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10 CFR 50.55a

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

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

10 CFR 50.55a Requests 1-RR-4-7 and 2-RR-4-7 for the Units 1 and 2 Fourth 10-year Interval Inservice Inspection Program

The purpose of this letter is to request the Nuclear Regulatory Commission (NRC) grant the Nuclear Management Company, LLC (NMC) relief from and authorize alternatives to the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, IWA-5244, "Buried Components," for the Fourth 10-Year Interval Inservice Inspection (ISI) program for the Prairie Island Nuclear Generating Plant (PINGP) pursuant to 10 CFR 50.55a (a)(3)(ii). The basis for the request is that compliance with the specified requirements for pressure testing buried piping would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The details of the relief request are contained in enclosure 1.

NMC requests approval of the relief by October 31, 2007. An October 31, 2007, approval will allow NMC to be in compliance for the first period of the Fourth 10-year Interval ISI program, which ends December 21, 2007.

Summary of Commitments

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

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cc: Administrator, Region III, USNRC
Project Manager, Prairie Island, USNRC
Resident Inspector, Prairie Island, USNRC
Chief Boiler Inspector, State of Minnesota

ENCLOSURE 1
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Proposed Alternative In Accordance with 10 CFR 50.55a (a)(3)(ii)
Hardship or Unusual Difficulty Without
Compensating Increase in Level of Quality of Safety

1.0 ASME CODE COMPONENTS AFFECTED

Code Classes: 3
References: ASME Section XI 1998 Edition, 2000 Addenda
IWA-5244
Examination Categories: D-B
Item Numbers: D2.10
Description: Class 3 Buried Pressure Retaining Components
Component Number(s): Supply Lines 30-CL-20 and 30-CL-23

2.0 APPLICABLE CODE EDITION AND ADDENDA:

The Prairie Island Nuclear Generating Plant (PINGP) Fourth 10-Year Interval Inservice Inspection program is based on the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, 1998 Edition with 2000 Addenda.

3.0 CODE REQUIREMENT

The following Code requirements are taken from ASME Section XI, 1998 Edition with 2000 Addenda.

IWA-5244, Buried Components:

- (b) For buried components where a VT-2 visual examination cannot be performed, the examination requirement is satisfied by the following:
 - (1) The system pressure test for buried components that are isolable by means of valves shall consist of a test that determines the rate of pressure loss. Alternatively, the test may determine the change in flow between the ends of the buried components. The acceptable rate of pressure loss or flow shall be established by the Owner.

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4.0 REASON FOR REQUEST

Pursuant to 10 CFR 50.55a, "Codes and Standards," Paragraph(a)(3)(ii), relief is requested from the requirements of ASME Code Section XI, IWA-5244(b)(1), on the basis that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The Cooling Water (CL) System is designed to provide redundant cooling water supplies with isolation valves to auxiliary feedwater pumps, Unit 1 diesel generators, air compressors, component cooling water heat exchangers, containment fan-coil units, and the Auxiliary Building unit coolers. Two diesel driven cooling water pumps (DDCLP) and a vertical motor driven pump (MDCLP) are located in the Class I portion of the cooling water screenhouse. A supply ring header which is shared by Units 1 and 2 can be isolated to provide two redundant independent sources of cooling water for all essential services. One-half of the essential services for each Unit is supplied from each side of the isolable loop. Each side of the loop is designed to supply the needs for all essential services for both Units.

A portion of the cooling water supply ring header extends underground from the screenhouse to the turbine building. Part of this buried piping is under the administration building. These lines of buried piping are cooling water lines 30-CL-20 and 30-CL-23. No branch lines are buried. The total approximate length of buried piping is 200 feet. This piping is protected by a cathodic protection system.

Instrumentation upstream of the buried piping consists of pressure indication at the discharge of the CL pumps. No flow instrument exists upstream on the supply header. Downstream of the buried piping a flow meter exists on the main header in the turbine building. Isolation of the buried portion of piping would include two 18" butterfly valves and two 24" butterfly valves on each supply line.

In 1992, a modification replaced the underground portions of piping with 30-inch diameter, ½-inch thick, A106 carbon steel piping. An epoxy interior coat was applied for additional protection to prolong pipe life. A portion of the CL supply header piping was not excavated during this modification. Those portions of the CL piping embedded in concrete at the screenhouse and short segments of pipe at the Administration/Turbine Building interface were left in place and a weld overlay added in localized areas.

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The CL buried piping does not have an annulus and is not accessible for examination without excavation. Based on the absence of an annulus and the fact that the lines are isolable, IWA-5244(b)(1) applies to the CL buried piping. This subparagraph requires either a test to determine the rate of pressure loss, or a test to determine the change in flow between the ends of the buried components.

To implement a pressure loss test, it would be necessary to close several large butterfly valves to isolate the buried portions of piping. This would isolate one CL supply header. Isolating one CL supply header requires entry into the Technical Specification Condition TS 3.7.8.B. The required action for TS 3.7.8.B requires restoration of the supply header in 72 hours. Entering condition TS 3.7.8.B requires Unit 1 to enter the applicable conditions and required actions of LCO 3.8.1 for Unit 1 emergency diesel generator made inoperable by CL System. Entering condition TS 3.7.8.B also requires Units 1 and 2 to enter the applicable conditions and required actions of LCO 3.4.6 for residual heat removal loops made inoperable by CL system. LCO 3.4.6 is only applicable in mode 4. In addition to placing the units in an undesirable condition, the butterfly valves required for isolation of the supply header are not expected to provide an adequate test boundary necessary to conduct a pressure decay test. Extensive maintenance or system modification would be required to perform an adequate pressure decay test, as it would be necessary to either replace the existing butterfly valves with those of better leakage characteristics or to install blind flanges.

The other test option provided by the Code is a change in flow test. However, the CL supply headers were not designed with plant instrumentation and flow orifices on the exposed ends of piping, which are required to determine the change in flow rates. In addition, sufficient lengths of accessible straight pipe for reliable use of ultrasonic flow meters do not exist. Installation of permanent flow instruments would require system modifications. For these reasons, the configuration of the CL system will not allow for determining the change in flow between the ends of the buried piping.

Performing the specified examinations or testing would require either excavating the buried piping, entering multiple Technical Specification action statements, or performing major modifications to system piping. Therefore, compliance with the specified requirements is a hardship without a compensating increase in the level of quality and safety.

5.0 PROPOSED ALTERNATIVE AND BASIS FOR USE

In lieu of performing a test in accordance with the requirements specified in IWA-5244(b)(1), NMC proposes to use the requirements of IWA-5244(b)(2).

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IWA-5244, Buried Components:

- (b)(2) The system pressure test for nonisolable buried components shall consist of a test to confirm that flow during operation is not impaired.

The integrity of the buried piping will be verified during quarterly pump testing. The safeguards Cooling Water pumps (the 12 and 22 DDCLP and the 121 MDCLP) are tested quarterly per the requirements of the Inservice Testing (IST) program. During these tests, the flow and pressure of the cooling water pumps are plotted against a test reference value. The pressure is recorded at the discharge of the pump and flow measurements are recorded in the Turbine Building.

Head and flow rate are interdependent variables, which together define pump hydraulic performance. As the pump degrades, the total discharge head will decrease at the reference flow rate. However, due to the location of the flow rate instruments (downstream of the buried piping), a decrease in pump head during testing may also indicate leakage from the CL system between the pump discharge and the flow meter in the turbine building. A leak in the underground portion of the cooling water header would result in reduced pump performance on the pump curve. Satisfactory quarterly IST testing of the CL pump will verify the integrity of the buried piping.

If the performance of a CL pump drops below the reference range on the performance curve, and the cause of the deviation is not attributed to the test instruments being used, corrective actions will be initiated to evaluate the cause of the reduced performance as required by the Prairie Island IST Program. If the pump performance falls into the action range, the pump would be declared inoperable and further corrective actions (i.e. maintenance on the pump, system walkdowns, etc) would be initiated to restore the pump and/or system to an Operable status.

If a pump is declared inoperable and later determined that the pump met applicable criteria, a further investigation into the cause of the apparent reduced performance would be performed. This could include aligning one of the other safeguards pumps to the affected header supply piping. Downstream flow and pump head during performance of these SP's are trended as part of the IST program.

NMC requests approval of the proposed alternative to test the buried portion of CL piping in conjunction with the quarterly testing of the CL pumps as it will detect significant through-wall leakage if present and will provide reasonable assurance of operational readiness.

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6.0 DURATION OF PROPOSED ALTERNATIVE

Relief is requested for the fourth inspection interval for Prairie Island Nuclear Generating Plant Units 1 and 2. The fourth interval is effective for units 1 and 2 from December 21, 2004 through December 20, 2014.

7.0 PRECEDENT

By letter dated February 23, 2006, Nebraska Public Power District (NPPD) submitted relief request No. PR-06, related to the fourth 10-year interval inservice inspection program for the Cooper Nuclear Station (reference 8.2). In Relief Request PR-06, the licensee requested relief from performing the ASME Code required pressure test of the buried portion of service water piping by measuring rate of pressure loss or change in flow between the ends of the buried components. Alternatively, the licensee proposed a test that will confirm that flow during operation is not impaired. By letter dated October 2, 2006, the NRC approved the relief request for the Cooper Nuclear Station (reference 8.1).

Similar to NPPD, NMC is also requesting relief from the ASME Code required pressure test of the buried service water piping and proposing an alternative that will confirm that flow during operation is not impaired.

8.0 REFERENCES

- 8.1 Letter from NRC to Nebraska Public Power District, "Cooper Nuclear Station Re: Fourth 10-Year Interval Inservice Inspection Request for Relief PR-06, Safety Evaluation by the Office of Nuclear Reactor Regulation," dated October 2, 2006, ADAMS Accession Number ML062260217.
- 8.2 Letter from Nebraska Public Power District to NRC Document Control Desk, "10 CFR 50.55a Requests for Fourth Ten-Year Inservice Inspection Interval Cooper Nuclear Station, Docket No. 50.298, DPR-46," dated February 23, 2006, ADAMS Accession Number ML060590300.