



Mr. Edson G. Case, Acting Director
Directorate of Licensing
Office of Regulation
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Case:

ABNORMAL OCCURRENCE NO. 251-74-4
SEPTEMBER 23, 1974
OCCURRENCE DATE: SEPTEMBER 13, 1974
TURKEY POINT UNIT NO. 4
BORIC ACID STORAGE TANK BORON
CONCENTRATION BELOW LIMITING
CONDITION FOR OPERATION



A. CONDITION PRIOR TO OCCURRENCE

The reactor was in routine power operation at 99% power.

B. DESCRIPTION OF OCCURRENCE

At 9:20 p.m. on September 13, 1974, routine boron analysis of the boric acid storage tanks revealed that the C tank boron concentration was 19,700 ppm. This was below the 20,000 ppm lower Technical Specification limit. The A and B tanks were 21,500 ppm and 21,400 ppm, respectively.

Upon notification of the low boron concentration, the Plant Supervisor initiated change of the Unit No. 4 boric acid pumps suction from C tank to B tank. This provided >6160 gallons of a 20,000 to 22,500 ppm boron solution as required by Technical Specifications.

Following tank change, the C tank was resampled. The resample confirmed the 19,700 ppm boron concentration and action was initiated to raise the concentration by adding boron from the boric acid batch tank and the boric acid concentrates tank. The tank was returned to service at 4:00 a.m. on September 15, 1974.

C. CAUSE OF THE OCCURRENCE

The cause of the occurrence has been determined to be a partially (1/2 turn) open primary water flush valve which introduced dilution water into the C boric acid storage tank.

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Mr. Edson G. Case, Acting Director
Page Two
September 23, 1974

The primary water system is utilized to flush the boric acid pumps prior to maintenance and for leak checking following maintenance. The 4A boric acid pump was out of service for overhaul from September 10 to September 12. In the process of the overhaul, primary water was utilized for flushing and leak checking. Investigation following the occurrence revealed that the flush valve (PW 394) could be closed an additional one-half turn. The normally closed upstream primary water isolation valve was found to be open and therefore a source of dilution water existed. A review of log sheets revealed that approximately 400 gallons of in-leakage water was added to the tank.

D. ANALYSIS OF THE OCCURRENCE

The boric acid storage tanks are routinely analyzed for boron content three times a week. Technical Specifications require analysis twice a week. Boron concentrations of 20,500 ppm and 22,000 ppm are considered the control points at which boron or water is added to the tank to bring the concentration to approximately the center of the control band.

The effect on plant operation of a lower boron concentration in the boric acid storage tank would be slightly less system response during RCS borating. The operator would compensate for this effect by additional borating to achieve desired results. In addition, the B tank provided additional borated water which was available, if required, to compensate for the slightly lower concentration in C tank. Therefore, neither reactor safety nor the health and safety of the public were jeopardized by this occurrence.

E. CORRECTIVE ACTION

The immediate corrective action consisted of valving in the B boric acid storage tank. This provided >6160 gallons of a 20,000 to 22,500 ppm boron solution as required by the Technical Specifications.

The CVCS Boric Acid System Valve Alignment procedure will be revised to include maintaining the primary water isolation valve locked closed. This will prevent significant dilution even if the flush valves leak or are not completely closed.

Mr. Edson G. Case, Acting Director
Page Three
September 23, 1974

F. FAILURE DATA

This is the second abnormal occurrence concerning low boron concentration resulting from primary water inleakage. The first occurrence was reported in Abnormal Occurrence Report No. 4-73-11.

Very truly yours,



A. D. Schmidt
Director of Power Resources

DWR/cpc

cc: Mr. Norman C. Moseley
Jack R. Newman, Esquire