

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

Attachment to LER 81-062/01T-0

On 11/16/81, during the scheduled refueling outage, Boston Edison received official notices of anomaly from Wyle Laboratories regarding 2 Target Rock two-stage, main steam safety/relief valves, P/N 7567F, that had been sent for routine steam recertification testing. Upon initial inspection, prior to testing, evidence of base to body leakage was found on both valves. When steam was applied, visual leakage from the valve outlet and base to body joint was noted. After the valves had been allowed to heat up, attempts were made to clear the leakage by actuating the valves. The valve actuated by pilot I.D. number 1049 required a pressure of 1230 psig to actuate which is higher than the specified pressure of 1095 \pm 11 psig. Because of this high pressure and the continuing gross leakage (greater than 500 lb/hr) of this valve, the testing of this valve was terminated.

I.D. #1048 had the same initial indications of body to base leakage and when steam was applied, leakage similar to I.D. #1049 was observed but at a lesser rate. Four actuations were made on this valve and all were above the allowable range but not as high as the #1049 valve; the highest pressure required to actuate the #1048 valve was 1144 psig.

When the pilot cartridges were disassembled, excessive erosion was found on the pilot disks, rods and seats.

These valves were purchased from Target Rock through General Electric as 3-stage units in the original NSSS. During the 1980 refuel outage, all were modified to 2-stage actuation to alleviate the historical problems associated with 3-stage actuation. The body modifications were done at Wyle and assembly of top works to body was done at Pilgrim Station with a Target Rock representative monitoring the work.

Although the S/R valves did exhibit inadvertant actuation problems during the current operating cycle (reference LER #'s 80-69, 80-79, 80-80), no emergency challenges to the S/RV's occurred during the past cycle; however, the test results indicate the potential existed that the protection required to prevent a violation of Technical Specification 1.2 safety limit may have been reduced.

Copies of the reports received from Wyle Labs have been given to the NRC resident inspectors for their review.

Cause and Corrective Action:

The root cause for this event has not yet been determined. Parallel investigations are being conducted by Target Rock, General Electric and Boston Edison. Target Rock has been directed to rebuild the valves with in-kind replacement parts and re-submit to Wyle for testing.

During disassembly of the valves, some surfaces were found to be coated with what Wyle described as a "foreign substance". The report stated that an insufficient amount could be removed for analysis to determine its composition. In Wyle's opinion, "this foreign substance could have contributed to the deterioration of the pilot seats and disks . . .". Boston Edison used only approved gaskets, under the direction of a Target Rock representative, in the assembly of these valves; therefore, no firm conclusions can be made at this time.

The other two valves in use this past cycle, as well as the two spares, have been sent to Wyle for testing. Preliminary reports, received by telephone, have shown that the test on valve #1054 was terminated due to gross leakage and valve #1046 lifted properly but a crack was discovered in the base, originating at the location of a manufacturer's weld repair believed to have been made at the time of manufacture. Boston Edison and Target Rock are examining the x-rays of that body weld.

All valves will be modified per Target Rock recommendations regarding the base to body joint leakage by increasing the gasket surface area.

An update report will be issued prior to startup to address both cause and long term corrective actions.

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