May 6, 2004

Mr. Joseph M. Solymossy
Site Vice President
Prairie Island Nuclear Generating Plant
Nuclear Management Company, LLC
1717 Wakonade Drive East
Welch, MN 55089

SUBJECT: SUMMARY OF REVIEW OF PRAIRIE ISLAND, UNIT 1, STEAM GENERATOR TUBE INSPECTION REPORTS FOR THE FALL 2002 OUTAGE (TAC NO. MB8004)

Dear Mr. Solymossy:

By letters to the U.S. Nuclear Regulatory Commission (NRC) dated December 13, 2002 (ML023540268), December 26, 2002 (ML030030487), two letters dated March 6, 2003 (ML030720401 and ML030730056), and February 4, 2004 (ML040420381), Nuclear Management Company, the licensee, submitted information pertaining to the steam generator tube inspections performed at Prairie Island Nuclear Generating Plant, Unit 1, during their fall 2002 outage.

The NRC staff has completed its review of these reports and concludes that the licensee provided the information required by their technical specifications and that no additional follow-up is required at this time. The NRC staff's review of the reports is enclosed. If you have any further questions, please contact me at (301) 415-8371.

Sincerely,

/RA/

Mahesh Chawla, Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-282

cc/w encl: See next page

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REVIEW OF 2002 STEAM GENERATOR TUBE INSPECTION REPORTS

PRAIRIE ISLAND UNIT 1, NUCLEAR MANAGEMENT COMPANY

DOCKET NO. 50-282

By letters to the U.S. Nuclear Regulatory Commission (NRC) dated December 13, 2002 (ML023540268), December 26, 2002 (ML030030487), two letters dated March 6, 2003 (ML030720401 and ML030730056), and February 4, 2004 (ML040420381), Nuclear Management Company, the licensee, submitted information pertaining to the steam generator tube inspections performed at Prairie Island Nuclear Generating Plant, Unit 1, during their fall 2002 outage. This inspection is the last planned inspection for the current steam generators (SGs). Replacements of the SGs is planned for 2004.

Currently, Prairie Island, Unit 1, has two Westinghouse Model 51 SGs designated as SG11 and SG12. These SGs have mill annealed Alloy 600 tubes and carbon steel tube support plates. The tubes were originally roll expanded for the bottom 2.75-inches of the tubesheet, which is approximately 24 inches thick. The scope and results of the licensee's inspection are described in the reports referenced above.

There were three findings to note as a result of the review of the licensee's 2002 inspection reports:

- One tube (R4C76) was found to have a sleeve that collapsed. The sleeve was a Combustion Engineering (CE) tungsten inert gas (TIG)-welded sleeve which the licensee indicated had collapsed as a result of a "diode effect." The diode effect occurs when secondary side water seeps into the crevice between the parent tube and sleeve through a flaw in the parent tube during cold shutdown conditions. During subsequent plant heatup, the water in the crevice heats up (but can not exit the flaw at a great enough rate) and expands resulting in an increased pressure in the crevice. If the increased pressure on the sleeve is in excess of its yield strength, the sleeve collapses. During this outage, this tube was plugged and no other sleeves were reported as collapsed. This finding is a potential concern since the collapse of a sleeve can result in less flow through the tube than expected and can compromise the structural and leakage integrity of the tube.

- Several axial indications detected in prior outages were not detected during this outage. The indications were located in the rolled region of the tubes in the tubesheet. These indications are classified as either single-axial indications which are no longer detectable or multiple-axial indications which are no longer detectable. The licensee concluded that these indications are no longer detectable since the tubes with these locations were reroll expanded into the tubesheet. This "second" roll expansion (over the original rolled region of the tube) was performed to limit the leakage from these flaws. In 1997, it was determined that flaws in the original roll expansion were leaking because the flaws were being "opened up" during the hydraulic expansion process. These hydraulic expansions were performed to apply the F* repair criteria discussed in the licensee's technical specifications and resulted in expanding the tube higher in the tubesheet region.

ENCLOSURE

- A single-volumetric indication was detected in tube R10C69 at the centerline of a weld associated with a CE TIG-welded sleeve (TS27). The sleeve was made from alloy 690 and was installed in January 1996. The volumetric indication was in the parent tube, but it was not clear if it initiated from the inner-diameter or the outer-diameter of the parent tube. The sleeve and tube were in-situ pressure tested and the structural integrity of the tube and sleeve was verified. The tube was subsequently plugged.

Based on its review, the NRC staff concludes that the information provided by the licensee is sufficient and that no additional follow-up is required at this time.

Prairie Island Nuclear Generating Plant, Unit 1

cc:

Jonathan Rogoff, Esquire
Vice President, Counsel & Secretary
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