Table 3.1.1

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENT

Item	Minimum No. of Operable Instrument Channels per Trip System (1)	Trip Function	Trip Level Setting	Modes in which Function Must be Operable			Number of Instrument Channels Provided by Design	Action (1)
				Refuel (7)	Startup	Run		
1	1	Mode Switch In Shutdown		X	X	X	1 Mode Switch (4 Sections)	A
2	1	Manual Scram		X	X	X	2 Instrument Channels	A
3	3	IRM High Flux	≤120/125 of Full Scale	X	X	(5)	8 Instrument Channels	A
4	3	IRM Inoperative		X	X	(5)	8 Instrument Channels	A
5	2	APRM High Flux	(0.58W+62-0.58ΔW) FRP/MFLPD (12) (13)			X	6 Instrument Channels	A or B
6	2	APRM Inoperative	(11)	X	X	X	6 Instrument Channels	A or B
7	2	APRM Downscale	≥2.5 Indicated on Scale			(10)	6 Instrument Channels	A or B
8	2	APRM High Flux in Startup	≤15% Power	X	X		6 Instrument Channels	A
9	2	High Reactor Pressure	≤1055 psig	X(9)	X	X	4 Instrument Channels	A
10	2	High Drywell Pressure	≤2 psig	X(9)	X(9)	X	4 Instrument Channels	A
11	2	Reactor Low Water Level	≥0 in. Indicated Level	X	X	X	4 Instrument Channels	A

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UNIT 2

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The reactor protection system automatically initiates a reactor scram to:

1. Preserve the integrity of the fuel cladding.

2. Preserve the integrity of the reactor coolant system.

3. Minimize the energy which must be absorbed following a loss of coolant accident, and present inadvertant criticality.

When there is no fuel in the reactor, the scram serves no function; therefore, the reactor protection system is not required to be operable.

This specification provides the limiting conditions for operation necessary to preserve the ability of the system to perform its intended function even during periods when instrument channels may be out of service because of maintenance. When necessary, one channel may be made inoperable for brief intervals to conduct required functional tests and calibrations.

The reactor protection system is of the dual channel type (Reference subsection 7.2 FSAR). The system is made up of two independent trip systems, each having two subchannels of tripping devices. Each subchannel has an input from at least one instrument channel which monitors a critical parameter.

The outputs of the subchannels are combined in a 1 out of 2 logic; i.e. an input signal on either one or both of the subchannels will cause a trip system trip. The outputs of the trip systems are arranged so that a trip on both systems is required to produce a reactor scram.

This system meets the intent of IEEE - 279 for Nuclear Power Plant Protection Systems. The system has a reliability greater than that of a 2 out of 3 system and somewhat less than that of a 1 out of 2 system.

With the exception of the Average Power Range Monitor (APRM) channels, the Intermediate Range Monitor (IRM) channels, the Main Steam Isolation Valve closure and the Turbine stop Valve closure, each subchannel has one instrument channel. When the minimum condition for operation on the number of operable instrument channels per untripped protection trip system is met or if it cannot be met and the affected protection trip system is placed in a tripped condition, the effectiveness of the protection system is preserved.

The APRM instrument channels are provided for each protection trip system. APRM's A and E operate contacts in one subchannel and APRM's C and E operate contacts in the other subchannel. APRM's B, D and F are arranged similarly in

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