



BOSTON EDISON COMPANY  
PILGRIM NUCLEAR POWER STATION  
DOCKET NO. 50-293

Attachment to LER 82-031/03L-0

EVENT:

On 8/18/82 at 0630, during power ascension following a startup, the reactor water conductivity was observed to be 18.4 mho/cm. This value is above the Technical Specification limits of Section 3.6.B.4 (10.4 mho/cm). A controlled shutdown was initiated at 0650 and the NRC notified via ENS. The shutdown was terminated at 1215 on 8/18/82, when the conductivity was again within the T.S. limits.

On 8/20/82, during the continued power ascension a routine observation of core flow versus recirculation flow indicated a deviation from previously established drive versus driven relationships. A satisfactory core flow evaluation per Procedure #9.17 was performed. Further data collection and evaluation confirmed the observed drive/driven mismatch and indicated abnormally high recirc. flows for the present operating speeds of both recirc. pumps, A&B.

The APRM flow bias trip settings (Scram and Rod Block) were judged to be affected by this mismatch, leading to trip settings which were apparently non-conservative in nature. These settings, if not compensated for, could have permitted power operation greater than Technical Specification limits for flow biased Neutron Flux scram and APRM Rod Block trip settings.

CAUSE:

The cause of both events (high conductivity and drive/driven mismatch) has been attributed to reactor water impurities due to powdered resin intrusion following an incomplete backwash and subsequent improper precoat of the "B" Reactor Cleanup Demineralizer. The root cause of the incomplete backwash was due to a valve in the backwash sequence not opening automatically, preventing the old precoat and spent resin from being properly backwashed.

When the clean precoat and resin was introduced, some of the water containing the spent resin was now on the "clean" side of the demineralizer. When the unit was placed in service between 0500 and 0630 on 8/18/82, this water was introduced to the reactor causing a high conductivity spike, 18.4 mho/cm. The immediate corrective action was to initiate a controlled reactor shutdown as required by Technical Specifications.

"B" Reactor Water Cleanup Demineralizer was taken out of service, the above mentioned valve was found to be not operating correctly. The valve operation was manually assisted, allowing a proper backwash. When the "B" unit was placed in service, it performed correctly and was used in cleanup of the reactor water. At 1215 on 8/18/82, the conductivity was below 10.4 mho/cm the T.S. limit. At this time the shutdown was terminated and a normal power ascension resumed.

No indication that the valve did not operate properly was observed by the personnel operating the demineralizers. A representative of the vendor (DeLaval Condenser and Filter Co.) who originally supplied the system, has been contacted to provide an estimate as to the extent of repairs necessary to prevent a recurrence of this and other similar, but not as severe, incidents pertaining to the operation of this cleanup system.

The 8/20/82 observed mismatch between the speed and flow has also been attributed to the high conductivity caused by the soiled powdered resin influx that occurred on 8/18/82.

The immediate corrective action was to stop the power ascension at 80% and make appropriate changes to the APRM calibrations within the allowable limits of the calibration procedure to insure the compliance with the flow biased scram and rod block settings.

The observed drive-driven relationship returned to normal on 8/24/82.