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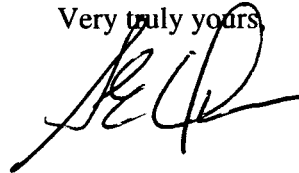
July 17, 1997

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 97-14-00

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555

The attached Licensee Event Report LER 97-14-00 is hereby submitted in
accordance with the requirements of 10 CFR 50.73.

Very truly yours,



Attachment

cc: Mr. Hubert J. Miller
Regional Administrator - Region I
US Nuclear Regulatory Commission
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King of Prussia, PA 19406

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EXPIRES: 4/30/92

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE:

Plant operating restrictions required by Technical Specifications were not implemented when the Overpressure Protection System was inoperable.

EVENT DATE:

June 17, 1997

REPORT DUE DATE:

July 17, 1997

REFERENCE:

CITRS (Condition Identification and Tracking System) No. 97-E02399

PAST SIMILAR OCCURRENCES:

None

DESCRIPTION OF OCCURRENCE:

On June 14, 1997 during a refueling outage, the reactor coolant system (RCS) was being filled and one pressurizer safety valve was removed to provide a suction path for the vacuum fill. Pressurizer level was increased to 80 percent as part of the fill process, and the pressurizer safety valve was reinstalled. The Overpressure Protection System (OPS) was not operable as the testing of the pressurizer power operated relief valves (PORVs), which were replaced during the refueling outage, had not been completed. Pressurizer level remained at 80 percent after completion of the vacuum fill and vent evolution, and cold shutdown operation at this level continued until approximately 1015 hours on June 17, 1997 with the OPS inoperable and the RCS at atmospheric pressure and approximately 90 degrees F. At that time, it was

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DESCRIPTION OF OCCURRENCE (continued):

identified that the pressurizer level was not restricted to less than or equal to 30 percent as required by Technical Specification 3.1.A.4.a, Figure 3.1.A-3. Pressurizer level was reduced to 30 percent by 1655 hours.

ANALYSIS OF OCCURRENCE:

The OPS is provided to relieve RCS pressure for certain overpressure transients when RCS temperature is less than or equal to 305F to prevent these incidents from causing the peak RCS pressure to exceed 10 CFR 50, Appendix G limits. The system uses the PORVs to accomplish the pressure reduction. When the OPS is "armed," the PORVs will open upon receipt of the appropriate signal, and arming is accomplished either automatically by the OPS when the RCS is below a prescribed temperature or manually by the operator. The OPS is set to cause the PORVs to open at a pressure sufficiently low to prevent exceeding the Appendix G limits for the following events:

- (1) startup of a reactor coolant pump (RCP) with no other reactor coolant pumps running and the steam generator secondary side water temperature hotter than the RCS water temperature;
- (2) letdown isolation with three charging pumps operating;
- (3) startup of one safety injection pump;
- (4) loss of residual heat removal (RHR) causing pressure rise from heat additions from core decay heat or RCP heat; or
- (5) inadvertent activation of the pressurizer heaters.

The RCS is protected against overpressure transients by:

- (1) restricting the number of charging pumps and safety injection pumps that can be energized to that which can be accommodated by the PORVs (as part of the OPS) or the gas space in the pressurizer (OPS inoperable);
- (2) providing administrative controls on the starting of a reactor coolant pump when the primary water temperature is less than the secondary water temperature (with or without OPS operable); or

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ANALYSIS OF OCCURRENCE (continued):

- (3) providing vent area from the RCS to containment for those situations where neither the PORVs nor the available pressurizer gas space are sufficient to preclude the postulated pressure transient (OPS inoperable).

When pressurizer level is between 30 and 85 percent of span, protection is provided through the use of the PORVs (OPS operable). When pressurizer level is less than 30 percent of span, additional restrictions on pressurizer pressure make reliance on the PORVs unnecessary since the gas compression resulting from the insurge of liquid from the RCS pump start is insufficient to cause RCS pressure to exceed the Appendix G limits. The same method, i.e., control of pressurizer pressure and level, is used to accommodate the mass insurge into the pressurizer from safety injection and charging pump starts when the PORVs are not operational.

Technical Specification 3.1.A.4 requires that the OPS shall be armed and operable when the RCS temperature is less than or equal to 305F. Table 3.1.A-2 permits the OPS to be inoperable at or below 305F based on various operating restrictions or establishment of a vent area to the containment atmosphere. Without a vent area to the containment atmosphere, Table 3.1.A-2 imposes operating restrictions which are contained on Figures 3.1.A-2 and 3.1.A-3. Figure 3.1.A-2 allows pressurizer level greater than 30 percent if no safety injection (SI) pumps are energized (power available to start pump) and only one charging pump is energized. Figure 3.1.A-3 allows one safety injection pump and three charging pumps to be energized if pressurizer level is less than or equal to 30 percent.

In this instance, the OPS was inoperable during and after the vacuum fill and vent evolution, as the PORVs had not been successfully tested. Using applicable procedures (POP 1.1 and SOP 1.1.1) and the Technical Specifications, the operators deenergized two SI pumps to comply with Figure 3.1.A-3 for operation with an inoperable OPS. While the operators had determined that the RCS temperature and pressure permitted operation with the OPS inoperable, they either did not recognize or did not properly evaluate the note on the figure which specifies the requirement for pressurizer level to be less than or equal to 30 percent. During this period, pressurizer level was approximately 80 percent, thereby exceeding the level requirement. Further, the procedures the operators were using did not contain requirements for OPS operability and did not adequately direct them to procedure steps which contained relevant guidance.

While the plant was in a condition with pressurizer level greater than permitted, RCPs, safety injection pumps, charging pumps, and pressurizer heaters were not operated and decay heat

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ANALYSIS OF OCCURRENCE (continued):

removal was being accomplished by the RHR system. Therefore, the RCS was not subjected to a potential overpressure condition so the safety significance of the event is minimal. This report is being made pursuant to 10 CFR 50.73(a)(2)(i)(B), which requires that "The licensee shall report any operation or condition prohibited by the plant's Technical Specifications."

CAUSE OF OCCURRENCE:

Causes for this event are attributable to the following:

- (1) The Safety Evaluation of procedure SOP 1.1.1, "Vacuum Filling and Venting the Reactor Coolant System," Revision 0 failed to identify and address plant operational requirements to prevent a potential inadvertent overpressurization of the RCS as required by Technical Specifications. This resulted in no guidance in the SOP to alert the operator to OPS requirements and alternatives.
- (2) The vacuum fill and vent evolution was not managed as an infrequently performed test or evolution. This contributed to inadequate assessment of an available RCS vent path, the need for OPS to be operable, and missed pertinent guidance in Technical Specification Figure 3.1.A-3. This was a missed opportunity to thoroughly review the evolution and avoid missing the requirement.
- (3) The procedural connection between procedure POP 1.1 ("Plant Heatup"), which is the procedure that directs the operators to SOP 1.1.1, and SOP 1.1.1 was less than adequate. Thus, relevant information in POP 1.1 was not used. In addition, the noted information on Technical Specification Figure 3.1.A-3 is embedded with three notes on unrelated subjects and printed in the gridwork of the graph. This caused a visual obscuring of important information resulting in oversight of the 30 percent criterion that defines the usable pressurizer level bound for the graph.
- (4) The refueling outage schedule did not use a "hard logic" connection to ensure that OPS operability testing was completed prior to commencing SOP 1.1.1. This allowed a conflict to exist between actual plant conditions (OPS inoperable) and evolution requirements (OPS operable).
- (5) The operators did not fully appreciate the complex relationships between OPS/vent path requirements, pressurizer level, and vacuum refill rig alignment. This affected their ability to successfully execute SOP 1.1.1.

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CORRECTIVE ACTIONS:

Corrective actions resulting from this event are:

- (1) Revise the Safety Evaluation to address OPS/plant configuration issues. This is scheduled to be completed by October 31, 1997.
- (2) Define and implement a methodology in SAO-202 ("Conduct of Infrequently Performed Tests or Evolutions") for determining when an evolution/test becomes an infrequent evolution/test based on time between evolutions and risk (complexity, potential consequences, etc.). This is scheduled to be completed by September 30, 1997.
- (3a) Establish a clear information trail between SOP 1.1.1, POP 1.1, and Technical Specification requirements for OPS operability and alternatives. This should include a caution in SOP 1.1.1 prior to exceeding 30 percent pressurizer level. This is scheduled to be completed by October 31, 1997.
- (3b) Change the title of POP 1.1 to reflect newly revised purpose and/or develop a plant operating procedure for cold shutdown. This is scheduled to be completed by October 31, 1997.
- (3c) Revise Technical Specification Figure 3.1.A-3 to clearly caution user of the requirement for pressurizer level to be less than or equal to 30 percent. Our intent is to accomplish this in the ongoing Improved Technical Specifications Project.
- (3d) Evaluate and revise other Technical Specification figures as required to provide clearer information to users. Our intent is to accomplish this in the ongoing Improved Technical Specifications Project.
- (4) Establish a "hard logic" for OPS operability as a prerequisite to vacuum fill. This is scheduled to be completed by April 30, 1998 (to be used during the next refueling outage).
- (5a) Establish consistent logging practices for OPS requirements/operability/Technical Specification compliance. This is scheduled to be completed by October 31, 1997.
- (5b) Conduct operator requalification training for the OPS and applicable Technical Specifications. This is scheduled to be completed by October 31, 1997.