

Table 3.5-3

Instrumentation Operating Conditions for Engineered Safety Features

No.	Functional Unit	1 No. of Channels	2 No. of Channels to Trip	3 Min. Operable Channels	4 Min. Degree of Redun- dancy	5 Operator Action if Conditions of Column 3 Cannot be Met	6 Operator Action if Conditions of Column 4 Cannot be Met
1	Safety Injection						
a.	Manual	2	1	1	0	Cold shutdown	Same as Column 5
b.	High Containment Pressure (Hi Level)	3	2	2	1	Cold shutdown	(1)
c.	High Differential Pressure Between Steam Lines	3/steam line	2/steam line	2/steam line	1/steam line	Cold shutdown	(1)
d.	Pressurizer Low Pressure*	3	2	2	1	Cold shutdown	(1)
e.	High Steam Flow in 2/4 Steam Lines Coincident	2/line	1/2 in any 2 lines	1/line in each of 3 lines	2	Cold shutdown	(1)
	With Low T _{avg} or Low Steam Line Pressure	4 T _{avg} Signals	2	3	2		
		4 Pres- sure Signals	2	3	2		

* Permissible bypass if reactor coolant pressure less than 2000 psig.

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2.	Containment Spray						
a.	Manual	2	1	1	0	Cold shutdown	Same as Column 5
b.	High Containment Pressure (Hi-Hi Level)	2 sets of 3	2 of 3 in each set	2 per set	1/set	Cold shutdown	(1)
3.	Loss Of Power						
a.	480V Emergency Bus Undervoltage (Loss of Voltage)	2/bus	1/bus	1/bus	0	Cold shutdown	Same as Column 5
b.	480V Emergency Bus Undervoltage (Degraded Voltage)	2/bus	2/bus	1/bus	0	(3)	Same as Column 5
4.	Auxiliary Feedwater						
a.	Steam Gen. Water Level (Low-Low)						
i.	Start Motor- Driven Pumps	3/stm gen.	2 in any stm gen.	2 chan. in each stm gen.	1	Reduce RCS temperature such that T < 350°F	(2)

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	ii. Start Turbine-Driven Pump	3/stm gen.	2/3 in each of two stm gen.	2 chan. in each stm gen.	1	T < 350°F	(2)
b.	S.I. Start Motor-Driven Pumps	(All safety injection initiating functions and requirements)					
c.	Station Blackout Start Motor-Driven and Turbine-Driven Pumps	2	1	1	0	T < 350°F	Same as Column 5
d.	Trip of Main Feedwater Pumps Start Motor-Driven Pumps	2	1	1	0	Hot shutdown	Same as column 5
5.	Overpressure Protection System (OPS)	3	2	2	1	Refer to Specification 3.1.A.4	Same as Column 5
6.	Engineered Safety Features (SI) Logic	2	1	2#	1#	Be in Hot shutdown within the next 6 hours	Same as column 5

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- # An Engineered Safety Feature (SI) logic channel may be bypassed for corrective maintenance for up to 24 hours or surveillance testing for up to eight hours provided the redundant logic channel is operable.
- (1) Restore all channels as required by column 1 to an OPERABLE status within 72 hours or place the inoperable channel in trip. Otherwise, proceed to cold shutdown.
- (2) Restore all channels as required by column 1 to an OPERABLE status within 72 hours or place the inoperable channel in trip. Otherwise, reduce T_{avg} to less than 350°F.
- (3) a) If the 138kV source of offsite power and the 13.8kV source of offsite power are available:
1) Both channels may be inoperable on one bus for a period not to exceed 72 hours;
2) If one channel is inoperable after 72 hours, place the inoperable channel in trip;
3) If both channels are inoperable after 72 hours, proceed to cold shutdown.
- b) If the 138kV source of offsite power or the 13.8kV source of offsite power is not available:
1) If one channel is inoperable, place the inoperable channel in trip;
2) If both channels are inoperable, proceed to cold shutdown.