

NRC 2003-0040

10 CFR 2.201

May 2, 2003

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

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2  
DOCKETS 50-266 AND 50-301  
REPLY TO A NOTICE OF VIOLATION (EA-03-059)  
NRC SPECIAL INSPECTION REPORT NO. 50-266/02-15 (DRS); 50-301/02-15 (DRS)

Reference: 1. Letter from J. E. Dyer (NRC) to A. J. Cayia (NMC) dated April 2, 2003.

In Reference 1, the Nuclear Regulatory Commission (NRC) forwarded the final results of its significance determination and Notice of Violation (NOV) for the finding identified in the subject inspection report. The inspection report concerned resolution of the auxiliary feedwater old design issue and preliminary red finding – auxiliary feedwater orifice plugging issue. The NRC cited a violation of Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B. Specifically, the NRC stated that Nuclear Management Company, LLC (NMC) failed to identify potential common mode failures that existed involving power supplies to the recirculation line air-operated valve and other system components. In addition, the licensee's corrective actions for the potential common mode failure associated with a loss of instrument air did not preclude repetition.

We have reviewed this NOV and, pursuant to the provisions of 10 CFR 2.201, have prepared a written response to the violation as requested by your letter. We concur that the failure to implement adequate corrective actions for the Auxiliary Feedwater/Instrument Air issue is a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." Our response to the violation is included as an attachment to this letter.

The attachment to this letter contains two new commitments, which are indicated in italics.

  
A. J. Cayia  
Site Vice President  
GPA/kmd

Attachment

cc: NRC Regional Administrator  
NRC Project Manager  
Director, Office of Enforcement

NRC Resident Inspector  
PSCW

IED1

**REPLY TO A NOTICE OF VIOLATION**

**EA-03-059**

**NRC SPECIAL INSPECTION REPORT  
NO. 50-266/02-15 (DRS); 50-301/02-15 (DRS)  
POINT BEACH NUCLEAR PLANT UNITS 1 AND 2**

The following is the NMC response to the Notice of Violation issued by the NRC on April 2, 2003.

### **NRC VIOLATION**

During two NRC inspections conducted between September 23, 2002 and March 24, 2003, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, a summary of the violation is listed below:

Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, requires, in part, that conditions adverse to quality be promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.

Contrary to the above, as of December 12, 2002, the licensee failed to implement corrective actions to preclude repetition of a significant condition adverse to quality associated with an AFW system potential common mode failure. Specifically, the licensee failed to identify potential common mode failures that existed involving power supplies to the recirculation line air-operated valve and other system components. In addition, the licensee's corrective actions for the potential common mode failure associated with a loss of instrument air did not preclude repetition. Specifically, the licensee's corrective actions, to upgrade the safety function of the air-operated recirculation valve, failed to ensure that successful operation of the recirculation line air-operated valve was dependent only on safety-related support systems. Following the corrective actions, successful operation of the valve was still dependent upon non-safety-related power to an interposing relay.

This violation is associated with a previously identified Red SDP finding (EA-02-031).

### **NMC RESPONSE**

We concur that the failure to implement adequate corrective actions for the Auxiliary Feedwater/Instrument Air issue is a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action."

#### **Reason For The Violation**

The failure to implement corrective actions to preclude repetition of a significant condition adverse to quality was due to the evaluation of the initial condition being too narrowly focused. As a result, equipment deficiencies were not identified and the modifications implemented as corrective actions to improve AFW system reliability were not adequate.

Our evaluation of the initial issue (November 2001), regarding common mode failure associated with loss of Instrument Air (IA), concluded that procedure EOP-0.1, Reactor Trip Response, did not contain the specific operator actions needed to assure that, in all instances, operators would consistently control or stop Auxiliary Feedwater (AFW) flow to prevent AFW pump damage under certain conditions. Those conditions were the loss of instrument air coincident with steam generator overfill or RCS overcooling.

Upon determining the significance of this condition, we immediately took corrective actions to assure that operators would respond appropriately in the event this unlikely condition were to occur. To alert operators to this condition, we placed information tags adjacent to the Control Room controls for all

four AFW pumps to provide a reminder of the minimum flow requirements for each pump. In conjunction with this, we briefed the operations crew that was on shift at the time and initiated shift briefings for all oncoming crews on the concerns identified with a loss of instrument air, as well as AFW pump requirements to maintain adequate minimum pump flow. We also tailored specific immediate and follow on simulator training to enhance operators' knowledge of this condition and to reinforce proper AFW flow control. This included simulator scenario runs on loss of instrument air.

We initiated procedural reviews to determine the changes needed to improve the procedures and made the appropriate changes to our EOPs.

Afterwards we initiated a root cause evaluation of this condition. For this purpose, we formed a multi-discipline root cause evaluation team. However, this evaluation was too narrowly focused. Consequently, it did not uncover the equipment deficiencies identified in the Notice of Violation.

Subsequent corrective actions included modifications to both the motor and turbine driven AFW pump support systems. These modifications installed nitrogen and/or IA accumulator tanks to back up the IA supply and thereby ensure each air operated recirculation valve remained functional for a given time following a design basis accident or event with a loss of IA.

The purpose of these actions was to correct this newly discovered AFW system deficiency; however, there was no broad assessment made of the AFW system in conjunction with these corrective actions. The associated modifications focused on the mechanical aspects of the system.

In contrast, the modification to upgrade the AFW recirculation line air-operated valve "open" function, from non-safety related to safety related, involved both mechanical and electrical aspects. However, the electrical aspects associated with the recirculation valves were not researched sufficiently to determine that a non-safety related power supply supported the control circuit of each of these valves. Therefore, there was inadequate preparation of this modification. Subsequent technical reviews of the modification package by plant personnel also failed to identify the electrical aspects associated with each valve.

#### Corrective Steps Taken

Steps were taken to address both the specific equipment deficiencies associated with the AFW system that resulted in the Notice of Violation and the cited deficiency associated with the corrective action process.

Initial actions to address the specific AFW equipment deficiencies that resulted from previous corrective action deficiencies have been completed. The equipment deficiencies, as stated in the Notice of Violation, were entered into the corrective action program. These deficiencies were the potential common mode failure mechanism that existed involving power supplies to AFW system components, and the non-safety related power supplies to equipment that provided opening and closing input into the recirculation valve for each pump.

The existing operability determination, associated with the AFW pump recirculation line orifice plugging issues, was revised to include assessment of the common mode failure potential and the non-safety related power supplies. We determined that the consequences of these conditions had the same overall affect on the AFW system as that of the orifices plugging, therefore, the compensatory measures already in place were adequate and did not require revision. These

equipment deficiencies resulted in only a minimal change in core damage probability and the AFW system remained capable of fulfilling its safety function.

In addition to evaluating the specific AFW equipment deficiencies, a system review and evaluation of the electrical power supplies of the equipment associated with the AFW system was conducted by plant personnel. This review included the main AFW system components, main steam supply valves to the turbine driven pumps, Service Water to AFW pump suction valves, and flow indication instrumentation. A matrix was created to determine the availability of the AFW pumps following each design basis accident or event that the AFW system is required to mitigate. The matrix served as a tool to evaluate the current status of the AFW system and to determine corrective actions that may be needed. The matrix also considered and evaluated the worst-case single failures of associated equipment. This evaluation and subsequent evaluations using the matrix revealed other deficiencies, which were entered into the corrective action program for proper resolution. Finally, an outside assessment team was brought to the site to perform an independent system overview. The findings from this assessment were also appropriately entered into the corrective action program.

The independent review confirmed the initial findings that the AFW system remained capable of fulfilling its safety function.

In assessing the extent of this condition, additional systems, beyond the AFW system, were evaluated. Outside assessment teams performed reviews of other risk significant plant systems. Three systems were evaluated, Emergency Diesel Generators, Service Water system, and the 4160 VAC distribution system. During these evaluations, no risk significant conditions were identified.

To address the cited deficiencies in the corrective action process itself, a series of comprehensive actions were performed. A comprehensive health review of the corrective action program was completed. This review was used to identify improvements to the process. A Corrective Action Program 'Picture of Excellence' was also developed. Each element of the 'Picture of Excellence' was reviewed against industry standards and site performance to develop an action plan to improve performance. Based on the need for prompt action, we have initially focused on the highest priority elements; improving identification screening, prioritization, trending, monitoring, and root cause evaluations. Efforts to improve the other elements are in progress. The screening process for initial evaluation of conditions entered into the corrective action program was revised to improve its effectiveness. Additionally, to improve effectiveness of the review of higher significance issues, the corrective action process was revised to implement technical panel review of root cause and other significant corrective actions.

#### Corrective Steps To Be Taken

Additional steps are planned to address both the specific equipment deficiencies associated with the AFW system that resulted in the Notice of Violation and the cited deficiency associated with the corrective action process.

To address the specific AFW equipment issues that resulted from previous corrective action deficiencies, actions were created based on the total system review that was performed using the system matrix. As discussed previously, this matrix was created to determine if other deficiencies existed with the AFW system based on the discovery of the non-safety related power issue.

As resolution for the AFW system common mode failure potential and to repower each recirculation line flow support device from an appropriately chosen safety related power supply, system modifications were developed. The work packages associated with these modifications have been prepared, independently verified, and are currently in review by station personnel. Installation of these modifications is currently scheduled for the third quarter of 2003.

To address the cited deficiencies in the corrective action process itself, a series of comprehensive actions were performed. Action was initiated to strengthen oversight of the corrective action program by the Corrective Action Review Board. Actions are in progress to improve the monitoring and trending of items entered into the corrective action process. A process improvement is being made to provide for more effective root cause evaluations. The resulting improvements are expected to preclude deficiencies in evaluations such as failing to identify potential common mode failures in the AFW system. Finally, a station-wide effort is being made to improve understanding and proper use of the corrective action process.

Date of Full Compliance

*The corrective steps to be taken to improve the corrective action process, as described above, will be completed by June 20, 2003. The corrective steps to implement the changes associated with resolving the AFW system common mode failure potential and providing safety related power to the flow support devices for the AFW pump recirculation valves will be completed by September 30, 2003. Upon completion of these actions, NMC will be in compliance with the associated requirements.*