

Public Service
Electric and Gas
Company

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February 3, 1986

Dr. Thomas E. Murley, Administrator
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Dr. Murley:

SIGNIFICANT CONSTRUCTION DEFICIENCY
INADEQUATE POWER TO TRANSMITTERS
HOPE CREEK GENERATING STATION

On January 15, 1986, a verbal report was made to Region I, Office of Inspection and Enforcement representative, Mr. R. Fuhrmeister, advising of a construction deficiency concerning misoperation of Tobar pressure transmitters. The following information is provided in accordance with 10CFR50.55(e).

Description of the Deficiency

During startup testing activities, it was found that previously calibrated Tobar pressure transmitters exhibited erratic output signals. Further investigation determined that the power supply circuit impedance exceeded Tobar's specified maximum of 400 ohms at 24 VDC. The higher impedance resulted in voltage drops to approximately 18 VDC, measured at the transmitter terminals. Tobar transmitters, bench calibrated at 24 VDC, will not operate properly when the power supply voltage drops below 20 VDC. Startup Deficiency Report (SDR) No. 2C-0068 was initiated to document and control the deficiency.

Bechtel, our Architect/Engineer, has determined that the problem is unique to class 1E analog circuits utilizing Tobar transmitters, powered by Bailey Signal Resisting Units (SRU).

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Safety Analysis

The Tobar transmitters serve three basic functions, as follows:

- A. Provide process information to assist the operator during normal and emergency modes of operation.
- B. Monitor system or component process conditions and initiate automatic interlocks for system/component protection (e.g., trip pump on low suction pressure).
- C. Provide process information to process control loops.

For each of these functions, we have identified at least one case where, without operator action, the misoperation of the Tobar transmitter could have affected the safe operation of the plant. A description of one such case is provided below:

Station Service Water System (SSWS) - Pressure transmitters PT-2356A1, A2, and A3 (Loop A) and PT-2356B1, B2, and B3 (Loop B) monitor the discharge line from the Station Auxiliaries Cooling System (SACS) heat exchangers to the cooling tower. Downstream of system isolation valves HV-2357A and B, the lines are downgraded to non-Q. Should these lines fail and cause blockage, the outlet pressure from the SACS heat exchangers will increase. Under these conditions, the pressure transmitters, arranged in a 2 out of 3 logic, will automatically open yard dump valves HV-2356A and B (Note - per DITS 3.9, sudden blockage will cause a rupture disc installed in parallel to the yard dump valve to rupture, thus obviating the need to open HV-2356A and B). Should this interlock fail to operate and the blockage does not cause the rupture disc to rupture, SSWS flow through the SACS heat exchangers will cease. This will lead to eventual overheating of SACS Loops A and B and the subsequent loss of cooling to the SACS loads (of primary concern would be the Residual Heat Removal (RHR) heat exchangers).

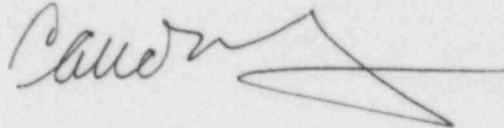
Based upon the above analysis, we conclude that the subject deficiency is reportable in accordance with 10CFR50.55(e).

Corrective Action

In accordance with the disposition of SDR ZC-0068, a Design Change Package (DCP-7153) has been issued to modify the power supply circuits to the Tobar transmitters. The modification

bypasses a 150 ohm current limiting resistor in the Bailey SRU with a fused circuit, thus reducing overall loop impedance and providing sufficient voltage to ensure correct operation of the transmitters.

Sincerely,

A handwritten signature in dark ink, appearing to read "C. E. Murley", followed by a long, sweeping horizontal line that extends to the right.

C Office of Inspection and Enforcement
Division of Reactor Construction Inspection
Washington, D. C. 20555

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