

## ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

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SUBJECT: Special rept: on 890304, challenge to overpressure protection sys.

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261  
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SPECIAL REPORT ON CHALLENGE TO OVERPRESSURE PROTECTION SYSTEM

Gentlemen:

In accordance with Technical Specification 3.1.2.1.e and 6.9.3.1.e, Carolina Power and Light Company submits the following report of operation of the Pressurizer Overpressure Protection System at H. B. Robinson, Unit No. 2.

Event Description

At 0210 hours on March 4, 1989, with the plant holding at 70% power, 485 MWe, I&C Maintenance personnel were preparing to perform FAI calibrations and hi flux setpoint readjustments for Nuclear Instrumentation (NI-42). When I&C energized the test equipment to begin calibrating NI-42, the fuse for NI-42 blew and control power for power range drawer "A" was lost. This condition caused the turbine to initiate a runback. With control power for the power range instrumentation lost, the turbine continued to runback past the normal reset of 30% power reduction. The Control Operator then took manual control of the turbine to stop the runback. With RCS temperature and pressure increasing from the runback, rod control was placed in automatic to more quickly insert the control rods. Before RCS temperature and pressure was reduced, all five steam dump valves fully opened which then caused a rapid decrease in temperature and pressure. At that time the Control Operator turned the steam dump controller to "off" to close the valves and stop the rapid decrease in RCS temperature and pressure. With the steam dump valves closed and the pressurizer heaters on, temperature and pressure again began to increase rapidly. The Control Operator put steam dump control in the "pressure" mode and the valves began to open. With RCS temperature and pressure still increasing, the Control Operator took manual control of the valves in an effort to more quickly stabilize the increasing temperature and

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pressure. However, RCS pressure reached the pressurizer Power Operated Relief Valve (PORV) setpoint of 2335 psi and the PORV momentarily lifted before the steam dump valves were opened enough to reduce the pressure. The Control Operator then increased load on the turbine, closed the steam dump valves, brought the control rods back out to their original position and the plant was stabilized.

#### Root Cause and Corrective Actions

I&C Maintenance personnel immediately began to troubleshoot the loss of control power to NI-42. The scenario was simulated twice and the blowing of the control power fuse was duplicated each time. When a battery powered test meter was substituted, the fuse blowing could not be duplicated. Further investigation revealed a loose ground wire on the AC power outlet that supplies power to the digital test equipment. This introduced a voltage gradient between the test terminal of the meter and the NI-42 circuitry being tested. The ground wire connection was secured and calibration was successfully completed.

Also, the electronic controller for the steam dump valves was malfunctioning causing a "full open" signal to be sent to the valves. Had the controller sent the correct signal, the steam dump valves would have controlled the temperature and pressure swing and the pressure would not have reached the PORV setpoint which resulted in the PORV lifting. I&C Maintenance replaced the controller and satisfactorily tested its functions which will allow the steam dump valves to more accurately control temperature and pressure transients, if needed, during similar events in the future.

If you have any questions regarding this event, please contact Mr. J. M. Curley, 803-383-1367, or me.

Very truly yours,



Richard E. Morgan  
General Manager

H. B. Robinson S. E. Plant

SAG:bah

cc: S. D. Ebnetter  
L. W. Garner  
INPO