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4.1-4

TABLE 4.1-1
MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TEST OF INSTRUMENT CHANNELS

<u>Channel</u>	<u>Check</u>	<u>Calibration</u>	<u>Test</u>	<u>Remarks</u>
1. Nuclear Power Range	S	D (1) M* (3) R* (3)	B/W (2)	(1) Thermal Power calculations during power operations (2) Signal to ΔT ; bistable action (permissive, rod stop, trips) (3) Upper and lower chambers for symmetric offset: monthly during power operations. When periods of reactor shutdown extend this interval beyond one month, the calibration shall be performed immediately following return to power.
2. Nuclear Intermediate Range	S (1)	N.A.	S/U (2)	(1) Once/shift when in service (2) Log level; bistable action (permissive, rod stop trip)
3. Nuclear Source Range	S (1)	N.A.	S/U (2)	(1) Once/shift when in service (2) Bistable action (alarm, trip)
4. Reactor Coolant Temperature	S	R	B/W (1) (2)	(1) Overtemperature- ΔT (2) Overpower- ΔT
5. Reactor Coolant Flow	S	R	M	
6. Pressurizer Water Level	S	R	M	
7. Pressurizer Pressure	S	R	M	
8. 4Kv Voltage	N.A.	R	M	Reactor Protection circuits only

*By means of the movable in-core detector system

TABLE 4.1-1 (Continued)

<u>Channel Description</u>	<u>Check</u>	<u>Calibrate</u>	<u>Test</u>	<u>Remarks</u>
21. Containment Sump Level	N.A.	R	N.A.	
22. Turbine Trip Set Point **	N.A.	R	R	
23. Accumulator Level and Pressure	S	R	N.A.	
24. Steam Generator Pressure	S	R	M	
25. Turbine First Stage Pressure	S	R	M	
26. Emergency Plant Portable Survey Instruments	M	R	M	
27. Logic Channel Testing	N.A.	N.A.	M(1)	(1). During hot shutdown and power operations. When periods of reactor cold shutdown and re-fueling extend this interval beyond one month, the test shall be performed prior to startup.
28. Turbine Overspeed Protection Trip Channel (Electrical)	N.A.	R	M	
29. 4 Kv Frequency	N.A.	R	R	
30. Control Rod Drive Trip Breakers	N.A.	N.A.	M	
31. Overpressure Protection System	N.A.	R	M	

**Stop valve closure or low EH fluid pressure

TABLE 4.1-1 (Continued)

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TEST OF INSTRUMENT CHANNELS

<u>Channel Description</u>	<u>Check</u>	<u>Calibration</u>	<u>Test</u>	<u>Remarks</u>
32. Loss of Power				
a. 480 Emerg. Bus Undervoltage (Loss of Voltage)	N.A.	R	R	
b. 480 Emerg. Bus Undervoltage (Degraded Voltage)	N.A.	R	R	
33. Auxiliary Feedwater Flow**** Indication	M	N.A.	R	
34. Reactor Coolant System** Subcooling Monitor	N	R	N.A.	
35. PORV Position Indicator***	N.A.	N.A.	R	
36. PORV Blocking Valve*** Position Indicator	N.A.	N.A.	R	
37. Safety Relief Valve Position*** Indicator	N.A.	N.A.	R	

** Instrumentation for Detection of Inadequate Core Cooling - NUREG 0578 Item 2.1.3.b.

*** Direct Indication of Power Operated Relief Valve and Safety Valve Position - NUREG 0578 Item 2.1.3.a.

**** Auxiliary Feedwater Flow Indication to Steam Generator NUREG 0578 Item 2.1.7.b.

S - At least once per 12 hours
D - At least once per 24 hours
W - At least once per 7 days
B/W - At least once per 14 days
M - At least once per 31 days
Q - At least once per 92 days
S/U - Prior to each reactor startup
R - At least once per 18 months
N.A. - Not applicable