

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

<u>ESFA SYSTEM FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
VI. AUXILIARY FEEDWATER (SG-1)(AFAS-1) (Continued)					
B. ESFA System Logic					
1. Matrix Logic	6	1	3	1, 2, 3	17
2. Initiation Logic	4(c)	2(d)	4	1, 2, 3, 4	12
3. Manual AFAS	4(c)	2(d)	4	1, 2, 3, 4	15
C. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	16
VII. AUXILIARY FEEDWATER (SG-2)(AFAS-2)					
A. Sensor/Trip Units					
1. Steam Generator #2 Level - Low	4	2	3	1, 2, 3	13*, 14*
2. Steam Generator Δ Pressure - SG1 > SG2	4	2	3	1, 2, 3	13*, 14*
B. ESFA System Logic					
1. Matrix Logic	6	1	3	1, 2, 3	17
2. Initiation Logic	4(c)	2(d)	4	1, 2, 3, 4	12
3. Manual AFAS	4(c)	2(d)	4	1, 2, 3, 4	15
C. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	16
VIII. LOSS OF POWER (LOV)					
A. 4.16 kV Emergency Bus Under-voltage (Loss of Voltage)	4/Bus (e)	2/Bus	3/Bus	1, 2, 3	13*, 14*
B. 4.16 kV Emergency Bus Under-voltage (Degraded Voltage)	4/Bus (e)	2/Bus	3/Bus	1, 2, 3	13*, 14*, 19*
IX. CONTROL ROOM ESSENTIAL FILTRATION	2	1	1	All Modes	18*

PALO VERDE - UNIT 1

3/4 3-22

AMENDMENT NO. 27

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TABLE 3.3-3 (Continued)

TABLE NOTATIONS

- (a) In MODES 3-4, the value may be decreased manually, to a minimum of 100 psia, as pressurizer pressure is reduced, provided the margin between the pressurizer pressure and this value is maintained at less than or equal to 400 psi; the setpoint shall be increased automatically as pressurizer pressure is increased until the trip setpoint is reached. Trip may be manually bypassed below 400 psia; bypass shall be automatically removed whenever pressurizer pressure is greater than or equal to 500 psia.
- (b) In MODES 3-4, the value may be decreased manually as steam generator pressure is reduced, provided the margin between the steam generator pressure and this value is maintained at less than or equal to 200 psi; the setpoint shall be increased automatically as steam generator pressure is increased until the trip setpoint is reached.
- (c) Four channels provided, arranged in a selective two-out-of-four configuration (i.e., one-out-of-two taken twice).
- (d) The proper two-out-of-four combination.
* 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 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 6.5.1.6.g. The channel shall be returned to OPERABLE status no later than during 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

- | | |
|---------------------------------------|---|
| 1. Steam Generator Pressure - Low | Steam Generator Pressure - Low
Steam Generator Level 1-Low (ESF)
Steam Generator Level 2-Low (ESF) |
| 2. Steam Generator Level (Wide Range) | Steam Generator Level - Low (RPS)
Steam Generator Level 1-Low (ESF)
Steam Generator Level 2-Low (ESF) |

(e) Input to channels

TABLE 3.3-3 (Continued)

ACTION STATEMENTS (Continued)

- ACTION 14 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE, STARTUP and/or POWER OPERATION may continue provided the following conditions are satisfied:
- Verify that one of the inoperable channels has been bypassed and place the other inoperable channel in the tripped condition within 1 hour.
 - 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 |
|---|---|
| 1. Steam Generator Pressure - Low | Steam Generator Pressure - Low
Steam Generator Level 1 - Low (ESF)
Steam Generator Level 2 - Low (ESF) |
| 2. Steam Generator Level - Low (Wide Range) | Steam Generator Level - Low (RPS)
Steam Generator Level 1 - Low (ESF)
Steam Generator Level 2 - Low (ESF) |
- STARTUP and/or POWER OPERATION may continue until the performance of the next required CHANNEL FUNCTIONAL TEST. Subsequent STARTUP and/or POWER OPERATION 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 channel 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, be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing provided the other channel is OPERABLE.
- ACTION 17 - With the number of OPERABLE channels one less than the Minimum 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 18 - With the number of OPERABLE channels one less than the Minimum Number of Channels, operation may continue for up to 6 hours. After 6 hours operation may continue provided at least 1 train of essential filtration is in operation, otherwise, be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ADD insert A

.. Insert "A"

Action 19-

.. with more than one of the required
.. degraded voltage relays per bus inoperable
.. or not energized, restore the degraded
.. voltage relays within 8 hours or be
.. in at least hot standby within the next 6
.. hours and in cold shutdown within the
.. following 30 hours.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

<u>ESFA SYSTEM FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
VI. AUXILIARY FEEDWATER (SG-1)(AFAS-1) (Continued)					
B. ESFA System Logic					
1. Matrix Logic	6	1	3	1, 2, 3	17
2. Initiation Logic	4(c)	2(d)	4	1, 2, 3, 4	12
3. Manual AFAS	4(c)	2(d)	4	1, 2, 3, 4	15
C. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	16
VII. AUXILIARY FEEDWATER (SG-2)(AFAS-2)					
A. Sensor/Trip Units					
1. Steam Generator #2 Level - Low	4	2	3	1, 2, 3	13*, 14*
2. Steam Generator Δ Pressure - SG1 > SG2	4	2	3	1, 2, 3	13*, 14*
B. ESFA System Logic					
1. Matrix Logic	6	1	3	1, 2, 3	17
2. Initiation Logic	4(c)	2(d)	4	1, 2, 3, 4	12
3. Manual AFAS	4(c)	2(d)	4	1, 2, 3, 4	15
C. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	16
VIII. LOSS OF POWER (LOV)					
A. 4.16 kV Emergency Bus Under-voltage (Loss of Voltage)	4/Bus (e)	2/Bus	3/Bus	1, 2, 3	13*, 14*
B. 4.16 kV Emergency Bus Under-voltage (Degraded Voltage)	4/Bus (e)	2/Bus	3/Bus	1, 2, 3	13*, 14*, 19*
IX. CONTROL ROOM ESSENTIAL FILTRATION	2	1	1	All Modes	18*

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

TABLE NOTATIONS

- (a) In MODES 3-4, the value may be decreased manually, to a minimum of 100 psia, as pressurizer pressure is reduced, provided the margin between the pressurizer pressure and this value is maintained at less than or equal to 400 psi; the setpoint shall be increased automatically as pressurizer pressure is increased until the trip setpoint is reached. Trip may be manually bypassed below 400 psia; bypass shall be automatically removed whenever pressurizer pressure is greater than or equal to 500 psia.
- (b) In MODES 3-4, the value may be decreased manually as steam generator pressure is reduced, provided the margin between the steam generator pressure and this value is maintained at less than or equal to 200 psi; the setpoint shall be increased automatically as steam generator pressure is increased until the trip setpoint is reached.
- (c) Four channels provided, arranged in a selective two-out-of-four configuration (i.e., one-out-of-two taken twice).
- (d) The proper two-out-of-four combination.
* 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 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 6.5.1.6.g. The channel shall be returned to OPERABLE status no later than during 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

- | | |
|---------------------------------------|---|
| 1. Steam Generator Pressure - Low | Steam Generator Pressure - Low
Steam Generator Level 1-Low (ESF)
Steam Generator Level 2-Low (ESF) |
| 2. Steam Generator Level (Wide Range) | Steam Generator Level - Low (RPS)
Steam Generator Level 1-Low (ESF)
Steam Generator Level 2-Low (ESF) |

(e) Input to channels

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

ACTION STATEMENTS

- ACTION 14 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE, STARTUP and/or POWER OPERATION may continue provided the following conditions are satisfied:
- Verify that one of the inoperable channels has been bypassed and place the other inoperable channel in the tripped condition within 1 hour.
 - 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
1. Steam Generator Pressure - Low	Steam Generator Pressure - Low Steam Generator Level 1 - Low (ESF) Steam Generator Level 2 - Low (ESF)
2. Steam Generator Level - Low (Wide Range)	Steam Generator Level - Low (RPS) Steam Generator Level 1 - Low (ESF) Steam Generator Level 2 - Low (ESF)

STARTUP and/or POWER OPERATION may continue until the performance of the next required CHANNEL FUNCTIONAL TEST. Subsequent STARTUP and/or POWER OPERATION 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 channel 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, be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing provided the other channel is OPERABLE.
- ACTION 17 - With the number of OPERABLE channels one less than the Minimum 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 18 - With the number of OPERABLE channels one less than the Minimum Number of Channels, operation may continue for up to 6 hours. After 6 hours operation may continue provided at least 1 train of essential filtration is in operation, otherwise, be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ADD INSERT A

Insert "A"

Action 19 -

with more than one of the required degraded voltage relays per bus inoperable or not energized, restore the degraded voltage relays within 8 hours or be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

<u>ESFA SYSTEM FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
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B. ESFA System Logic					
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VII. AUXILIARY FEEDWATER (SG-2)(AFAS-2)					
A. Sensor/Trip Units					
1. Steam Generator #2 Level - Low	4	2	3	1, 2, 3	13*, 14*
2. Steam Generator Δ Pressure - SG1 > SG2	4	2	3	1, 2, 3	13*, 14*
B. ESFA System Logic					
1. Matrix Logic	6	1	3	1, 2, 3	17
2. Initiation Logic	4(c)	2(d)	4	1, 2, 3, 4	12
3. Manual AFAS	4(c)	2(d)	4	1, 2, 3, 4	15
C. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	16
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B. 4.16 kV Emergency Bus Under-voltage (Degraded Voltage)	4/Bus(e)	2/Bus	3/Bus	1, 2, 3	13*, 14*
IX. CONTROL ROOM ESSENTIAL FILTRATION					
	2	1	1	All Modes	18*

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

TABLE NOTATIONS

- (a) In MODES 3-4, the value may be decreased manually, to a minimum of 100 psia, as pressurizer pressure is reduced, provided the margin between the pressurizer pressure and this value is maintained at less than or equal to 400 psi; the setpoint shall be increased automatically as pressurizer pressure is increased until the trip setpoint is reached. Trip may be manually bypassed below 400 psia; bypass shall be automatically removed whenever pressurizer pressure is greater than or equal to 500 psia.
- (b) In MODES 3-4, the value may be decreased manually as steam generator pressure is reduced, provided the margin between the steam generator pressure and this value is maintained at less than or equal to 200 psi; the setpoint shall be increased automatically as steam generator pressure is increased until the trip setpoint is reached.
- (c) Four channels provided, arranged in a selective two-out-of-four configuration (i.e., one-out-of-two taken twice).
- (d) The proper two-out-of-four combination.
* 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 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 6.5.1.6.g. The channel shall be returned to OPERABLE status no later than during 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

- | | |
|---------------------------------------|---|
| 1. Steam Generator Pressure - Low | Steam Generator Pressure - Low
Steam Generator Level 1-Low (ESF)
Steam Generator Level 2-Low (ESF) |
| 2. Steam Generator Level (Wide Range) | Steam Generator Level - Low (RPS)
Steam Generator Level 1-Low (ESF)
Steam Generator Level 2-Low (ESF) |

(e) Input to channels

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

ACTION STATEMENTS

- ACTION 14 - With the number of channels OPERABLE one less than the Minimum Channels OPERABLE, STARTUP and/or POWER OPERATION may continue provided the following conditions are satisfied:
- Verify that one of the inoperable channels has been bypassed and place the other inoperable channel in the tripped condition within 1 hour.
 - 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
1. Steam Generator Pressure - Low	Steam Generator Pressure - Low Steam Generator Level 1 - Low (ESF) Steam Generator Level 2 - Low (ESF)
2. Steam Generator Level - Low (Wide Range)	Steam Generator Level - Low (RPS) Steam Generator Level 1 - Low (ESF) Steam Generator Level 2 - Low (ESF)

STARTUP and/or POWER OPERATION may continue until the performance of the next required CHANNEL FUNCTIONAL TEST. Subsequent STARTUP and/or POWER OPERATION 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 channel 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, be in at least HOT STANDBY within 6 hours and in at least HOT SHUTDOWN within the following 6 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing provided the other channel is OPERABLE.
- ACTION 17 - With the number of OPERABLE channels one less than the Minimum 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 18 - With the number of OPERABLE channels one less than the Minimum Number of Channels, operation may continue for up to 6 hours. After 6 hours operation may continue provided at least 1 train of essential filtration is in operation, otherwise, be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

ADD INSERT A

Insert "A"

Action 19 -

with more than one of the required degraded voltage relays per bus inoperable or not energized, restore the degraded voltage relays within 8 hours or be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours.