



December 22, 1975

PRN-LI-75-19

Mr. Norman C. Moseley, Director, Region II
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
230 Peachtree Street, N. W., Suite 818
Atlanta, Georgia 30303

IE FILE COPY

Dear Mr. Moseley:

ABNORMAL OCCURRENCE 251-75-12
TURKEY POINT UNIT 4
DATE OF OCCURRENCE: DECEMBER 12, 1975

LOW BORON CONCENTRATION IN
UNIT 4 BORON INJECTION TANK



A. CONDITIONS PRIOR TO OCCURRENCE

The Unit 4 reactor was in steady state power operation at about 100% rated power. The Unit 3 reactor was shutdown with preparations being made for a return to criticality following a seven week refueling outage.

B. DESCRIPTION OF OCCURRENCE

At about 1:00 PM on December 12, 1975, it was verified that the boron concentration in the Unit 4 Boron Injection Tank (BIT) was below the lower limit defined in Technical Specification 3.4.1.a.2. The measured concentration of 19,600 ppm was 2% below the lower limit of 20,000 ppm.

C. DESIGNATION OF APPARENT CAUSE OF OCCURRENCE

The apparent cause of the occurrence was dilution of the Unit 3 BIT with water from the Safety Injection System "C" Accumulator followed by dilution of the "B" Boric Acid Storage Tank (BAST). Apparently, the Unit 4 BIT was subsequently diluted by recirculation with the "B" BAST. The dilution is suspected to have occurred during an accumulator backleakage test which was conducted on December 12. During such a test, there are two normally-closed valves separating each accumulator from each BIT. The test showed that valve 851C, associated with the "C" accumulator, was leaking. Then, following the occurrence described in this report, the second valve isolating the Unit 3 BIT from the "C" Accumulator was found to be about one turn open. Maintenance had been performed

78

8304200587 751222
PDR ADOCK 05000251
S PDR

COPY SENT REGION II

HELPING BUILD FLORIDA

on this valve a few days previously and it had apparently not been returned to the completely closed position. Therefore, a flow path had been established between the "C" Accumulator, which contains borated water at a concentration of 1950 ppm or greater, and the Unit 3 BIT.

D. ANALYSIS OF OCCURRENCE

The role of the boron injection tank is to provide a source of negative reactivity to alleviate the consequences of the postulated steam break accident described in the FSAR. The safety analysis is conservative in that credit is taken only for the amount of boron in the boron injection tank itself and no credit is taken for the amount of boron in the safety injection system piping. In addition, the actual rate of boron injection, in the unlikely event of a steam break, would be greater than that utilized in the FSAR because actual safety injection flow rates would be higher than those analyzed in the FSAR. These factors coupled with the small amount of dilution that occurred indicate that the consequences of a steam line break would have been within the limits presented in the FSAR. Therefore, neither reactor safety nor the health and safety of the public were jeopardized by this occurrence.

E. CORRECTIVE ACTION

Unit 4 load reduction was initiated in accordance with the shutdown rate guidelines of Administrative Procedure 0103.8. Recirculation of the Unit 4 BIT through the "C" BAST was also initiated. By about 3:20 PM on December 12, the Unit 4 BIT boron concentration was raised above 20,000 ppm and Unit 4 was returned to full power operation.

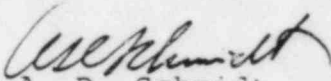
To minimize accumulator backleakage, consideration is being given to expanding the locked valve list to include the manual isolation valve which was found partially open after the occurrence.

Mr. Norman C. Moseley, Director, Region II
Page Three
December 22, 1975

F. FAILURE DATA

Dilution of a Boron Injection Tank boron concentration has occurred on other occasions. They were reported as Abnormal Occurrences 4-73-11, 250-74-5, 251-74-1, 251-74-6, and 251-75-2.

Very truly yours,



A. D. Schmidt
Vice President
Power Resources

MAS/pm

cc: Jack R. Newman, Esquire
Director, Office of Inspection and Enforcement (40)
Director, Office of Management Information and Program
Control (3)