TABLE 15.4.1-1 (1 of 4)
MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TEST OF INSTRUMENT CHANNELS

No.	Channel Description	Check	Calibrate	Test	Remarks
1.	Nuclear Power Range	S(1)** M*(3)**(4)	D(1)** Q*(3)**(4)	M(2)**	(1) Heat Balance (2) Signal to ΔT, bistable action (permissive, rod stops, trips) (3) Upper and lower chambers for axial off-set (4) Compare incore to excore axial flux difference. Recalibrate if the absolute difference is greater than or equal to 3 percent.
2.	Nuclear Intermediate Range	S(1)**	N.A.	P(2)	(1) Once/shift when in service (2) Log level; bistable action (permissive, rod stop, trips)
3.	Nuclear Source Range	S(1)	N.A.	P(2)	(1) Once/shift when in service (2) Bistable action (alarm, trips)
4.	Reactor Coolant Temperature	S	R	M(1)**(2)**	(1) Overtemperature -ΔT (2) Overpower - ΔT
5.	Reactor Coolant Flow	S**	R	M**(1) R(2)	(1) Analog and single loop loss-of-flow logic testing. (2) Logic channel testing for reactor trip on loss of reactor coolant flow in both loops shall be performed each refueling interval.
6.	Pressurizer Water Level	S**	R	M**	
7.	Pressurizer Pressure	S**	R	M**	
8.	4 KV Voltage	N.A.	R	M**	Reactor protection circuits only
9.	Analog Rod Position	S(1)*****	R	M**	(1) With step counters

*By means of the moveable incore detector system.
**Not required during periods of refueling shutdown, but must be performed prior to starting up if it has not been performed during the previous surveillance period. Tests of permissive and low power trip bistable setpoints which cannot be done during power operations shall be conducted prior to startup if not done in the previous two weeks.
*****Not required during periods of cold and refueling shutdowns, but must be performed prior to starting up if it has not been performed during the previous surveillance period.

TABLE 15.4.1-1 (2 of 4)

No.	Channel Description	Check	Calibrate	Test	Remarks
10.	Rod Position Bank Counters	S(1)*****	N.A.	N.A.	(1) With analog rod position
11.	Steam Generator Level	S**	R	M(1)**	(1) Includes test of logic for reactor trip on low-low level and automatic actuation logic for auxiliary feedwater pumps
12.	Steam Generator Flow Mismatch	S*****	R	M**	
13.	Charging Flow	N.A.	R	N.A.	
14.	Residual Heat Removal Pump Flow	N.A.	R	N.A.	
15.	Boric Acid Tank Level	D	R	N.A.	
16.	Refueling Water Storage Tank Level	N.A.	R	N.A.	
17.	Volume Control Tank Level	N.A.	R	N.A.	
18.	Reactor Containment Pressure	S	R	M(1)**	(1) Isolation valve signal
19.	Radiation Monitoring System	D	R	M	(1) Radioactive Effluent Monitoring Instrumentation Surveillance Requirements are specified in 15.7.4.
20.	Boric Acid Control	N.A.	R	N.A.	
21.	Containment Water Level	M	R	N.A.	
22.	Turbine Overspeed Trip*	N.A.	R	M(1)**	(1) Block trip
23.	Accumulator Level and Pressure	S	R	N.A.	

*Overspeed Trip Mechanism, and Independent Turbine Speed Detection and Valve Trip System

**Not required during periods of refueling shutdown, but must be performed prior to starting up if it has not been performed during the previous surveillance period.

*****Not required during periods of cold and refueling shutdowns, but must be performed prior to starting up if it has not been performed during the previous surveillance period.

TABLE 15.4.1-1 (3 of 4)

No.	Channel Description	Check	Calibration	Test	Remarks
24.	Containment Pressure	S	R	M**	Narrow range containment pressure (-3.0, +3 psig excluded)
25.	Steam Generator Pressure	S***	R	M**	
26.	Turbine First Stage Pressure	S**	R	M**	
27.	Emergency Plan Radiation Survey Instruments	Q	R	Q	
28.	Environmental Monitors	M	N.A.	N.A.	
29.	Overpressure Mitigating	S	R	****	Check required only when the overpressure mitigation system is in operation.
30.	PORV Position Indicator	S	R	R	
31.	PORV Block Valve Position Indicator	Q	R	N.A.	
32.	Safety Valve Position Indicator	M	R	N.A.	
33.	PORV Operability	N.A.	R	M	Performance of a channel functional test but excluding valve operation
34.	Subcooling Margin Monitor	M	R	N.A.	
35.	Undervoltage on 4 KV Bus	N.A.	R	M**	For Auxiliary Feedwater Pump Initiation
36.	Auxiliary Feedwater Flow Rate	See Remarks	R	N.A.	Flow Rate indication will be checked at each unit startup and shutdown
37.	Degraded 4.16 KV Voltage	S	R	M**	
38.	a. Loss of Voltage (4.16 KV)	S	R	M**	
	b. Loss of Voltage (480 V)	S	R	M**	
39.	4160 V Frequency	N.A.	R	N.A.	

No.	Channel Description	Check	Calibrate	Test	Remarks
40.	Containment High Range Radiation	S **	R	M **	Calibration to be verification of response to a source.
41.	Containment Hydrogen Monitor	D	R/Q	N.A.	Gas Calibration - Q, Electronic Calibration - R Sample gas for calibration at 2% and 6% hydrogen.
42.	Reactor Vessel Fluid Level System	M	R	N.A.	
43.	In-Core Thermocouple	M	R	N.A.	Calibration to be verification of response to a source.

S - Each Shift
D - Daily
W - Weekly
B/W - Biweekly
Q - Quarterly

M - Monthly
P - Prior to each startup if not done previous week.
R - Each Refueling interval (But not to exceed 18 months).
N.A. - Not applicable.

**Not required during periods of refueling shutdown, but must be performed prior to starting up if it has not been performed during the previous surveillance period.

***During cold or refueling shutdown, a check of one pressure channel per steam generator is required when the steam generator could be pressurized.

****When used for the overpressure mitigating system each PORV shall be demonstrated operable by:

a. Performance of a channel functional test on the PORV actuation channel, but excluding valve operation, within 31 days prior to entering a condition in which the PORV is required operable and at least once per 31 days thereafter when the PORV is required operable.

b. Testing valve operation in accordance with the inservice test requirements of the ASME Boiler and Pressure Vessel Code, Section XI.

*****Not required during periods of cold and refueling shutdowns, but must be performed prior to starting up if it has not been performed during the previous surveillance period.