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PNPS TABLE 3.2.A
INSTRUMENTATION THAT INITIATES PRIMARY CONTAINMENT ISOLATION

Operable Instrument Channels Per Trip System (1) Minimum	Available	Instrument	Trip Level Setting	Action (2)
2(7)	2	Reactor Low Water Level	≥11.7" indicated level (3)	A and D
1	1	Reactor High Pressure	≤76 psig	D
2	2	Reactor Low-Low Water Level	at or above -46.3 in. indicated level (4)	A
2	2	Reactor High Water Level	≤45.3" indicated level (5)	B
2(7)	2	High Drywell Pressure	≤2.22 psig	A
2	2	High Radiation Main Steam Line Tunnel (9)	≤7 times normal rated full power background	B
2	2	Low Pressure Main Steam Line	≥810 psig (8)	B
2(6)	2	High Flow Main Steam Line	≤136% of rated steam flow	B
2	2	Main Steam Line Tunnel Exhaust Duct High Temperature	≤170°F	B
2	2	Turbine Basement Exhaust Duct High Temperature	≤150°F	B
1	1	Reactor Cleanup System High Flow	≤300% of rated flow	C
2	2	Reactor Cleanup System High Temperature	≤150°F	C

TABLE 3.2.B (Cont'd)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Minimum # of Operable Instrument Channels Per Trip System (1)	Trip Function	Trip Level Setting	Remarks
2	High Drywell Pressure	≤2.22 psig	1. Initiates Core Spray; LPCI; HPCI. 2. In conjunction with Low-Low Reactor Water Level, 94.4 - 115.6 second time delay and LPCI or Core Spray pump running, initiates Auto Blowdown (ADS) 3. Initiates starting of Diesel Generators 4. In conjunction with Reactor Low Pressure initiates closure of HPCI vacuum breaker containment isolation valves.
1	Reactor Low Pressure	400 psig ± 5	Permissive for Opening Core Spray and LPCI Admission valves.
1	Reactor Low Pressure	≤76 psig	In conjunction with PCIS signal permits closure of RHR (LPCI) injection valves.
1	Reactor Low Pressure	400 psig ± 5	In conjunction with Low-Low Reactor Water Level initiates Core Spray and LPCI.
2	Reactor Low Pressure	900 psig ± 5	Prevents actuation of LPCI break detection circuit.
2	Reactor Low Pressure	80 psig ± 5	Isolates HPCI and in conjunction with High Drywell Pressure initiates closure of HPCI vacuum breaker containment isolation valves.

BASES:

3.2 In addition to reactor protection instrumentation which initiates a reactor scram, protective instrumentation has been provided which initiates action to mitigate the consequences of accidents which are beyond the operator's ability to control, or terminates operator errors before they result in serious consequences. This set of specifications provides the limiting conditions of operation for the primary system isolation function, initiation of the core cooling systems, control rod block, and standby gas treatment systems. The objectives of the Specifications are, (i) to assure the effectiveness of the protective instrumentation when required by preserving its capability to tolerate a single failure of any component of such systems even during periods when portions of such systems are out of service for maintenance, and (ii) to prescribe the trip settings required to assure adequate performance. When necessary, one channel may be made inoperable for brief intervals to conduct required functional tests and calibrations.

Some of the settings on the instrumentation that initiate or control core and containment cooling have tolerances explicitly stated where the high and low values are both critical and may have a substantial effect on safety. The set points of other instrumentation, where only the high or low end of the setting has a direct bearing on safety, are chosen at a level away from the normal operating range to prevent inadvertent actuation of the safety system involved and exposure to abnormal situations.

Actuation of primary containment valves is initiated by protective instrumentation shown in Table 3.2.A which senses the conditions for which isolation is required. Such instrumentation must be available whenever primary containment integrity is required.

The instrumentation which initiates primary system isolation is connected in a dual bus arrangement.

The low water level instrumentation closes all isolation valves except those in Groups 1, 4 and 5. This trip setting is adequate to prevent core uncovery in the case of a break in the largest line assuming a 60 second valve closing time. Required closing times are less than this.

Reactor pressure instrumentation is used for closure of Group 3 isolation valves and is set to trip at $\leq$76 psig. This prevents overpressurization of the RHR shutdown cooling piping. The isolation setpoint is chosen: (1) at a pressure below where the RHR piping could be overpressurized, (2) so that the isolation valves can close in the required time, and (3) at the point where the maximum differential pressure associated with the isolation valves is not exceeded.

The low low reactor water level instrumentation closes the Main Steam Line Isolation Valves, Main Steam Drain Valves, Recirc Sample Valves (Group 1) activates the CSCS subsystems, starts the emergency diesel generators and trips the recirculation pumps. This trip setting level was chosen to be high enough to prevent spurious actuation but low enough to initiate CSCS operation and primary system isolation so that no fuel damage will occur and so that post accident cooling can be accomplished and the guidelines of 10 CFR 100 will not be violated. For large breaks up to the complete circumferential break of a 28-inch recirculation line and with the trip setting given above, CSCS initiation and primary system isolation are initiated in time to meet the above criteria.

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PNPS TABLE 3.2.A
INSTRUMENTATION THAT INITIATES PRIMARY CONTAINMENT ISOLATION

Operable Instrument Channels Per Trip System (1) Minimum	Operable Instrument Channels Per Trip System (1) Available	Instrument	Trip Level Setting	Action (2)
2(7)	2	Reactor Low Water Level	≥9" indicated level (3)	A and D
1	1	Reactor High Pressure	≤110 psig ~ ≤ 76 PSIG	D
2	2	Reactor Low-Low Water Level	at or above -49 in. indicated level (4)	A
2	2	Reactor High Water Level	≤48" indicated level (5)	B
2(7)	2	High Drywell Pressure	≤2.5 psig	A
2	2	High Radiation Main Steam Line Tunnel (9)	≤7 times normal rated full power background	B
2	2	Low Pressure Main Steam Line	≥810 psig (8)	B
2(6)	2	High Flow Main Steam Line	≤140% of rated steam flow	B
2	2	Main Steam Line Tunnel Exhaust Duct High Temperature	≤170°F	B
2	2	Turbine Basement Exhaust Duct High Temperature	≤150°F	B
1	1	Reactor Cleanup System High Flow	≤300% of rated flow	C
2	2	Reactor Cleanup System High Temperature	≤150°F	C

TABLE 3.2.B (Cont'd)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Minimum # of Operable Instrument Channels Per Trip System (1)	Trip Function	Trip Level Setting	Remarks
2	High Drywell Pressure	≤2.5 psig	1. Initiates Core Spray; LPCI; HPCI. 2. In conjunction with Low-Low Reactor Water Level, 120 second time delay and LPCI or Core Spray pump running, initiates Auto Blowdown (ADS) 3. Initiates starting of Diesel Generators 4. In conjunction with Reactor Low Pressure initiates closure of HPCI vacuum breaker containment isolation valves.
1	Reactor Low Pressure	400 psig ± 25 ≤ 76 PSIG	Permissive for Opening Core Spray and LPCI Admission valves.
1	Reactor Low Pressure	≤110 psig	In conjunction with PCIS signal permits closure of RHR (LPCI) injection valves.
1	Reactor Low Pressure	400 psig ± 25	In conjunction with Low-Low Reactor Water Level initiates Core Spray and LPCI.
2	Reactor Low Pressure	900 psig ± 25	Prevents actuation of LPCI break detection circuit.
2	Reactor Low Pressure	100>P>50 psig	Isolates HPCI and in conjunction with High Drywell Pressure initiates closure of HPCI vacuum breaker containment isolation valves.

BASES:

3.2 In addition to reactor protection instrumentation which initiates a reactor scram, protective instrumentation has been provided which initiates action to mitigate the consequences of accidents which are beyond the operator's ability to control, or terminates operator errors before they result in serious consequences. This set of specifications provides the limiting conditions of operation for the primary system isolation function, initiation of the core cooling systems, control rod block, and standby gas treatment systems. The objectives of the Specifications are, (i) to assure the effectiveness of the protective instrumentation when required by preserving its capability to tolerate a single failure of any component of such systems even during periods when portions of such systems are out of service for maintenance, and (ii) to prescribe the trip settings required to assure adequate performance. When necessary, one channel may be made inoperable for brief intervals to conduct required functional tests and calibrations.

Some of the settings on the instrumentation that initiate or control core and containment cooling have tolerances explicitly stated where the high and low values are both critical and may have a substantial effect on safety. The set points of other instrumentation, where only the high or low end of the setting has a direct bearing on safety, are chosen at a level away from the normal operating range to prevent inadvertent actuation of the safety system involved and exposure to abnormal situations.

Actuation of primary containment valves is initiated by protective instrumentation shown in Table 3.2.A which senses the conditions for which isolation is required. Such instrumentation must be available whenever primary containment integrity is required.

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The low low reactor water level instrumentation closes the Main Steam Line Isolation Valves, Main Steam Drain Valves, Recirc Sample Valves (Group 1) activates the CSCS subsystems, starts the emergency diesel generators and trips the recirculation pumps. This trip setting level was chosen to be high enough to prevent spurious actuation but low enough to initiate CSCS operation and primary system isolation so that no fuel damage will occur and so that post accident cooling can be accomplished and the guidelines of 10 CFR 100 will not be violated. For large breaks up to the complete circumferential break of a 28-inch recirculation line and with the trip setting given above, CSCS initiation and primary system isolation are initiated in time to meet the above criteria.

Reactor pressure instrumentation is used for closure of Group 3 isolation valves and is set to trip at $\leq$76 psig. This prevents overpressurization of the RHR shutdown cooling piping. The isolation setpoint is chosen: (1) at a pressure below where the RHR piping could be overpressurized, (2) so that the isolation valves can close in the required time, and (3) at the point where the maximum differential pressure associated with the isolation valves is not exceeded.

Amend