October 8, 2008

Mr. Michael D. Wadley
Site Vice President
Prairie Island Nuclear Generating Plant
Northern States Power-Minnesota
1717 Wakonade Drive East
Welch, MN 55089

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 – RE: GENERIC LETTER 2008-01, "MANAGING GAS ACCUMULATION IN EMERGENCY CORE COOLING, DECAY HEAT REMOVAL, AND CONTAINMENT SPRAY SYSTEMS," PROPOSED ALTERNATIVE COURSE OF ACTION (TAC NOS. MD7866 AND MD7867)

Dear Mr. Wadley:

On January 11, 2008, the U.S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072910759). GL 2008-01 requested licensees to submit information to demonstrate that the emergency core cooling, decay heat removal, and containment spray systems (hereinafter referred to as the "subject systems") are in compliance with the current licensing and design bases and applicable regulatory requirements, and that suitable design, operational, and testing control measures are in place for maintaining this compliance.

In accordance with Section 50.54(f) of Title 10 of the *Code of Federal Regulations* (10 CFR), GL 2008-01 required that each licensee submit the requested information within 9 months (hereinafter referred to as the "9-month submittal") of the date of GL 2008-01. The GL also stated that if a licensee cannot meet the requested 9-month response date, the licensee is required to provide a response within 3 months (hereinafter referred to as the "3-month submittal") of the date of GL 2008-01, describing the alternative course of action it proposes to take, including the basis for the acceptability of the proposed alternative course of action.

By letter dated April 10, 2008, Nuclear Management Company, LLC (NMC or the licensee), submitted a 3-month response to GL 2008-01 for Prairie Island Nuclear Generating Plant (PINGP) Unit 1. NMC subsequently submitted a letter on September 15, 2008, that (a) provided an update to its April 10, 2008, 3-month response to GL 2008-01 for PINGP Unit 1, and (b) requested an extension for the 9-month response to GL 2008-01 for PINGP Unit 2. The NRC staff's assessment of the responses for PINGP Units 1 and 2 is contained in the enclosure.

The NRC staff reviewed the licensee's proposed alternative course of action and the associated basis for acceptance for PINGP Units 1 and 2, and concluded that they are acceptable based on PINGP operating experience, testing, procedures and corrective actions associated with managing gas accumulation as described in the enclosure. In addition, the licensee's

commitments regarding the order and schedule for completing the walkdowns and the associated evaluations provides for an earlier completion and a more timely response, overall, to GL 2008-01.

If you have any questions regarding this letter, please feel free to contact me at (301) 415-4037.

Sincerely,

/RA/

Thomas J. Wengert, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-282 and 50-306

Enclosure:
As stated

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NRC STAFF ASSESSMENT OF 3-MONTH RESPONSE

TO GENERIC LETTER 2008-01

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-282 AND 50-306

1. Background

On January 11, 2008, the U.S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072910759). GL 2008-01 requested licensees to submit information to demonstrate that the emergency core cooling, decay heat removal, and containment spray systems (hereinafter referred to as the "subject systems") are in compliance with the current licensing and design bases and applicable regulatory requirements, and that suitable design, operational, and testing control measures are in place for maintaining this compliance. Specifically, GL 2008-01 requested licensees to provide: (1) a description of the results of evaluations that were performed in response to the GL; (2) a description of all corrective actions that the licensee determined were necessary; and (3) a statement regarding which corrective actions were completed, the schedule for completing the remaining corrective actions, and the basis for that schedule.

In accordance with Section 50.54(f) of Title 10 of the *Code of Federal Regulations* (10 CFR), GL 2008-01 required that each licensee submit the requested information within 9 months (hereinafter referred to as the "9-month submittal") of the date of the GL. GL 2008-01 also stated that if a licensee cannot meet the requested 9-month response date, the licensee is required to provide a response within 3 months (hereinafter referred to as the "3-month submittal") of the date of GL 2008-01, describing the alternative course of action it proposes to take, including the basis for the acceptability of the proposed alternative course of action.

2. Licensee's Proposed Alternative Course of Action

By letter dated April 10, 2008, Nuclear Management Company, LLC (NMC or the licensee), submitted a 3-month response to GL 2008-01 for Prairie Island Nuclear Generating Plant (PINGP) Unit 1. NMC subsequently submitted a letter on September 15, 2008, that (a) provided an update to its April 10, 2008, 3-month response to GL 2008-01 for PINGP Unit 1, and (b) requested an extension for the 9-month response to GL 2008-01 for PINGP Unit 2.

Prairie Island Nuclear Generating Plant, Unit 1

The licensee's letter dated April 10, 2008, stated that the most recent refueling outage (1R25) for PINGP Unit 1 occurred earlier this year. In response to GL 2008-01, the licensee conducted walkdowns in the PINGP Unit 1 containment during 1R25 and identified one vulnerability that has been entered into the corrective action program for resolution. Subsequent to the NMC walkdowns, the Nuclear Energy Institute (NEI) provided detailed guidance for responding to GL 2008-01. Subsequent to receiving the NEI guidance, NMC also received operating experience from a similarly-designed plant that, during ultrasonic examination (UT) conducted as part of their walkdown, identified a void in a horizontal stretch of the residual heat removal (RHR) line.

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The walkdown at PINGP Unit 1 did not include UT. Based on the NEI guidance and new operating experience from a similar plant, NMC plans to conduct additional PINGP Unit 1 walkdowns to fully respond to GL 2008-01. Since portions of the systems in the scope of the GL are inaccessible or located in high dose areas during power operations, an outage is required to complete the walkdowns. NMC plans to complete detailed PINGP Unit 1 walkdowns during the next PINGP Unit 1 refueling outage (1R26). The licensee's letter dated April 10, 2008, as updated in its September 15, 2008, letter, resulted in the following commitments that are applicable to PINGP Unit 1:

1. NMC will submit all the information [for Units 1 and 2] requested in GL 2008-01 for the 9-month response, with the exception of the results of the evaluation of piping walkdowns.

2. NMC will submit the results of the evaluation of [Units 1 and 2] accessible area walkdowns and Unit 2 containment and RHR pit walkdowns with the follow-up report 90 days following the completion of [the upcoming Unit 2 refueling outage] 2R25.

3. NMC will complete the [Unit 1] detailed walkdowns of inaccessible sections of the GL 2008-01 subject systems prior to startup from the 2009 Unit 1 refueling outage.

4. NMC will submit results of the evaluations of the walkdowns of Unit 1 containment and RHR pits 90 days following the completion of the next Unit 1 refueling outage (1R26).

In its April 10, 2008, letter, NMC concluded that this alternative course of action is acceptable based on current operating experience. Surveillance testing performed on the subject systems has confirmed that there are no currently identified gas voiding issues. Inservice testing of the systems is routinely performed and has demonstrated acceptable performance. In addition, the vulnerability that has been identified has been entered into the corrective action program for resolution.

Prairie Island Nuclear Generating Plant, Unit 2

NMC's letter dated September 15, 2008, stated that in order to support walkdowns in containment and the RHR pump pits during the upcoming PINGP Unit 2 refueling outage (2R25), NMC proposes to complete accessible area walkdowns after completing the walkdowns in the Unit 2 containment and RHR pump pits. This would preclude NMC from completing accessible area walkdowns prior to the due date for the 9-month response, however, it would allow completion of walkdowns required by GL 2008-01 sooner than if the accessible area walkdowns were completed and the Unit 2 containment and RHR pit walkdowns were moved out to the next Unit 2 refueling outage (2R26). The licensee's letter dated September 15, 2008, contained the following commitments that are applicable to PINGP Unit 2:

1. NMC will submit all the information [for Units 1 and 2] requested in GL 2008-01 for the 9-month response, with the exception of the results of the evaluation of piping walkdowns.

2. NMC will submit the results of the evaluation of [Units 1 and 2] accessible area walkdowns and Unit 2 containment and RHR pit walkdowns with the follow-up report 90 days following the completion of [the upcoming Unit 2 refueling outage] 2R25.

In its September 15, 2008, letter, NMC stated that the alternative course of action is acceptable based on the following:

- Significant gas accumulation has not historically been found at the high point vents in these systems during past operations. PINGP has no known issues with regard to void accumulation in suction or discharge piping.

- The containment spray (CS) and safety injection (SI) systems are routinely tested with their pump suctions aligned to the refueling water storage tank (RWST). This alignment dynamically vents portions of their suction piping and portions of their discharge piping. During testing of the SI and CS systems, or when the RHR system is placed in shutdown cooling, there have not been any effects on flow, or indication of a water hammer. These tests have not indicated any adverse impacts to the ability of RHR or CS to perform their design basis functions.

- The SI system is periodically tested with its pump suction aligned to the RWST. Since the system flow rate during these periodic tests is near the design flow rate expected under accident conditions, any voids present in the suction piping, while aligned to the RWST, have not adversely affected pump performance. The SI system has not experienced any problems due to gas being transported to the pump suction.

- The SI pump can also take suction from the RHR pump. This piping remains full after it has been filled and vented. Historically, non-routine inspections for void formation found no indications for voids. The SI system has experienced several injections to the reactor vessel during the operating life of the units and there have been no reports of water hammer during these events.

Based on the above, NMC concluded that it has confidence the RHR, CS, and SI systems can fulfill their required functions, based upon past and current operating experience, detailed evaluations, and testing performed since plant licensing.

3. NRC Staff Assessment

The NRC staff finds the licensee's proposed alternative course of action for PINGP Units 1 and 2 acceptable based on the above-described operating experience, testing, procedures and corrective actions associated with managing gas accumulation. In addition, completing the walkdowns and their evaluations as discussed above, beyond the requested 9-month period, will provide a more timely response, overall, to GL 2008-01.

The NRC staff noted that the licensee's submittal dated April 10, 2008, and September 15, 2008, did not address other potential long-term actions that are identified in GL 2008-01. For instance, the industry is assessing whether it is necessary to perform pump testing to determine the allowable limits on ingested gas volume in pump suctions, as well as the need to develop an analysis capability to adequately predict void movement (entrapped gas) from piping on the suction side of the pumps into the pumps. It is unlikely this industry effort will be complete for the 9-month initial or supplemental submittals.

Further, technical specification changes may be necessary to reflect the improved understanding achieved during response to the GL, but these cannot be fully developed for the 9-month initial or supplemental submittals. A Technical Specifications Task Force traveler may provide a generic example that can be adopted by licensees. The NRC staff requests that the licensee address in its 9-month submittal how it plans to track such long-term actions (e.g., corrective action program and/or commitment tracking). The NRC plans to perform follow up inspections of licensee responses to GL 2008-01 at all plants using a temporary instruction inspection procedure.

Prairie Island Nuclear Generating Plant,
Units 1 and 2

cc:

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