

Table 3.5.1-1 (Cont'd)

ENGINEERED SAFEGUARDS ACTUATION SYSTEM
(Cont'd)

	1	2	3	4	5
	<u>No. of channels</u>	<u>No. of channels for system trip</u>	<u>Min. operable channels</u>	<u>Min. degree of redundancy</u>	<u>Operator action if conditions or column 3 or 4 cannot be met</u>
4. Reactor building spray pumps (Note 8)					
a. Reactor building 30 psig instrument channel	3	2	3 (note 6)	1	Notes 1, 5
b. Manual trip pushbutton	2	1	2	1	Notes 1, 5
5. Reactor building spray valves (Note 8)					
a. Reactor building 30 psig instrument channel	3	2	3 (Note 6)	1	Notes 1, 5
b. Manual trip pushbutton	2	1	2	1	Notes 1, 5

EMERGENCY FEEDWATER INITIATION AND CONTROL SYSTEM

1. EFW Initiation					
a. Manual	2	1	2	1	Note 1

TABLE 3.5.1-1 (Cont'd)

OTHER SAFETY RELATED SYSTEMS

	1	2	3	4	5
	<u>No. of channels</u>	<u>No. of channels for system trip</u>	<u>Min. operable channels</u>	<u>Min. degree of redundancy</u>	<u>Operator action if conditions or column 3 or 4 cannot be met</u>
2. Pressurizer level channels	3	N/A	2	1	Note 10
3. Emergency Feedwater Flow channels	2/S.G.	N/A	1	0	Note 10
4. RCS subcooling margin monitors	2	N/A	1	0	Note 10
5. Electromatic relief valve flow monitor	2	N/A	1	0	Note 11
6. Electromatic relief block valve position indicator	1	N/A	1	0	Note 12
7. Pressurizer code safety valve flow monitors	2/valve	N/A	1/valve	0	Note 10
8. Degraded Voltage Monitoring					
a. 4.16KV Emergency Bus Undervoltage	2/Bus	1/Bus	2/Bus	0	Note 14
b. 460V Emergency Bus Undervoltage	*1/Bus	1/Bus	1/Bus	0	Notes 13, 14
9. Chlorine Detection Systems	2	1	2	0	Notes 17, 18

*Two undervoltage relays per bus are used with a coincident trip logic (2-out-of-2)

TABLE 3.5.1-1 (Cont' J)

- NOTES:
1. Initiate a shutdown using normal operating instructions and place the reactor in the hot shutdown condition within 12 hours if the requirements of Columns 3 and 4 are not met.
 2. When 2 of 4 power range instrument channels are greater than 10% rated power, hot shutdown is not required.
 3. When 1 of 2 intermediate range instrument channels is greater than 10^{-10} amps, hot shutdown is not required.
 4. For channel testing, calibration, or maintenance, the minimum number of operable channels may be two and a degree of redundancy of one for a maximum of four hours, after which Note 1 applies.
 5. If the requirements of Columns 3 or 4 cannot be met within an additional 48 hours, place the reactor in the cold shutdown condition within 24 hours.
 6. The minimum number of operable channels may be reduced to 2, provided that the system is reduced to 1 out of 2 coincidence by tripping the remaining channel. Otherwise, Specification 3.3 shall apply.
 7. These channels initiate control rod withdrawal inhibits not reactor trips at <10% rated power. Above 10% rated power, those inhibits are bypassed.
 8. If any one component of a digital subsystem is inoperable, the entire digital subsystem is considered inoperable. Hence, the associated safety features are inoperable and Specification 3.3 applies.
 9. The minimum number of operable channels may be reduced to one and the minimum degree of redundancy to zero for a maximum of 24 hours, after which Note 1 applies.
 10. With the number of operable channels less than required, either restore the inoperable channel to operable status within 30 days, or be in hot shutdown within 12 hours.
 11. With the number of operable channels less than required, isolate the electromatic relief valve within 4 hours, otherwise Note 9 applies.