two subparagraphs, IWC-5221 and IWC-5222; and IWA-5240 contains four subparagraphs. Clarify whether the licensee is requesting relief from the ASME Code, Section XI, IWC-5220 and IWA-5240 in Table IWC-2500-1, Examination Category C-H. If yes, provide the specific subparagraphs in IWA-5240 and IWC-5220 the relief is requested. If no, provide justifications.

NSPM Response:

NSPM requests relief from IWA-5240. Specifically, NSPM requests relief from IWA-5241(a) which requires, "The VT-2 visual examination shall be conducted by examining the accessible external exposed surfaces of pressure retaining components for

evidence of leakage”. LLRT utilizes instrumentation to detect and measure leakage as opposed to visual examination.

NSPM is not requesting relief from IWC-5220. IWC-5221 requires:

The system leakage test shall be conducted at the system pressure obtained while the system, or portion of the system, is in service performing its normal operating function or at the system pressure developed during a test conducted to verify system operability (e.g., to demonstrate system safety function or satisfy technical specification surveillance requirements).

This requirement is met through LLRT which demonstrates system safety function.

NRC RAI RR-(4-9)-3:

The licensee submitted the relief requests pursuant to Title 10 of the Code of Federal Regulations (10 CFR) 50.55a(a)(3)(i). In accordance with 10 CFR 50.55a(a)(3)(i), the NRC staff authorizes a proposed alternative only if the alternative is equivalent in quality to the ASME Code requirement. Clarify how the licensee’s proposed alternative system leakage test is equivalent to the ASME Code, Section XI, IWC-5221 and IWA-5240 requirements and justify applicability of 10 CFR 50.55a(a)(3)(i).

NSPM Response:

The proposed alternative system leakage test is equivalent to the ASME Code, Section XI, IWC-5221, “Pressure” and IWA-5240 in that LLRT tests the affected components for both structural integrity and leak tightness to the extent needed to ensure system operability. Since the affected components are isolated at power operation, the safety function of the components is to maintain containment integrity. The proposed LLRT is a combined local leak rate test of four control valves on each unit and associated components. The test rig supplies air to the affected piping at a pressure of 46 psig which is the system pressure developed to verify system operability. The test demonstrates the components are leak tight to the extent required to maintain containment integrity by verifying the total leakage, including seat leakage through valves, is less than 4000 cc/min at the containment design pressure of 46 psig.

NRC RAI RR-(4-9)-4:

Provide the hardship(s) associated with the ASME Code, Section XI, required system leakage test of the safety injection (SI) accumulator nitrogen piping in containment. Hardship examples may include an as low as is reasonably achievable concern, creating excessive plant personnel hazards, and impact the plant’s Technical Specification requirement.

NSPM Response:

The primary hardship associated with performing the required ASME Code, Section XI, system leakage test would be personnel safety hazards. Performance of the test would require use of liquid leak detection solution (Snoop) on the piping since the fluid contained in the system is a colorless gas and would not show visual indication of leakage. The majority of the piping in this test scope for both units is immediately below the 711' floor elevation in the containment building, which is 14 feet above the 697' floor elevation. This area is very congested making building scaffold very difficult. For an inspector to perform a Snoop test of this piping or examine the piping for leakage, a significant amount of free climb would be required which could potentially result in an industrial safety hazard.

There are no Technical Specifications applicable to this piping system and the radiation dose in the area of the piping is reasonably low.

NRC RAI RR-(4-9)-5:

Discuss leakage detection capabilities at the plant. Discuss any measure(s) that would be taken to monitor and identify leakage in an unlikely event of a through wall leak in the SI accumulator nitrogen piping in containment during normal operation.

NSPM Response:

Containment leakage detection capabilities exist at the plant, however they are not applicable to this specific circumstance. If the SI accumulator nitrogen piping developed a through wall leak during power operation, it would likely not be detected as the affected components are normally isolated. Leakage would most likely be detected by periodic LLRT. Gross leakage would be indicated by difficulty charging the SI accumulators prior to starting up the unit after an outage. If there was a through wall leak on the piping during startup, these lines would either have a delay in charging time or would not charge at all. The leakage would then be identified and resolved using the NSPM corrective action program.