TU ELECTRIC

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June 19, 1989

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
AUXILIARY FEEDWATER SYSTEM CHECK VALVES
SDAR: CP-89-015 (INTERIM REPORT)

Gentlemen:

On May 19, 1989, TU Electric verbally notified the NRC of a deficiency involving backleakage through Auxiliary Feedwater (AFW) System check valves. This condition is reportable under the provisions of 10CFR50.55(e). The required information follows.

Description of Problem

Three events involving check valve backleakage occurred on April 19, April 23, and May 5, 1989. All events occurred during Hot Functional Testing of Unit 1. Two of the events (April 23 and May 5, 1989) involved backflow from the steam generators through the AFW System, into the condensate storage tanks. Backflow from the steam generator to the condensate storage tank was not initiated during the April 19 event. Subsequent investigation revealed that several check valves within the AFW System were mechanically hung open. This condition in conjunction with incorrect manipulation of other AFW System valves by operations personnel caused the backflow. The cause of the mechanical hang-up has been determined to be improper disc/seat alignment (disc elevation lower than the seat within the valve body) due to inadequate vendor manual instructions for reassembly. The issue of operator error which led to incorrect valve manipulation is addressed by the NRC inspection report No. 50-445/89-24. TU Electric will discuss the operator error issue in the response to the inspection report.

The affected check valves are BW/IP International Inc., swing check valves with pressure seal assemblies. Various valve sizes are involved. Fifty-seven pressure seal assembly valves are installed in Unit 1 and 2 within several safety-related systems. Additionally, bolted bonnet type swing check valves supplied by BW/IP are being investigated. The potential adverse effects of the backleakage on the AFW system are under evaluation. It has been determined that the design allowable stresses for piping, supports, and penetrations in some cases were exceeded. One support was visibly damaged. TU Electric is continuing to evaluate these conditions.

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Safety Implications

The AFW check valves between the AFW pumps and steam generators are required to prevent backflow in the event of a line break. This minimizes the impact of a line break in the AFW lines upstream of these check valves. Check valve malfunction could result in the steam generators receiving less than the required flow assumed in the accident analyses. As described above, the hang-up of these check valves is a significant deficiency which, were it to have remained uncorrected, might have adversely affected the safety of operations of the plant.

Corrective Action

Thirteen 3 and 4 inch check valves were removed from the AFW and Main Steam System and inspected for damage. No damage was evident. The valves were then shipped to BW/IP for evaluation where critical measurements were taken, root cause for leakage was determined, and the valves were returned.

The fifty-seven pressure seal type check valves supplied by BW/IP will have critical dimensions taken in order to determine how far the bonnet retainer must be raised to ensure correct seating during backflow. As an additional precaution all BW/IP pressure seal and bolted bonnet check valves will be disassembled and inspected for acceptable axial play in the disc arm.

To preclude recurrence of this condition, installation instructions for the pressure valves were reviewed and corrected by BW/IP. The corrected instructions will be incorporated into appropriate site procedures. Additionally, maintenance and quality assurance personnel will be trained to the corrected procedures prior to valve disassembly and inspection. The valves will be tested after installation to ensure proper operability.

The next report will discuss the results of the ongoing evaluations and will be submitted prior to Unit 1 fuel load. The Unit 1 and Unit 2 corrective actions are scheduled to be completed prior to fuel load for the respective units.

Sincerely,

William J. Cahill, Jr.

CBC/grp

c - Mr. R. D. Martin, Region IV
Resident Inspectors, CPSES (3)