March 2, 2007

The Honorable John Kline
United States House of Representatives
Washington, D.C. 20515

Dear Congressman Kline:

On behalf of the Nuclear Regulatory Commission (NRC), I am responding to your letter of February 1, 2007, addressed to Ms. Rebecca Schmidt, Director, Office of Congressional Affairs. In your letter, you request background information about an incident at the Monticello Nuclear Generating Plant (Monticello) and its applicability to the Prairie Island Nuclear Generating Plant (Prairie Island). Specifically, you asked for background information about an automatic reactor trip, which occurred after the failure of a structural support, as well as the response taken to address the problems. You further asked if any of the problems at Monticello were applicable to Prairie Island and requested NRC to outline the precautions that would be taken to assure the same incident does not occur at that facility.

An automatic shutdown occurred at Monticello, a boiling-water reactor with a General Electric turbine, on January 10, 2007, when the main steamline pressure decreased to the automatic reactor shutdown setpoint. Four turbine control valves regulate the supply of steam to the main turbine generator. The pressure decreased because the control mechanism for the valves was damaged and all four valves opened more than was actually needed. These valves are operated by a mechanism housed in the turbine control valve actuator box (actuator box). The support structure for the actuator box failed, causing it to shift downward by 6 inches. This downward shift of the actuator box damaged the control mechanism for the valves. However, the main steamlines and other adjacent structures were not damaged.

Through its assessment of the cause, the licensee for Monticello found that it had inadequately designed the actuator box support structure during original plant construction and that some of the original welds were of poor quality. It should be noted that the valves and the actuator box are not part of the reactor safety systems at Monticello. Onsite NRC resident inspectors observed the plant operators' actions during the shutdown. The operators followed plant operating procedures, all shutdown systems operated properly, and the plant was safely shut down. The event did not pose a risk to the public.

NRC inspectors examined the welds on the failed support structure and reviewed the metallurgical report which documented the results of sampling and testing some of the failed welds. The licensee subsequently redesigned and modified the actuator box support structure. NRC inspectors also reviewed the licensee's redesign and modification to the actuator box support structure, associated engineering design calculations, stress analysis of the steamlines, and a sample of the licensee's corrective actions related to its evaluation for possible other inadequate supports.

NRC shared the original Monticello actuator box design information with the NRC inspection staff at other potentially susceptible boiling-water reactors such as Vermont Yankee, Oyster Creek, Pilgrim, and Nine Mile Point. None of these plants had similar actuator box support structures.

NRC also shared this information with the NRC resident inspectors at the Prairie Island plant, a pressurized-water reactor with a Westinghouse turbine. Monticello uses a single mechanical system (cam and linkages) to operate the control valves. All of the controls are enclosed within a box that is attached to a top mounted support. Prairie Island uses an electro-hydraulic system, whereby each turbine control valve is operated by a separate control called an actuator which has its own supply of hydraulic fluid. Each actuator is mounted onto the turbine control valve that it controls and the turbine control valves are welded to a pedestal that supports underneath the valve. Since the four valves at Prairie Island are controlled independently of each other and are supported from below, Prairie Island can not experience a failure similar to the incident at Monticello. Furthermore, the NRC resident inspectors visually inspected the turbine control valve and actuator supports and found them satisfactory.

I hope that you find this information helpful.

Sincerely,

/RA William F. Kane Acting for/

Luis A. Reyes
Executive Director
for Operations

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