## ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT			TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
4.	MAIN STEAM LINE ISOLATION						
	a.	Manual (Trip Buttons)	2 sets of 2 per steam generator	1 set of 2 per steam generator	2 sets of 2 per operat- ing steam generator	1, 2, 3	16
	b.	Steam Generator Pressure - Low	4/steam generator	2/steam generator	3/steam generator	1, 2, 3	13*, 14*
	С.	Containment Pressure - High	4	2	3	1, 2, 3	13*, 14*
	d.	Automatic Actuation Logic	4	2	3	1, 2, 3	12
5.		SAFETY INJECTION SYSTEM SUMP RECIRCULATION (RAS)					
	ã.	Manual RAS (Trip Euttons)	2	1	2	1, 2, 3, 4	12
	b.	Refueling Water Storage Pool - Low	4	2	3	1, 2, 3, 4	13*, 14*
	с.	Automatic Actuation Logic	4	2	3	1, 2, 3, 4	12
6.	1.05	S OF POWER (LOV)					
	a.	4.16 kV Emergency Bus Endervoltage (Loss of Voltage)	3, bus	3/bus	3/bus	1, 2, 3	17
	b.	480 V Emergency Bus Undervoltage (Loss of Voltage)	3/bus	3/bus	3/bus	1, 2, 3	17
	С.	4.16 kV Emergency Bus Parvoltage (Degraded Voltage)	3/bus	3/bus	3/bus	1, 2, 3	17

#### TABLE NOTATION

- (a) Trip function may be bypassed in this MODE when pressurizer pressure is less than 400 psia; bypass shall be automatically removed when pressurizer pressure is greater than or equal to 500 psia.
- (b) An SIAS signal is first necessary to enable CSAS logic.
- \* The provisions of Specification 3.0.4 are not applicable.

#### ACTION STATEMENTS

- ACTION 12 With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- ACTION 13 With the number of channels OPERABLE one less than the Total Number of Channels, STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue provided the inoperable channel is placed in the bypassed or tripped condition within 1 hour. If the inoperable channel is bypassed, the desirability of maintaining this channel in the bypassed condition shall be reviewed in accordance with Specification 6.5.1.6k. The channel shall be returned to OPERABLE status no later than prior to entry into the applicable MODE(S) following the next COLD SHUTDOWN.

With a channel process measurement circuit that affects multiple functional units inoperable or in test, bypass or trip all associated functional units as listed below:

	Process Measurement Circuit	Functional Unit Bypassed/Tripped
1.	Containment Pressure - High	Containment Pressure - High (ESF) Containment Pressure - High (RPS)
2.	Steam Generator Pressure - Low	Steam Generator Pressure - Low Steam Generator AP 1 and 2 (EFAS)
3.	Steam Ganerator Level	Steam Generator Level - Low Steam Generator Level - High Steam Generator AP (EFAS)

#### TABLE NOTATION

- ACTION 14 With the number of OPERABLE channels one less than the Minimum Channels OPERABLE, STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue provided the following conditions are satisfied:
  - a. Verify that one of the inoperable channels has been bypassed and place the other inoperable channel in the tripped condition within 1 hour.
  - b. All functional units affected by the bypassed/tripped channel shall also be placed in the bypassed/tripped condition as listed below.

Process Measurement Circuit Functional Unit Bypassed/Tripped

- Containment Pressure Circuit Containment Pressure High (ESF) Containment Pressure - High (RPS)
- 2. Steam Generator Pressure Steam Generator Pressure Low Steam Generator Level High Steam Generator \( \Delta \) (EFAS)
- 3. Steam Generator Level Steam Generator Level -Low Steam Generator Level High Steam Generator ΔP (EFAS)

STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue until the performance of the next required CHANNEL FUNCTIONAL TEST. Subsequent STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue if one channel is restored to OPERABLE status and the provisions of ACTION 13 are satisfied.

- ACTION 15 With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channels to OPERABLE status within 43 hours or be in at least HOT STANDBY within 5 hours and in HOT SHUTDOWN within the following 6 hours.
- ACTION 16 With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.
- ACTION 17 With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or PGWER OPERATION may continue provided the inoperable channel is placed in the tripped condition within 1 hour, otherwise, comply with the requirements of Action 12.

ATTACHMENT B

## ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

	NAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
MAIN STEAM LINE ISOLATION						
а.	Manual (Trip Buttons)	2 sets of 2 per steam generator	1 set of 2 per steam generator	2 sets of 2 per operat- ing steam generator	1, 2, 3	16
b.	Steam Generator Pressure - Low	4/steam generator	2/steam generator	3/steam generator	1, 2, 3	13*, 14*
с.	Containment Pressure - High	4	2	3	1, 2, 3	13*, 14*
d.	Automatic Actuation Logic	4	2	3	1, 2, 3	12
SAFETY INJECTION SYSTEM SUMP RECIRCULATION (KAS)						
a.	Manual RAS (frip Buttons)	2	1	2	1, 2, 3, 4	12
b.	Refueling Water Storage Pool - Low	4	2	3	1, 2, 3, 4	13*, 14*
c.	Automatic Actuation Logic	4	2	3	1, 2, 3, 4	12
105	S OF POWER (LOV)					
a.	4.16 kV Emergency Bus Undervoltage (Loss of Voltage)	3/bus	3/bus	3/bus	1, 2, 3	176 185 200
b.	480 V Emergency Bus Undervoltage (Loss of Voltage)	3/bus	3/bus	3/bus	1, 2, 3	Soloo
с.	4.16 kV Emergency Bus Undervoltage (Degraded Voltage)	3/bus	3/bus	3/bus	1, 2, 3	17, 18 100
	b. c. d. SAFSUN a. b. c. LOS a. b.	b. Steam Generator Pressure - Low  c. Containment Pressure - High  d. Automatic Actuation Logic  SAFETY INJECTION SYSTEM SUMP RECIRCULATION (KAS)  a. Manual RAS (frip Buttons)  b. Refueling Water Storage Pool - Low  c. Automatic Actuation Logic  LOSS OF POWER (LOV)  a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)  b. 480 V Emergency Bus Undervoltage (Loss of Voltage)  c. 4.16 kV Emergency Bus Undervoltage	b. Steam Generator Pressure - Low  C. Containment Pressure - High  d. Automatic Actuation Logic  SAFETY INJECTION SYSTEM SUMP RECIRCULATION (kAS)  a. Manual RAS (frip Buttons)  b. Refueling Water Storage Pool - Low  C. Automatic Actuation Logic  4  C. Automatic Actuation Logic  4  C. Automatic Actuation Logic  4  LOSS OF POWER (LOV)  a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage)  b. 480 V Emergency Bus Undervoltage (Loss of Voltage)  5/bus  C. 4.16 kV Emergency Bus Undervoltage  C. 4.16 kV Emergency Bus Undervoltage	Buttons)  2 per steam generator generator  2 /steam generator Pressure - Low generator  2 /steam generator  C. Containment Pressure - 4 2 High  d. Automatic Actuation 4 2 SAFETY INJECTION SYSTIM SUMP RECIRCULATION (kAS)  a. Manual RAS (frip Buttons) 2 1  b. Refueling Water Storage Pool - Low 4 2  C. Automatic Actuation Logic 4 2  LOSS OF POWER (LOV)  a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) 3/bus 3/bus  b. 480 V Emergency Bus Undervoltage (Loss of Voltage) 3/bus 3/bus  c. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) 3/bus 3/bus  c. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) 3/bus 3/bus	Buttons)  2 per steam generator generator ing steam generator  b. Steam Generator Pressure - Low generator generator  c. Containment Pressure - High  d. Automatic Actuation Logic  SAFETY INJECTION SYSTEM SUMP RECIRCULATION (kAS)  a. Manual RAS (frip Buttons)  b. Refueling Water Storage Pool - Low 4 2 3  c. Automatic Actuation 4 3  c. Automatic Actuation 4 3  c. Automatic Actuation 5  Logic 4 2 3  c. Automatic Actuation 4 3  Logic 5 POWER (LOV)  a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) 3/bus 3/bus 3/bus  b. 480 V Emergency Bus Undervoltage (Loss of Voltage) 3/bus 3/bus 3/bus 3/bus  c. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) 3/bus 3/bus 3/bus 3/bus	Buttons)  2 per steam generator generator ing steam generator  b. Steam Generator Pressure - Low generator generator generator  c. Containment Pressure - 4  Automatic Actuation Logic  SAFETY INJECTION SYSTEM SUMP RECIRCULATION (kAS)  a. Manual RAS (frip Buttons)  b. Refueling Water Storage Pool - Low 4  C. Automatic Actuation Logic 5  LOSS OF POWER (LOV)  a. 4.16 kV Emergency Bus Undervoltage (Loss of Voltage) 3/bus 3/bus 3/bus 3/bus 1, 2, 3  b. 480 V Emergency Bus Undervoltage (Loss of Voltage) 3/bus 3/bus 3/bus 3/bus 3/bus 1, 2, 3  c. 4.16 kV Emergency Bus Undervoltage  C. 4.16 kV Emergency Bus Undervoltage  C. 4.16 kV Emergency Bus Undervoltage

#### TABLE NOTATION

- ACTION 14 With the number of OPERABLE channels one less than the Minimum Channels OPERABLE, STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue provided the following conditions are satisfied:
  - a. Verify that one of the inoperable channels has been bypassed and place the other inoperable channel in the tripped condition within 1 hour.
  - b. All functional units affected by the bypassed/tripped channel shall also be placed in the bypassed/tripped condition as listed below.

Process Measurement Circuit Functional Unit Bypassed/Tripped

- Containment Pressure Circuit Containment Pressure High (ESF) Containment Pressure - High (RPS)
- 2. Steam Generator Pressure Steam Generator Pressure Low Steam Generator Level High Steam Generator \( \Delta P \) (EFAS)
- Steam Generator Level Steam Generator Level Low Steam Generator Level High Steam Generator  $\Delta P$  (EFAS)

STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue until the performance of the next required CHANNEL FUNCTIONAL TEST. Subsequent STARTUP and/or POWER OPERATION and/or operation in the other applicable MODE(S) may continue if one channel is restored to OPERABLE status and the provisions of ACTION 13 are satisfied.

- ACTION 15 With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channels to OPERABLE status within 48 hours or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- ACTION 16 With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.
- ACTION 17 With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may continue provided the inoperable channel is placed in the tripped condition within 1 hour, otherwise, comply with the requirements of Action 12.

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- ACTION 17 With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may continue provided the inoperable channel is placed in the tripped (D.C. Relay energized) condition within 1 hour, and restored to OPERABLE status with the next 48 hours or declare the associated Emergency Diesel Generator inoperable and take the ACTION required by Specification 3.8.1.1. The surveillance requirements of Table 4.3-2 are waived for all channels while this action requirement is in effect.
- ACTION 18 With more than one channel inoperable, or if the inoperable channel cannot be placed in the trip (D.C. Relay energized) condition, declare the associated Emergency Diesel Generator inoperable and take the ACTION required by Specification 3.8.1.1.