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February 14, 1997

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Reply to Notice of Violation  
NRC Inspection Report 50-456(457)/96018  
Braidwood Nuclear Power Station Units 1 and 2  
NRC Docket Numbers 50-456 and 50-457

References: 1) J.L. Caldwell letter to H.G. Stanley dated January 22, 1997, transmitting  
Notice of Violation from NRC Inspection Report 50-456(457) 96018  
2) Management Meeting held on January 27, 1997, at NRC Region  
III Headquarters

The Reference 1 letter provided the results from a Special Inspection conducted on a pressurizer PORV actuation that occurred at Braidwood Station on October 12, 1996. A Notice of Violation, characterized as Severity Level IV, was transmitted with this report and requires a written response. Reference 2 refers to the NRC Management Meeting where Braidwood Station personnel met with NRC representatives from Region III to discuss the causes and corrective actions taken by the Station in response to the event.

Braidwood Station is sensitive to any condition that has the potential to challenge the RCS pressure boundary. Although the plant responded as designed and the threat to the public was found to be minimal, we recognize the seriousness of the potential consequences from such an event. In response to the incident, a prompt investigation was initiated to identify the causal factors in a timely manner. This allows prompt and effective corrective actions to be taken. The practice of performing prompt investigations has enhanced the Station's Corrective Action Program by allowing pertinent information to be documented early when details are most accurately retained.

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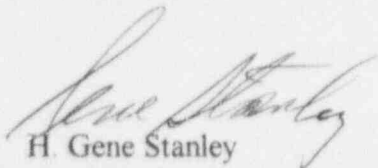
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The following commitment is contained in the attached response:

- Improvements to the CV121 valves will be evaluated.

All other corrective action items specified in the reponse have been completed.

If your staff has any questions or comments concerning this letter, please refer them to Terrence Simpkin, Braidwood Regulatory Assurance Supervisor, at (815) 458-2801, extension 2980.



H. Gene Stanley  
Site Vice President  
Braidwood Station

Attachment

cc: A.B. Beach, NRC Regional Administrator, Region III  
R.R. Assa, Project Manager, NRR  
C.J. Phillips, Senior Resident Inspector  
F. Niziolek, Division of Engineering, Office of Nuclear Safety, IDNS

## **ATTACHMENT 1**

### **REPLY TO NOTICE OF VIOLATION**

#### **VIOLATION (50-456/96018)**

During a NRC inspection conducted from October 12 through November 13, 1996, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings" states, "Activities affecting quality shall be prescribed by documented instructions, procedures and drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures and drawings. Instructions, procedures and drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

Contrary to the above, prior to October 12, 1996, Braidwood procedure BwGP 100-5, "Plant Shutdown and Cooldown," an activity affecting quality, was not appropriate to the circumstances. Specifically, the procedure did not provide instructions or guidance for bypassing the charging flow control valve 1CV121 which along with other circumstances, led to the unplanned opening of the pressurizer power operated relief valve, thus challenging the integrity of the reactor coolant system.

#### **REASON FOR THE VIOLATION:**

During Unit One cooldown for planned maintenance outage A1P02 (Steam Generator Midcycle), pressurizer PORV 1RY455A actuated in Cold Overpressure Protection mode due to elevated pressurizer level and pressure. Procedure BwGP 100-5, "Plant Shutdown and Cooldown", allowed Operations to maintain the pressurizer level as high as 80% during the cooldown evolution. Although this has been permitted by procedure since 1989, the pressurizer level had been more consistently maintained around 50% during outages to facilitate required Safety Injection testing. Maintaining the pressurizer at a higher level reduced the response time margin.

Another factor contributing to the event was the erratic behavior of valve 1CV121. This valve is challenging to control at lower pressures because of a large differential pressure across the valve. At one point during the cooldown evolution, the Nuclear Station Operator (NSO) noted charging flow oscillations which contributed to the difficulty in controlling 1CV121 due to the high differential pressure across the valve. As a result, a Field Supervisor and Equipment Attendant were directed to open 1CV8387B to bypass 1CV121 using 1BwOA PRI-1, "Excessive Primary Plant Leakage - Unit 1" procedure, as a reference since no specific procedure addressed this action. The Field Supervisor then proceeded to close 1CV8384A to isolate 1CV121. Unexpected difficulty was encountered while performing this step. The pressurizer level increased rapidly and pressurizer PORV 1RY455A automatically opened one time to relieve RCS pressure.

A final contributing cause was that the Operator who was assigned the task of cracking open 1CV8387B to bypass 1CV121 was not provided sufficient instructions. As a result, the individual opened the valve more than required, making it more difficult to throttle closed due to the high differential pressure.

## ATTACHMENT 1

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#### VIOLATION (50-456/96018)

#### CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED:

The Shift Engineer directed the Operations crew to stabilize the plant. Once plant conditions were verified to be stable, RH letdown was established to restore pressurizer level. The remainder of the cooldown evolution was accomplished without incident.

Details on this event were communicated to Operations personnel.

#### CORRECTIVE ACTIONS TAKEN TO AVOID FUTURE VIOLATION:

Revisions were made to BwGP Procedures. BwGP 100-5, "Plant Shutdown and Cooldown," now provides instructions for maintaining the pressurizer level at 50% as compared to 80% prior to placing RH in service. In addition, specific transition steps based on RCS pressure and temperature have been added. This revision was approved on January 24, 1997. BwGP 100-1, "Plant Heatup," was revised to provide better controls for transferring from shut down cooling to steam dump cooling of RCS. The approval date for this revision was November 20, 1996.

BwOP CV-27, "\_CV121 Bypass Operations," was written to provide sufficient guidance for Operations personnel to manipulate \_CV121, the centrifugal charging pump discharge flow control valve, under high differential pressure conditions. This procedure was approved on November 21, 1996.

CV121 has been added to the Operator workaround list. To resolve this issue, Engineering and Operations representatives from Braidwood and Byron Stations are jointly evaluating improvements to the CV121 valves.

#### DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:

Full compliance was achieved with the development of BwOP CV-27, "\_CV121 Bypass Operations," and the revision of BwGP 100-5, "Plant Shutdown and Cooldown".