

June 25, 1985

NOTE TO: William J. Dircks
Executive Director for Operations

FROM: C. J. Heltemes, Jr., Director
Office for Analysis and Evaluation
of Operational Data

SUBJECT: STATUS REPORT FROM THE NRC INCIDENT INVESTIGATION
TEAM AT DAVIS BESSE

At approximately 3:30pm on June 21, 1985, E. Rossi reported the following progress:

1. The troubleshooting and inspection of the two AFW valves (599 and 608) that closed and would not reopen continued. A vendor (MOVATS) specializing in the testing and troubleshooting of motor operated valves (MOVs) has completed an initial analysis. This analysis indicated that both valves apparently had incorrect adjustments on the bypass switch for the torque switch. The adjustments of this bypass switch were reported to be not in accordance with the applicable procedures, and further, MOVATS believes that even if these bypass switches were set according to the procedure, the valves may not have opened. (Note that different individuals adjusted the bypass switches on the two valves.)

The current failure mode being investigated is that a high delta pressure (present during the event) may cause an increased load on the valve operator. The bypass switch was set to allow the torque switch to be functional at 5% of travel; however, the high delta pressure (not present during normal operating or test conditions) may cause a loading such that the torque is above the torque switch setting at 5% valve travel.

The licensee noted that testing to date without the high delta pressure has not reproduced the failure, and that this type of failure has not been previously experienced. The team at this time has not made a conclusion that the licensee has identified the failure cause. The team is particularly concerned that the licensee has not been able to reproduce the failure under test conditions.

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The licensee is considering the possibility of a test of the valve under high delta pressure conditions to see if the failure can be reproduced and to see if it is a function of the bypass switch setting (e.g., would adjustment to cut in the torque switch at 10% of travel prevent failure)?

2. The action plan for troubleshooting of the AFW pump turbines by the licensee was also reviewed by the team. By design, each of the AFW pumps is aligned (in terms of both steam and feedwater) to a specific steam generator. Through actions of the SFRCS, each AFW pump can be realigned to the other steam generator. This action would be taken if, for example, there is a leak or rupture associated with one of the steam generators. Thus, when the operator mistakenly operated both SFRCS switches during the event, the system reacted as if neither steam generator was operable by having AFW pump 1 align to SG-2 and AFW pump 2 align to SG-1 (for both steam and feedwater).

Under this condition, the steamlines feeding the AFW pump turbines are about twice as long as the normal alignment. Further, these steamlines are horizontal and subjected to cooling. It is postulated by the licensee, therefore, that steam started to condense when the AFW system was called upon and either the entrained water interfered with the governor operation, or the water flashed in such a way to provide more energy once it entered the turbine.

The turbine vendor (Terry Turbines) has been contacted, and the licensee is continuing its investigation.

(signed)

C. J. Heltemes, Jr., Director
Office for Analysis and Evaluation
of Operational Data

cc: H. Denton
J. Taylor
J. Keppler
E. Rossi