NOTES FOR TABLE 3.1.1

1. There shall be two operable or tripped trip systems for each function. If the minimum number of operable sensor channels for a trip system cannot be met, the affected trip system shall be placed in the safe (tripped) condition, or the appropriate actions listed below shall be taken.

   A. Initiate insertion of operable rods and complete insertion of all operable rods within four hours.

   B. Reduce power level to IRM range and place mode switch in the start up position within 8 hours.

   C. Reduce turbine load and close main steam line isolation valves within 8 hours.

   D. Reduce power to less than 30% rated.

2. Permissible to bypass, in refuel and shutdown positions of the reactor mode switch.

3. Deleted.

4. Bypassed when reactor thermal power is less than 30% of rated as indicated by turbine first stage pressure.

5. IRMs are bypassed when APRMs are onscale and the reactor mode switch is in the run position.

6. The design permits closure of any two lines without a scram being initiated.

7. When the reactor is subcritical and the reactor water temperature is less than 212 degrees F, only the following trip functions need to be operable.

   A. Mode switch in shutdown

   B. Manual scram

   C. High flux IRM

   D. Scram discharge instrument volume high level

8. Not required to be operable when primary containment integrity is not required.

9. Not required to be operable when the reactor pressure vessel head is not bolted to the vessel.

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TABLE 3.2.F (Cont'd) - SURVEILLANCE INSTRUMENTATION

Item	Minimum No. of Operable Instrument Channels	Parameter	Instrument	Type Indication and Range	Action*
11	2	Suppression Chamber Water Level (wide range)	LR-8(9)123A, B	Recorder 1-21 ft.	(10)(11)
12	1	Control Rod Position	N/A	28 Volt Indicating Lights	(1)(2)(3)(4)
13	1	Neutron Monitoring	N/A	SRM, IRM, LPRM 0-100%	
14	1	Safety-Relief Valve Position Indication	POAM-2(3)-2-71A-L TE-2(3)-2-113A-L	Acoustic or Thermocouple	(5)
15	2	Drywell High Range Radiation Monitors	RR-8(9)103A, B	Recorder 1-1E(+8) R/hr	(7)
16	1	Main Stack High Range Radiation Monitor	RR-0-17-051	Recorder 10^5 to 10^{11} CPS (Log Scale)	(7)
17	1	Reactor Building Roof Vent High Range Radiation Monitor	RR-2979 (Unit 2) RR-3979 (Unit 3)	Recorder 10^7 to 10^{13} CPM (Log Scale)	(7)
18	2	Drywell Hydrogen Concentration Analyzer and Monitor	3AC872, 3BC872 XR-90411A, XR-90411B	Analyzer and Recorder 0-30% volume	(1)(2)(3)

* Notes for Table 3.2.F appear on pages 78 and 78a.

3.10 BASES

A. Refueling Interlocks

The refueling interlocks are designed to back up procedural core reactivity controls during refueling operations. The interlocks prevent an inadvertent criticality during refueling operations when the reactivity potential of the core is being altered.

To minimize the possibility of loading fuel into a cell containing no control rod, it is required that all control rods are fully inserted when fuel is being loaded into the reactor core. This requirement assures that during refueling the refueling interlocks, as designed, will prevent inadvertent criticality.

The refueling interlocks reinforce operational procedu . that prohibit taking the reactor critical under certain situations encountered during the refueling operations by restricting the movement of control rods and the operation of refueling equipment.

The refueling interlocks include circuitry which senses the condition of the refueling equipment and the control rods. Depending on the sensed condition, interlocks are actuated which prevent the movement of the refueling equipment or withdrawal of control rods (rod block).

Circuitry is provided which senses the following conditions:

1. All rods inserted.

2. Refueling platform positioned near or over the core.

3. Refueling platform hoists are fuel-loaded (fuel grapple, frame mounted hoist, monorail mounted hoist).

4. Fuel grapple not full up.

5. Deleted.

6. One rod withdrawn.

When the mode switch is in the "Refuel" position, interlocks prevent the refueling platform from being moved over the core if a control rod is withdrawn and fuel is on a hoist. Likewise, if the refueling platform is over the core with fuel on a hoist, control rod motion is blocked by the interlocks. When the mode switch is in the refuel position, only one control rod can be withdrawn. The refueling interlocks, in combination with core nuclear design and refueling procedures, limit the probability of an inadvertent criticality. The nuclear characteristics of the core assure that the reactor