



October 23, 1974

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. 251-74-6
OCTOBER 23, 1974
OCCURRENCE DATE: OCTOBER 13, 1974
TURKEY POINT UNIT NO. 4
BORON INJECTION TANK BORON
CONCENTRATION BELOW LIMITING
CONDITION FOR OPERATION

A. Condition Prior to Occurrence:

The reactor was in routine power operation at 98% power.

B. Description of Occurrence:

At 2:46 P.M. on October 13, 1974, analysis of the Unit No. 4 Boron Injection Tank (BIT) boron content revealed that the concentration as measured at the inlet sample point was 19,100 ppm. This was below the Technical Specification lower limit of 20,000 ppm.

The contents of the BIT are recirculated daily through the boric acid storage tank to assure that the boron concentration of the tank is not degraded by minor inleakage of water. During the recirculation, it was noted that no flow was indicated on the recirculation line flow indicator. Investigation revealed that the flow indicator was operable and there was no flow. The Plant Supervisor determined that it was necessary to sample the boron injection tank to assure that the boron concentration had not been degraded. This sampling revealed that while the outlet sample point provided an acceptable concentration of 20,600 ppm boron, the inlet sample point was 19,100 ppm. A resample of the inlet verified the low concentration.

The BIT is routinely sampled for boron concentration twice a month as opposed to the monthly requirement of the Technical Specifications. In addition, it is sampled before and after

8304080096 741023
PDR ADOCK 05000251
S PDR

50-251
me sent
COPY SENT REGION

HELPING BUILD FLORIDA

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

running the Safety Injection System monthly test. Sampling for the latter reason was performed on October 3, 1974. The results were 21,600 ppm and 21,300 ppm boron respectively. Performance of the routine sampling on October 2, 1974, showed a concentration of 21,100 ppm boron.

C. Cause of the Occurrence:

The investigation to determine the cause of the occurrence has revealed that the dilution is due to insufficient recirculation coupled with minor inleakage. The contents of the boron injection tank could not be sufficiently recirculated because of a blocked or partially blocked recirculation supply line to the boric acid storage tank.

D. Analysis of the 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 only taken 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 utilized in the FSAR because actual safety injection flow rates would be higher than those analyzed in the FSAR. These factors coupled with the 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:

The immediate corrective action consisted of: 1) Initiating an orderly reactor shutdown, and 2) Initiating recirculation of the boron injection tank through a boric acid storage tank utilizing a temporary line connected between the two tanks. Daily sampling of the tank was maintained while the temporary recirculation line was utilized.

A BIT concentration of $>20,000$ ppm was achieved before reaching shutdown, and the reactor was returned to normal power operation.

The recirculation line was unplugged and returned to service. However, as a precautionary measure, the frequency of recirculating the contents of the boron injection tank has been increased.

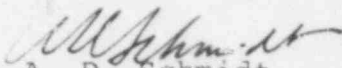
Mr. Edson G. Case, Acting Director
Page Three
October 23, 1974

Evaluation of the boron injection tank concentration problem and methods of recirculation and sampling was initiated as a result of a similar abnormal occurrence on June 27, 1974 (see Failure Data), and is continuing.

F. Failure Data:

This is the second abnormal occurrence at Turkey Point resulting from a blocked boron injection tank recirculation line. The first occurrence was reported on July 5, 1974, as Abnormal Occurrence No. 251-74-1.

Very truly yours,



A. D. Schmidt
Director of Power Resources

DWR/cpc

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