

March 12, 1975



Mr. Edson G. Case, Acting Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Case:

ABNORMAL OCCURRENCE NO. 250-75-1
MARCH 11, 1975
OCCURRENCE DATE: MARCH 2, 1975
TURKEY POINT UNIT NO. 3

REACTOR OPERATION WITH AXIAL FLUX DIFFERENCE
OUTSIDE TARGET BAND

A. Conditions Prior to Occurrence

No. 3 Unit was in steady-state power operation at 100% R.P. with equilibrium Xenon established in the core until the unit was tripped by a non-nuclear system related occurrence on March 1, 1975, at 7:20 p.m. The unit was returned to service at 1:01 a.m., March 2, 1975.

Load on the unit was increased at a controlled rate to 620 MWe (87% R.P.) over a period of seven hours.

B. Description of Occurrence

About 9:45 a.m., March 2, 1975, it was concluded that the reactor had been operated outside the indicated axial flux difference target band for more than one hour (cumulative) in the preceding 24 hour period specified in the Technical Specifications.

Immediate operator action was to reduce load on the unit from 620 MWe (87% R.P.) to 275 MWe (44% R.P.) and change the power range high neutron flux trip setpoint to a value of 55% R.P.

Load on the unit was maintained below 50% R.P. until the accumulated operating time outside the indicated axial flux difference was reduced to less than one hour in the preceding 24 hour period.

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C. Designation of Apparent Cause of Occurrence

The cause of this occurrence was attributed to the operators not fully understanding the requirements of the Technical Specifications for reactor operation outside the target band on axial flux difference.

D. Analysis of Occurrence

Review and analyses of operating records concluded that about 65% of the accumulated time the reactor was operated outside the indicated axial flux difference target band occurred when the reactor power level was less than 50% R.P. Strict control of the indicated axial flux difference is not necessary at reactor power levels below 50% R.P. because of reduced average core power. Nonsymmetrical power distribution and larger peaking factors are acceptable, at low reactor power levels, as far as local power density limits are concerned.

Operating records indicate that the reactor was operated with the indicated axial flux difference outside the target band for 31 minutes at reactor power between 75% and 85% R.P. During this time, the target band limits were exceeded by less than 1%. When the load on the unit was greater than 50% R.P., the indicated flux difference was well within the outer envelope boundary conditions specified in the Technical Specifications. The instantaneous consequences of being outside the target band are not worse than a 10% increment in peaking factor for axial flux difference in the range +11 to -11 percent at 100% R.P.

The long range consequences of reactor operation outside the target band for more than one hour in any 24 hour period are associated with the effects of Xenon redistribution on the core. Since the total time the reactor was operated above 50% R.P. was less than four hours, it was concluded that this was insufficient time for Xenon to adversely affect axial power distribution in the reactor core.

During this occurrence, the reactor was protected from adverse axial power distribution in the reactor core by the overpower ΔT protection system and the overtemperature ΔT protection system. Axial offset is a direct input to these reactor protection systems and would reduce load automatically if the measured axial offset approached the limits established for reactor protection. These reactor protection systems would automatically trip the reactor if the established limits were exceeded.

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An evaluation of the operating conditions at the time of this occurrence concluded that neither reactor safety nor the health and safety of the public was jeopardized by this occurrence.

E. Corrective Action

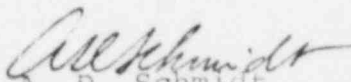
When Operating Procedures are issued which implement changes to the Technical Specifications, these procedures will be discussed in detail with operating personnel to ensure that the change is clearly understood.

Special training material will be prepared, when appropriate, to supplement instructions given in operating procedures.

F. Failure Data

This is the first abnormal occurrence involving reactor operation outside the indicated axial flux difference target band.

Very truly yours,


A. D. Schmidt
Vice President
Power Resources

VTC:pg

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