EXHIBIT B

MONTICELLO NUCLEAR GENERATING PLANT

License Amendment Request dated April 2, 1984

Proposed Changes to the Technical Specification
Appendix A of Operating License DPR-22

Pages

99
211
213

Bases 3.4 and 4.4:

A. The design objective of the standby liquid control system is to provide the capability of bringing the reactor from full power to a cold, xenon-free shutdown assuming that none of the withdrawn control rods can be inserted. To meet this objective, the liquid control system is designed to inject a quantity of boron which produces a concentration of 660 ppm of boron in the reactor core in less than 125 minutes. The 660 ppm boron concentration in the reactor core is required to bring the reactor from full power to a 3% Δk subcritical condition considering the hot to cold reactivity swing, xenon poisoning and an additional 25% boron concentration margin for possible imperfect mixing of the chemical solution in the reactor water and dilution from the water in the cooldown circuit. A minimum net quantity of 1400 gallons of solution having a 21.4% sodium pentaborate concentration is required to meet this shutdown requirement.

The time requirement (125 minutes) for insertion of the boron solution was selected to override the rate of reactivity insertion due to cooldown of the reactor following the xenon poison peak. The maximum net storage volume of the boron solution is 2895 gallons. (256 gallons are contained below the pump suction and, therefore, have not been used in the net quantities above.)

Boron concentration, solution temperature, and volume (including check of tank heater and pipe heat tracing system) are checked on a frequency to assure a high reliability of operation of the system should it ever be required. Experience with pump operability demonstrates that testing at a three-month interval is adequate to detect if failures have occurred.

The only practical time to test the standby liquid control system is during a refueling outage and by initiation from local stations. Components of the system are checked periodically as described above and make a functional test of the entire system on a frequency of less than once each refueling outage unnecessary. A test of explosive charges from one manufacturing batch is made to assure that the replacement charges for the tested system are satisfactory. A continual check of the firing circuit continuity is provided by pilot lights in the control room.

The relief valves in the standby liquid control system protect the system piping and positive displacement pumps which are nominally designed for 1500 psi from overpressure. The pressure relief valves discharge back to the standby liquid control solution tank.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
3.11 REACTOR FUEL ASSEMBLIES	4.11 REACTOR FUEL ASSEMBLIES
Applicability	**Applicability**
The Limiting Conditions for Operation associated with the fuel rods apply to those parameters which monitor the fuel rod operating conditions.	The Surveillance Requirements apply to the parameters which monitor the fuel rod operating conditions.
Objective	**Objective**
The objective of the Limiting Conditions for Operation is to assure the performance of the fuel rods.	The objective of the Surveillance Requirements is to specify the type and frequency of surveillance to be applied to the fuel rods.
Specifications	**Specifications**
A. Average Planar Linear Heat Generation Rate (APLHGR)	A. Average Planar Linear Heat Generation Rate (APLHGR)
During power operation, the APLHGR for each type of fuel as a function of average planar exposure shall not exceed the limiting value given in Table 3.11.1 based on a straight line interpolation between data points. When core flow is less than 90% of rated core flow, the APLHGR shall not exceed 94% of the limiting value given in Table 3.11.1. When core flow is less than 70% of rated core flow, the APLHGR shall not exceed 91% of the limiting value given in Table 3.11.1. If any time during operation it is determined that the limit for APLHGR is being exceeded, action shall be initiated within 15	The APLHGR for each type of fuel as a function of average planar exposure shall be determined daily during reactor operation at $\geq$ 25% rated thermal power.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
C. Minimum Critical Power Ratio (MCPR) During power operation the Operating MCPR Limit shall be $\geq$ 1.35 for 8x8, $\geq$ 1.38 for P8x8R fuel at rated power and flow, provided $T_B \geq T_{ave}$* (see section 3.3.C.3). If at any time during operation it is determined that the limiting value for MCPR is being exceeded, action shall be initiated within 15 minutes to restore operation to within the prescribed limits. Surveillance and corresponding action shall continue until reactor operations is within the prescribed limits. If the steady state MCPR is not returned to within the prescribed limits within two (2) hours, the reactor shall be brought to the Cold Shutdown condition within 36 hours. For core flows other than rated the Operating MCPR Limit shall be the above applicable MCPR value time K_f where K_f is as shown in Figure 3.11.3.	C. Minimum Critical Power Ratio (MCPR) MCPR shall be determined daily during reactor power operation at $\geq$ 25% rated thermal power and following any change in power level or distribution which has the potential of bringing the core to its operating MCPR Limit.

*If $T_{ave} > T_B$, the operating MCPR Limit shall be a linear interpolation between the limits in 3.11.C and 1.43 for 8x8, and 1.45 for P8x8R.

EXHIBIT C

MONTICELLO NUCLEAR GENERATING PLANT

License Amendment Request dated April 2, 1984

SLCS CONCENTRATION CAPABILITY (PPM BORON)

3,110 lbs. of sodium pentaborate are required to produce a concentration of 14.1% in 2,466 gallons of water.

1. Calculate the ratio of net water volume of the SLCS to gross water volume:

$$\frac{2,210 \text{ gal.}}{2,466 \text{ gal.}} = .89619$$

2. Calculate the net (available) sodium pentaborate weight:

3,110 lbs. X .89619 = 2,787.1 lbs.

3. Convert sodium pentaborate weight to boron weight:

2,787.1 lbs. X 0.183 = 510.0 lbs. boron

The water in the reactor core and the recirculation piping weighs 566,045 lbs. at 70°F, and that the water in the cooldown (RHR) loop weighs 56,140 lbs. at 70° F.

4. Calculate the ppm boron* in the reactor core and the recirculation piping:

$$\frac{510.0 \text{ lbs (boron)}}{566,045 \text{ lbs. (water)}} \text{X } 10^6 = 901.0 \text{ ppm boron*}$$

5. Calculate the ppm boron available, including dilution by the RHR loop:

$$\frac{510.0 \text{ lbs. (boron)}}{566,045 \text{ lbs. (water)} + 56,140 \text{ lbs. (water)}} = 819.7 \text{ ppm}$$

6. Calculate the ppm boron effectively in the reactor core with a 25% imperfect mixing allowance:

$$(\text{ppm boron in core})(1.25) = 819.7$$

$$\text{ppm boron in core} = \frac{819.7}{1.25} = 655.8 \text{ ppm boron}$$

*ppm boron is defined as gram boron per 10^6 grams water. All boron quantities are given in terms of natural boron.

EXHIBIT D

MONTICELLO NUCLEAR GENERATING PLANT

License Amendment Request dated April 2, 1984

Supplement Reload
Licensing submittal for Monticello
Nuclear Generating Plant

Reload 10 (Cycle 11)