

Indian Point 3  
Nuclear Power Plant  
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**New York Power  
Authority**

Joseph E. Russell  
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IP3-NRC-92-076

License No. 50-286  
Docket No. DPR-64

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station P1-137  
Washington, DC 20555

Dear Sir:

The following is a special report of an Overpressure Protection System (OPS) actuation at Indian Point 3, prepared according to Technical Specification 6.9.2.j and 3.1.A.8.c.

At 2250 hours on September 17, 1992, the plant was in a cold shutdown condition. The plant was in the process of collapsing the bubble in the pressurizer when an actuation of the OPS system occurred. The system responded as designed.

The OPS system is designed to prevent overpressurization of the reactor vessel during low pressure and temperature conditions. It is a three-channel curve tracking circuit which initiates a chain of coincidence logic. The coincidence logic automatically prevents a violation of the technical specification temperature/pressure limit curve for the reactor vessel.

Three cold leg resistance temperature detectors (RTD) and three loop pressure transmitters provide the temperature and pressure inputs to redundant trains. Two of the three temperatures at or below 336 degrees will arm the OPS system, open the pressurizer block valves for the Power Operated Relief Valves (PORV), and unblock the OPS alarm. The temperature and pressure are then compared to a setpoint curve and provide a PORV opening signal when the delta pressure is less than a minimum value.

At 2245 hours on September 17, 1992, the midnight crew relieved the evening crew and assumed the watch with the following initial conditions:

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RCS pressure	approximately 400 psig steam bubble in Pzr.
RCS temperature	170° F
Pressurizer level	approximately 88% (indicated)
Pressurizer liquid temperature	170° F
Pressurizer vapor temperature	420° F
OPS status	armed
PCV-135 (RCS backpressure control) was in automatic control	

33 charging pump was in service

The evening crew informed the oncoming crew that they were in the process of collapsing the bubble in the pressurizer using SOP-CVCS-6, Collapsing the Bubble in the Pressurizer. The oncoming crew noted that pressurizer level was indicating 88%. The operators, aware that LT-462 is a cold calibrated instrument, referred to graph RCS-3C, Density Compensation For Cold Calibrated LT-462 Calibrated at 70° F, to obtain the actual level.

The operators used the pressurizer liquid temperature value for compensation. The actual level may have been higher than obtained from the graph due to the pressurizer temperature gradient. Using the vapor temperature level obtained from the graph would exceed 100 percent.

While the operators continued to review plant status and SOP-CVCS-6, the annunciation of the "RESIDUAL HEAT REMOVAL DISCHARGE HIGH PRESSURE" alarm occurred. The reactor operator acknowledged the alarm, and reduced the PCV-135 setpoint. The operator's action caused PCV-135 to open and thus reduced RCS pressure. The reactor operator (RO) reduced charging pump speed to decrease the addition of coolant to the Reactor Coolant System (RCS). The "IMPENDING RCS OVERPRESSURIZATION" alarm annunciated. The RO observed the PORV (valves PCV - 455C and 456) status as closed. Simultaneously with the annunciation of the OPS alarm, the "PCV-455C PCV-456 NOT FULLY CLOSED" alarm annunciated. These actions stabilized RCS pressure at 400 psig.

Review of the plant data concluded that the RCS pressure increase resulted from the collapsing of the pressurizer steam bubble. An increase in the Pressure Relief Tank (PRT) pressure indicates the PORVs opened briefly.

The event was the second OPS actuation in 1992. An April 18, 1992 event is described in a correspondence dated May 18, 1992.

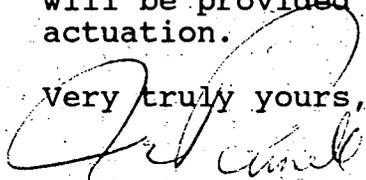
A review of IP3's previous actuation events reflects the difficulty of operating with a narrow band between OPS actuation and minimum net positive suction head for reactor coolant pump operation. The task is also infrequently performed.

The cause and corrective actions for this event require a review of the effectiveness of previous corrective actions, operator training, operator monitoring practices, procedures/ graphs and OPS system. The investigation will develop corrective actions by December 31, 1992.

The next schedule for plant operation in the OPS band is a mid-cycle outage in the spring of 1993.

If a forced outage requires operation in the OPS band prior to implementing corrective actions, additional oversight will be provided to prevent a re-occurrence of an OPS actuation.

Very truly yours,



Joseph E. Russell  
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Indian Point 3 Nuclear Power Plant

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