

3.2 Reactor Control and Safety System

3.2.1 Control Assemblies

Specification(s)

The reactor shall not be operated unless the control rods are operable, and

- a. Control rods shall not be operable if damage is apparent to the rod or drive assemblies.
- b. The scram time measured from the instant a simulated signal reaches the value of a limiting safety system setting to the instant that the slowest scrammable control rod reaches its full inserted position shall not exceed 1 second.
- c. Maximum reactivity insertion rate of a standard control rod shall be less than 0.2% $\Delta k/k$ per second.

3.2.2 Reactor Control System

Specification(s)

The reactor shall not be operable unless the minimum safety interlocks are operable. The following control system safety interlocks shall be operable:

Interlocks	Number	Function	Effective Mode	
			Manual*	Pulse
Rod Drive Control a. Startup Withdrawal Standard control rods Transient control rod	4	prevent rod withdrawal for less than 2 counts per sec	X	
b. Simultaneous Withdrawal Standard control rods Transient control rod	4	prevent rod withdrawal for two or more rods	X	
c. Non pulse condition Transient control rod	1	prevent withdrawal for drive not down except square wave	X	
d. Pulse Withdrawal Standard control rods	3	prevent withdrawal of non pulse rods		X
e. Transient Withdrawal Transient control rod	1	prevent rod withdrawal for more than 1 kilowatt power		X

*Manual mode includes Auto and Square Wave modes

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			Manual*	Pulse
Rod Drive Control	Operable			
a. Startup Withdrawal	4(4)**	prevent rod withdrawal for less than 2 counts per sec	X	
Standard control rods				
Transient control rod				
b. Simultaneous Withdrawal	4(3)**	prevent rod withdrawal for two or more rods	X	
Standard control rods				
Transient control rod				
c. Non pulse condition	1	prevent withdrawal for drive not down except square wave	X	
Transient control rod				
d. Pulse Withdrawal	3	prevent withdrawal of non pulse rods		X
Standard control rods				
e. Transient Withdrawal	1	prevent rod withdrawal for more than 1 kilowatt power		X
Transient control rod				

*Manual mode includes Auto and Square Wave modes

** (a) includes regulating rod in Auto and Square Wave modes

** (b) excludes regulating rod in Auto and Square Wave modes