

## 5.2.2 Control Rod System

### (a) Control Rod Performance

The following limits shall apply to any control rod which can be withdrawn. It shall be permissible to tag and valve out the hydraulic drive water to a fully inserted control rod which is defective or does not meet these limits provided the remaining rods do meet the limits.

The following tests shall be performed during each major refueling shutdown and at least once every six months during periods of power operation:

- (i) Withdrawal of each drive, stopping at each locking position to check latching and unlatching operations and the functioning of the position indication system.
- (ii) Scram of each drive from full withdrawn position. Maximum scram time from system trip to 90 percent of insertion shall not exceed 2.5 seconds.

The following test shall be performed at each major refueling but not less frequently than once a year:

Insertion of each drive over its entire stroke with reduced hydraulic system pressure to determine that drive friction is normal.

The following test shall be performed at each major refueling:

Continuous withdrawal and insertion of each drive over its stroke with normal hydraulic system pressure. Minimum withdrawal time shall be 23 seconds.

### (b) Core Shutdown Margin Verification

The reactivity of the core loading shall be such that it is always possible to maintain  $k_{eff}$  at less than 0.997 with the most valuable reactivity worth control blade completely withdrawn from the core. The core shutdown margin shall be verified by a demonstration that the reactor is subcritical with the most valuable reactivity worth control blade fully withdrawn, plus an immediately adjacent blade withdrawn to a position known to contribute 0.003  $k_{eff}$  or more to the effective multiplication. In the event that the maximum reactivity condition occurs at a temperature greater than ambient, the demonstration will either be performed at that temperature or a suitable additional margin will be demonstrated at ambient.

This verification shall be performed prior to start-up after any shutdown in which the system has cooled sufficiently to