TABLE 3.1.1 PROTECTIVE INSTRUMENTATION REQUIREMENTS

Function	Trip Setting	Reactor Modes in which Function Must Be OPERABLE: Shutdown	Refuel	Startup	Run	Min. No. of OPERABLE or OPERATING [tripped] Trip Systems	Min. No. of Instrument Channels Per OPERABLE Trip System	Action Required*
D. Core Spray								Consider the respective core spray loop inoperable, and comply with Spec. 3.4
1. Low-Low Reactor Water Level	**	X(t)	X(t)	X(t)	X	2	2(pp)	
2. High Drywell Pressure	≤ 3.5 psig	X(t)	X(t)	X(t)	X	2(k)	2(k)(pp)	
3. Low Reactor Pressure (valve permissive)	≥ 285 psig	X(t)	X(t)	X(t)	X	2	2(pp)	
E. Containment Spray								
Comply with Technical Specification 3.4								
F. Primary Containment Isolation								
1. High Drywell Pressure	≤ 3.5 psig	X(u)	X(u)	X(u)	X	2(k)	2(k)(oo)	Isolate containment or PLACE IN COLD SHUT-DOWN CONDITION
2. Low-Low Reactor Water Level	≥ 7'2" above TOP OF ACTIVE FUEL	X(u)	X(u)	X(u)	X	2	2(oo)	
G. Automatic Depressurization								
1. High Drywell Pressure	< 3.5 psig	X(v)	X(v)	X(v)	X	2(k)	2(k)	See note h.
2. Low-Low-Low Reactor Water Level	≥ 4'8" above TOP OF ACTIVE FUEL	X(v)	X(v)	X(v)	X	2	2	See note h.
3. Core Spray Booster Pump d/p Permissives:	**> 21.2 psid**	**X(v)**	**X(v)**	**X(v)**	**X**	**note i.**	**note i.**	**See note i.**

* Action required when minimum conditions for operation are not satisfied. Also permissible to trip inoperable trip system. A channel may be placed in an inoperable status for up to six hours for required surveillance without placing the trip system in the tripped condition provided at least one OPERABLE instrument channel in the same trip system is monitoring that parameter.

** See Specification 2.3 for Limiting Safety System Settings.

Notes:

a. Permissible to bypass, with control rod block, for reactor protection system reset in REFUEL MODE.

b. Permissible to bypass below 800 psia in REFUEL and STARTUP MODES.

c. One (1) APRM in each OPERABLE trip system may be bypassed or inoperable provided the requirements of Specification 3.1.C and 3.10.C are satisfied. Two APRMs in the same quadrant shall not be concurrently bypassed except as noted below or permitted by note.

Any one APRM may be removed from service for up to six hours for test or calibration without inserting trips in its trip system only if the remaining OPERABLE APRMs meet the requirements of Specification 3.1.B.1 and no control rods are moved outward during the calibration or test. During this short period, the requirements of Specifications 3.1.B.2, 3.1.C and 3.10.C need not be met.

d. The IRMs shall be inserted and OPERABLE until the APRMs are OPERABLE and reading at least 2/150 full scale.

e. Offgas system isolation trip set at $\leq 2.1/\bar{E}$ Ci/sec where $\bar{E}$ = average gamma energy from noble gas in offgas after holdup line (Mev). Air ejector isolation valve closure time delay shall not exceed 15 minutes.

f. Unless SRM chambers are fully inserted.

g. Not applicable when IRM on lowest range.

h. **With one or more instrument channel(s) inoperable in one ADS trip system, place the relay contact(s) for the inoperable initiation signal in the tripped condition within 4 days, or declare ADS inoperable and take the action required by Specification 3.4.B.3.**

With one or more instrument channel(s) inoperable in both ADS trip systems, restore ADS initiation capability in at least one trip system within 1 hour, or declare ADS inoperable and take the action required by Specification 3.4.B.3.

Relief valve controllers shall not be bypassed for any more than 3 hours (total time for all controllers) in any 30-day period and only one relief valve controller may be bypassed at a time.

i. **With two core spray systems OPERABLE:**

1. **A maximum of two core spray booster pump differential pressure (d/p) switches may be inoperable provided that the switches are in opposing ADS trip systems [i.e., only: either RV-40 A&D or RV-40 B&C]. Place the relay contacts associated with the inoperable d/p switch(es) in the de-energized position, within 24 hours. Restore the inoperable d/p switch(es) within 8 days, or declare ADS inoperable and take the action required by Specification 3.4.B.3;**

or,

2. **If two inoperable d/p switches are in the same ADS trip system [i.e., RV-40 A&B or RV-40 C&D], place the relay contacts associated with the inoperable d/p switch(es) in the de-energized position, within 24 hours. Restore the inoperable d/p switches within 4 days, or declare ADS inoperable and take the action required by Specification 3.4.B.3.**

With only one core spray system OPERABLE:

If one or more d/p switches become inoperable in the OPERABLE core spray system, declare ADS inoperable and take the action required by Specification 3.4.B.3.

j. Not required below 40% of turbine rated steam flow.

	Instrument Channel	Check	Calibrate	Test	Remarks (Apply to Test & Calibration)
29.	Drywell High Radiation	N/A	Each re-fueling outage	Each re-fueling outage	
30.	Automatic Scram Contactors	N/A	N/A	1/wk	Note 1
31.	**Core Spray Booster Pump Differential Pressure**	**N/A**	**1/3 mo**	**1/3 mo**	**By application of a test pressure**

*Calibrate prior to startup and normal shutdown and thereafter check 1/s and test 1/wk until no longer required.

LEGEND: N/A = Not Applicable; 1/s = Once per shift; 1/d = Once per day; 1/3d = Once per 3 days; 1/wk = Once per week; 1/mo = Once per month; 1/3 mo = Once every 3 months; 1/20 mo = Once every 20 months; 1/24 mo = Once every 24 months

Note 1: Each automatic scram contactor is required to be tested at least once per week. When not tested by other means, the weekly test can be performed by using the subchannel test switches.

Note 2: At least daily during reactor POWER OPERATION, the reactor neutron flux peaking factor shall be estimated and flow-referenced APRM scram and rod block settings shall be adjusted, if necessary, as specified in Section 2.3 Specifications A.1 and A.2.

Note 3: Calibrate electronic bistable trips by injection of an external test current once per 3 months. Calibrate transmitters by application of test pressure once per 12 months.

The following notes are only for Item 15 of Table 4.1.1:

A channel may be taken out of service for the purpose of a check, calibration, test or maintenance without declaring the channel to be inoperable.

a. The Channel Test shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:

1) Instrument indicates measured levels above the alarm setpoint.
2) Instrument indicates a downscale failure.
3) Instrument controls not set in operate mode.
4) Instrument electrical power loss.