

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 AUTH. NAME:      AUTHOR AFFILIATION  
 SMITH, W.G.      Indiana Michigan Power Co. (formerly Indiana & Michigan Ele  
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SUBJECT: RO: on 890611, pressurizer PORV NRV-153 opened automatically.

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Indiana Michigan  
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PO Box 458  
Bloomington, IN 47406  
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June 26, 1989

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ATTN: A. B. Davis

Dear Mr. Davis:

This report is being submitted in accordance with Technical Specification 3.4.9.3 action c. for Unit One.

During cold shutdown operation, pressurizer power operated relief valve (PORV) NRV-153 opened automatically on June 11, 1989, at 1141 hours. The PORV opened after starting Reactor Coolant Pump (RCP) No. 13 during the Reactor Coolant System (RCS) fill and vent procedure. There were no other RCPs running at the time. Prior to the pump start, the RCS was at approximately 350 psig and 145°F with a steam bubble in the pressurizer. The RCS pressure increased to approximately 370 psig after the pump start and the PORV opened. The PORV closed after approximately two seconds and the RCS pressure stabilized at approximately 350 psig. The highest recorded pressure during this event was approximately 370 psig, which is below the 400 psig pressurizer PORV setpoint limit of Technical Specification 3.4.9.3.

The pressurizer PORV setpoints are (385 psig  $\pm$  15) and the minimum pressure for operation of the RCPs during fill and vent operations is 325 psig (to which we add 25 psig due to instrument uncertainties). This gives an effective operating window of 20 psig. Information supplied by the RCP vendor indicates that a pressure change of 30-40 psig could be expected when starting an RCP. The problem of a very small operating window is recognized within the industry and potential resolutions are being pursued.

A previously reported Unit Two event, which occurred on March 4, 1987, also involved problems caused by instrument uncertainties. In that event the operators were controlling a gradual pressure increase based on a channel that was indicating 385 psig. The redundant channel was indicating higher and the associated PORV was actuated when the Unit Two PORV setpoint of 420 psig  $\pm$  15 psig was reached. It was subsequently determined that both channels of pressure instrumentation were within allowable instrument tolerances.

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We are currently in the process of having the PORV setpoints recalculated by the NSSS vendor using a refined method which should result in slightly higher setpoints and a larger operating window. We are also studying the use of narrow range pressure instrumentation for cold overpressure PORV control to remove some of the instrument uncertainties and allow a higher setpoint.

Consideration was given to lowering the RCS pressure at which RCPs are started, but the RCP vendor has supplied information which warns that seal damage could occur if a RCP is started at less than 325 psig. It is therefore not desirable to start the RCPs at a pressure of less than 350 psig due to pressure instrument uncertainties.

Respectfully,

*W. G. Smith, Jr.*

W. G. Smith, Jr.  
Plant Manager

cc: D. H. Williams, Jr.  
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