

ATTACHMENT 4

MARKED-UP TECHNICAL SPECIFICATION CHANGE PAGES

9011210064 901113  
PDR ADOCK 05000528  
P PDC

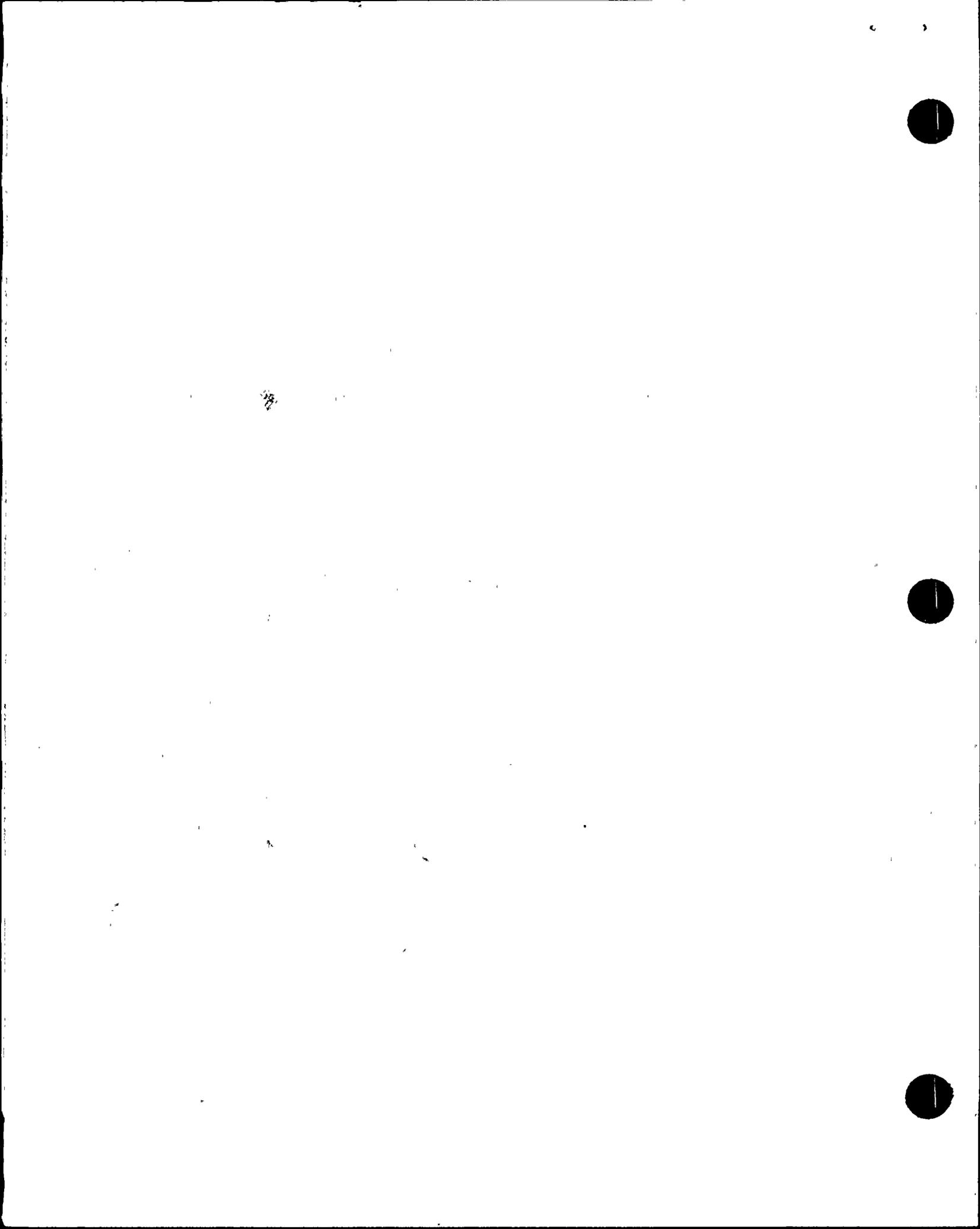


TABLE 3.3-2

REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES

<u>FUNCTIONAL UNIT</u>	<u>RESPONSE TIME</u>
I. TRIP GENERATION	
A. Process	0.50
1. Pressurizer Pressure - High	≤ <del>1.15</del> seconds
2. Pressurizer Pressure - Low	≤ 1.15 seconds
3. Steam Generator Level - Low	≤ 1.15 seconds
4. Steam Generator Level - High	≤ 1.15 seconds
5. Steam Generator Pressure - Low	≤ 1.15 seconds
6. Containment Pressure - High	≤ 1.15 seconds
7. Reactor Coolant Flow - Low	≤ 0.58 second
8. Local Power Density - High	
a. Neutron Flux Power from Excore Neutron Detectors	< 0.75 second*
b. CEA Positions	≤ 1.35 second**
c. CEA Positions: CEAC Penalty Factor	≤ 0.75 second**
9. DNBR - Low	
a. Neutron Flux Power from Excore Neutron Detectors	< 0.75 second*
b. CEA Positions	≤ 1.35 second**
c. Cold Leg Temperature	≤ 0.75 second##
d. Hot Leg Temperature	≤ 0.75 second##
e. Primary Coolant Pump Shaft Speed	≤ 0.30 second#
f. Reactor Coolant Pressure from Pressurizer	≤ 0.75 second###
g. CEA Positions: CEAC Penalty Factor	≤ 0.75 second**
B. Excore Neutron Flux	
1. Variable Overpower Trip	≤ 0.55 second*
2. Logarithmic Power Level - High	
a. Startup and Operating	≤ 0.55 second*
b. Shutdown	≤ 0.55 second*



# CONTROLLED BY USER

## REACTOR-COOLANT SYSTEM

### 3/4.4.2 - SAFETY VALVES

#### SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

---

3.4.2.1 A minimum of one pressurizer code safety valve shall be OPERABLE with a lift setting of 2500 psia  $\pm 1\%^*$ .  
 $+3, -1\%$

APPLICABILITY: MODE 4.

#### ACTION:

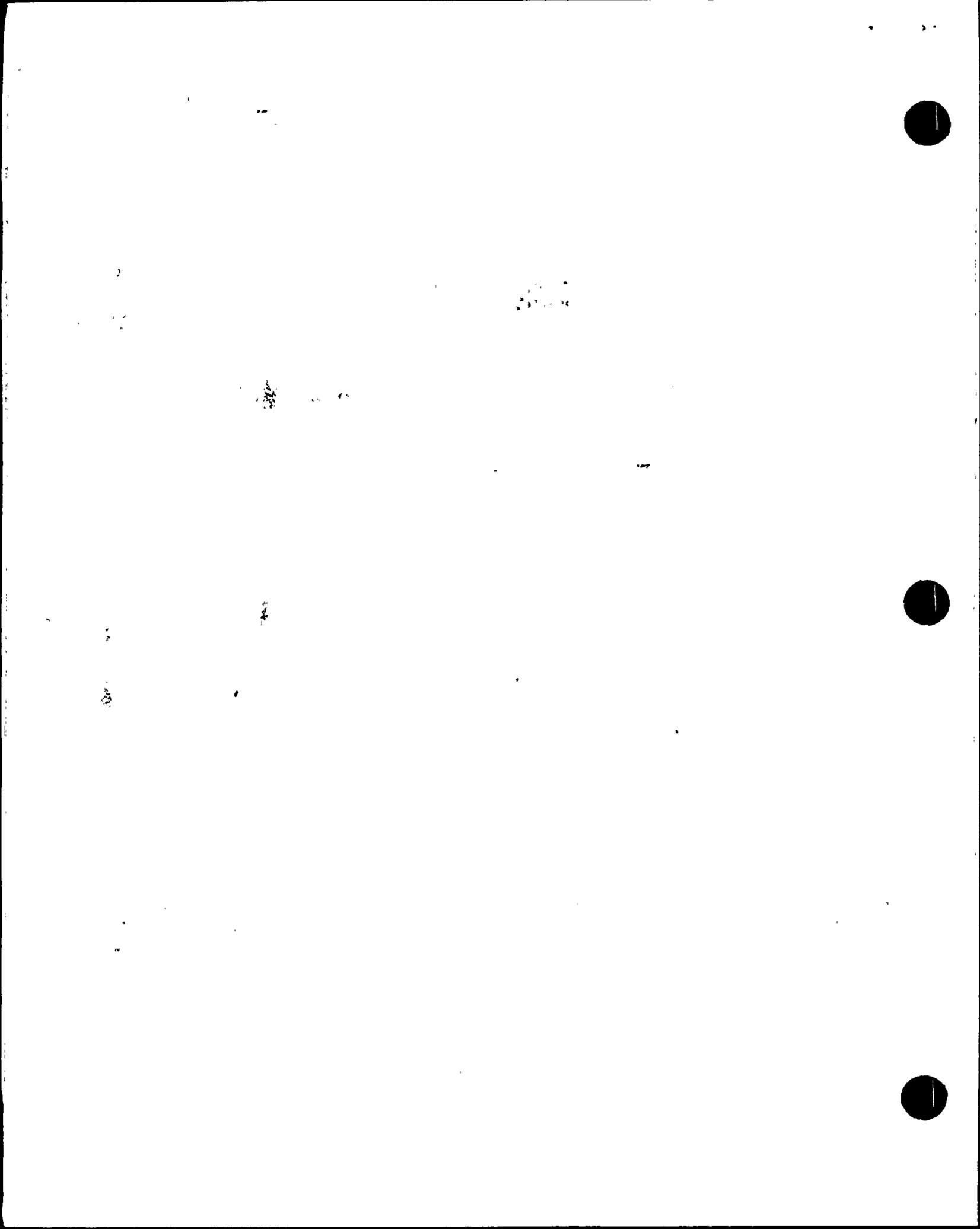
- a. With no pressurizer code safety valve OPERABLE, immediately suspend all operations involving positive reactivity changes and place an OPERABLE shutdown cooling loop into operation.
- b. The provisions of Specification 3.0.4 may be suspended for up to 12 hours for entering into and during operation in MODE 4 for purposes of setting the pressurizer code safety valves under ambient (HOT) conditions provided a preliminary cold setting was made prior to heatup.

#### SURVEILLANCE REQUIREMENTS

---

4.4.2.1 No additional Surveillance Requirements other than those required by Specification 4.0.5.

\*  
The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.



# CONTROLLED BY USER

## REACTOR COOLANT SYSTEM

### OPERATING

#### LIMITING CONDITION FOR OPERATION

---

3.4.2.2 All pressurizer code safety valves shall be OPERABLE with a lift setting of 2500 psia  $\pm 1\%$ \*

$+3, -1\%$   
APPLICABILITY: MODES 1, 2, and 3.

#### ACTION:

With one pressurizer code safety valve inoperable, either restore the inoperable valve to OPERABLE status within 15 minutes or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours with the shutdown cooling system suction line relief valves aligned to provide overpressure protection for the Reactor Coolant System.

#### SURVEILLANCE REQUIREMENTS

---

4.4.2.2 No additional Surveillance Requirements other than those required by Specification 4.0.5.

---

\*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.



15

2 1 1

14

13

12

TABLE 3.7-1

STEAM LINE SAFETY VALVES PER LOOPS

<u>VALVE NUMBER</u>		<u>LIFT SETTING</u> ( $\pm 3\%$ )*	<u>MINIMUM RATED CAPACITY**</u>
<u>S/G No. 1</u>	<u>S/G No. 2</u>		
a. SGE PSV 572	SGE PSV 554	1250 psig	941,543 lb/hr
b. SGE PSV 579	SGE PSV 561	1250 psig	941,543 lb/hr
c. SGE PSV 573	SGE PSV 555	1290 psig	971,332 lb/hr
d. SGE PSV 578	SGE PSV 560	1290 psig	971,332 lb/hr
e. SGE PSV 574	SGE PSV 556	1315 psig	989,950 lb/hr
f. SGE PSV 575	SGE PSV 557	1315 psig	989,950 lb/hr
g. SGE PSV 576	SGE PSV 558	1315 psig	989,950 lb/hr
h. SGE PSV 577	SGE PSV 559	1315 psig	989,950 lb/hr
i. SGE PSV 691	SGE PSV 694	1315 psig	989,950 lb/hr
j. SGE PSV 692	SGE PSV 695	1315 psig	989,950 lb/hr

\*The lift setting pressure shall correspond to ambient conditions at the valve at nominal operating temperature and pressure.

\*\*Capacity is rated at lift setting +3% accumulation.



# CONTROLLED BY USER

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

- b. At least once per 18 months during shutdown by:
1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an auxiliary feedwater actuation test signal.
  2. Verifying that each pump that starts automatically upon receipt of an auxiliary feedwater actuation test signal will start automatically upon receipt of an auxiliary feedwater actuation test signal.
- c. Prior to startup following any refueling shutdown or cold shutdown of 30 days or longer, by verifying on a STAGGERED TEST BASIS (by means of a flow test) that the normal flow path from the condensate storage tank to each of the steam generators through one of the essential auxiliary feedwater pumps delivers at least 750 gpm at 1270 psia or equivalent.  
650
- d. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or MODE 4 for the turbine-driven pump.

at the entrance of the steam generator.

100

100

100

100

100

100

100

100

100

100

100

100

100



# CONTROLLED BY USER

## PLANT SYSTEMS

### BASES

---

#### SAFETY VALVES (continued)

- 10 = total number of secondary safety valves for one steam generator.
- N = number of inoperable main steam safety valves on the steam generator with the greater number of inoperable valves.
- 109.2 = ratio of main steam safety valve relieving capacity of 110% steam generator design pressure to calculated steam flow rate at 100% plant power + 2% uncertainty (see above text)
- 9.8 = BAND between the maximum thermal power and the variable over-power trip setpoint ceiling

#### 3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss-of-offsite power.

Each electric-driven <sup>650</sup> auxiliary feedwater pump is capable <sup>650</sup> of delivering a minimum feedwater flow of <sup>at</sup> 750-gpm at a pressure of 1270 psia to the entrance of the steam generators. The steam-driven auxiliary feedwater pump is capable of delivering a minimum feedwater flow of 750 gpm at a pressure of 1270 psia <sup>at</sup> to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the shutdown cooling system may be placed into operation.

#### 3/4.7.1.3 CONDENSATE STORAGE TANK

The OPERABILITY of the condensate storage tank ensures that a minimum water volume of 300,000 gallons is available to maintain the Reactor Coolant System at HOT STANDBY for 8 hours followed by an orderly cooldown to the shutdown cooling entry (350°F) temperature with concurrent total loss-of-site power. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics:



TABLE 3.3-2

REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES

<u>FUNCTIONAL UNIT</u>	<u>RESPONSE TIME</u>
I. TRIP GENERATION	
A. Process	
1. Pressurizer Pressure - High	< <del>1.15</del> <sup>0.50</sup> seconds
2. Pressurizer Pressure - Low	< 1.15 seconds
3. Steam Generator Level - Low	< 1.15 seconds
4. Steam Generator Level - High	< 1.15 seconds
5. Steam Generator Pressure - Low	< 1.15 seconds
6. Containment Pressure - High	< 1.15 seconds
7. Reactor Coolant Flow - Low	< 0.58 second
8. Local Power Density - High	
a. Neutron Flux Power from Excore Neutron Detectors	< 0.75 second*
b. CEA Positions	< 1.35 second**
c. CEA Positions: CEAC Penalty Factor	< 0.75 second**
9. DNBR - Low	
a. Neutron Flux Power from Excore Neutron Detectors	< 0.75 second*
b. CEA Positions	< 1.35 second**
c. Cold Leg Temperature	< 0.75 second##
d. Hot Leg Temperature	< 0.75 second##
e. Primary Coolant Pump Shaft Speed	< 0.30 second#
f. Reactor Coolant Pressure from Pressurizer	< 0.75 second###
g. CEA Positions: CEAC Penalty Factor	< 0.75 second**
B. Excore Neutron Flux	
1. Variable Overpower Trip	< 0.55 second*
2. Logarithmic Power Level - High	
a. Startup and Operating	< 0.55 second*
b. Shutdown	< 0.55 second*

PALO VERDE - UNIT 2

3/4 3-11

AMENDMENT NO. 19

CONTROL ROOM

100

100

100

100

100

100

100

100



# CONTROLLED BY USER

## REACTOR COOLANT SYSTEM

### 3/4.4.2 SAFETY VALVES

#### SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

---

3.4.2.1 A minimum of one pressurizer code safety valve shall be OPERABLE with a lift setting of 2500 psia  $\pm 1\%^*$ .  
 $+3, -1\%$

APPLICABILITY: MODE 4.

#### ACTION:

- a. With no pressurizer code safety valve OPERABLE, immediately suspend all operations involving positive reactivity changes and place an OPERABLE shutdown cooling loop into operation.
- b. The provisions of Specification 3.0.4 may be suspended for up to 12 hours for entering into and during operation in MODE 4 for purposes of setting the pressurizer code safety valves under ambient (HOT) conditions provided a preliminary cold setting was made prior to heatup.

#### SURVEILLANCE REQUIREMENTS

---

4.4.2.1 No additional Surveillance Requirements other than those required by Specification 4.0.5.

---

\* The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.



# CONTROLLED BY USER

## REACTOR COOLANT SYSTEM

### OPERATING

#### LIMITING CONDITION FOR OPERATION

---

3.4.2.2 All pressurizer code safety valves shall be OPERABLE with a lift setting of 2500 psia  $\pm 1\%^*$ .  
 $+3, -1\%$

APPLICABILITY: MODES 1, 2, and 3.

#### ACTION:

With one pressurizer code safety valve inoperable, either restore the inoperable valve to OPERABLE status within 15 minutes or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours with the shutdown cooling system suction line relief valves aligned to provide overpressure protection for the Reactor Coolant System.

#### SURVEILLANCE REQUIREMENTS

---

4.4.2.2 No additional Surveillance Requirements other than those required by Specification 4.0.5.

---

\*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

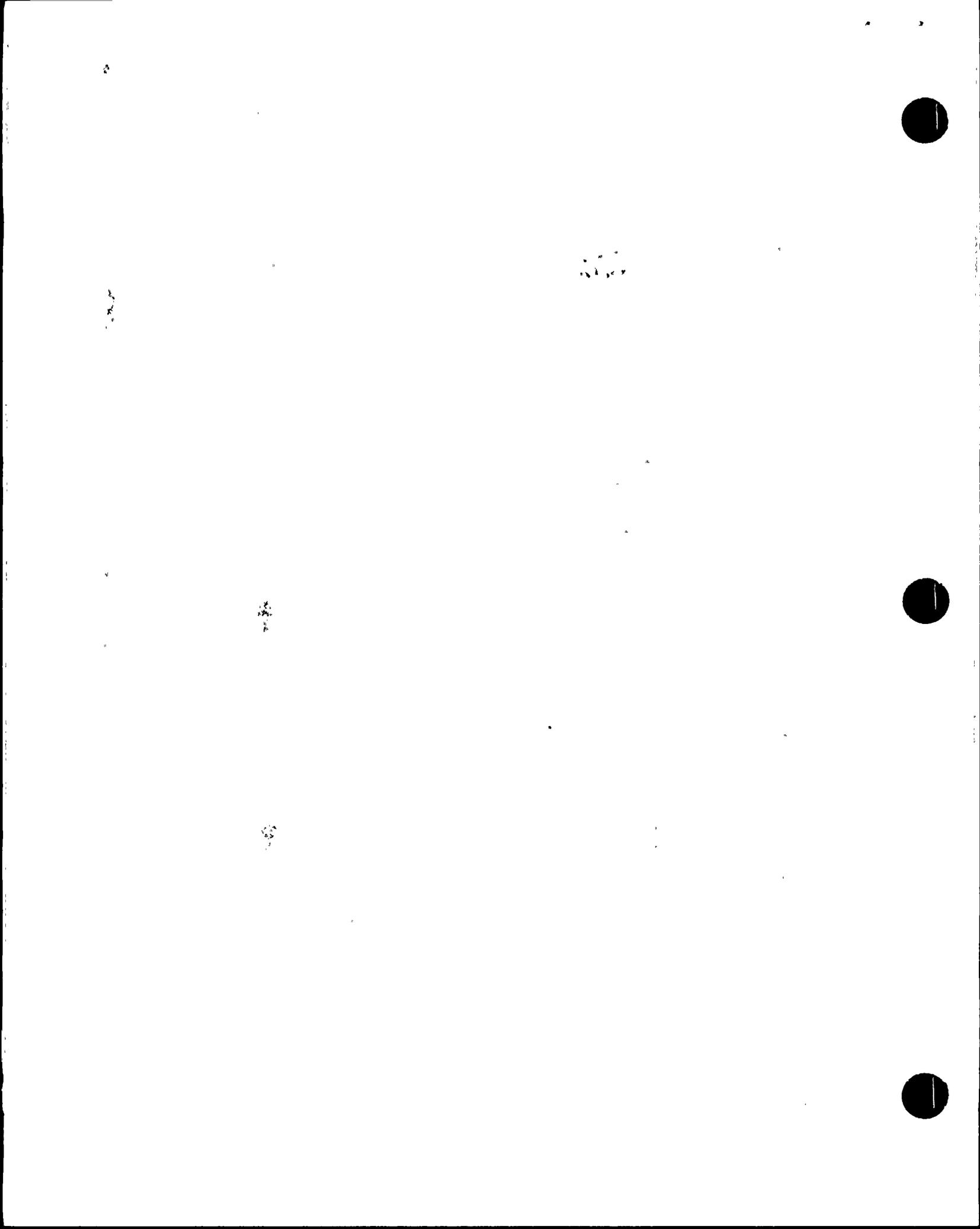


TABLE 3.7-1

STEAM LINE SAFETY VALVES PER LOOPS

<u>VALVE NUMBER</u>		<u>LIFT SETTING</u> <sup>±3%</sup> ( <u>±1%</u> )*	<u>MINIMUM RATED CAPACITY**</u>
<u>S/G No. 1</u>	<u>S/G No. 2</u>		
a. SGE PSV 572	SGE PSV 554	1250 psig	941,543 lb/hr
b. SGE PSV 579	SGE PSV 561	1250 psig	941,543 lb/hr
c. SGE PSV 573	SGE PSV 555	1290 psig	971,332 lb/hr
d. SGE PSV 578	SGE PSV 560	1290 psig	971,332 lb/hr
e. SGE PSV 574	SGE PSV 556	1315 psig	989,950 lb/hr
f. SGE PSV 575	SGE PSV 557	1315 psig	989,950 lb/hr
g. SGE PSV 576	SGE PSV 558	1315 psig	989,950 lb/hr
h. SGE PSV 577	SGE PSV 559	1315 psig	989,950 lb/hr
i. SGE PSV 691	SGE PSV 694	1315 psig	989,950 lb/hr
j. SGE PSV 692	SGE PSV 695	1315 psig	989,950 lb/hr

\*The lift setting pressure shall correspond to ambient conditions at the valve at nominal operating temperature and pressure.

\*\*Capacity is rated at lift setting +3% accumulation.



# FOR INFORMATION ONLY

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

- b. At least once per 18 months during shutdown by:
1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an auxiliary feedwater actuation test signal.\*
  2. Verifying that each pump that starts automatically upon receipt of an auxiliary feedwater actuation test signal will start automatically upon receipt of an auxiliary feedwater actuation test signal.\*
- c. Prior to startup following any refueling shutdown or cold shutdown of 30 days or longer, by verifying on a STAGGERED TEST BASIS (by means of a flow test) that the normal flow path from the condensate storage tank to each of the steam generators through one of the essential auxiliary feedwater pumps delivers at least 750 gpm at 1270 psia or equivalent <sup>650</sup>.
- d. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or MODE 4 for the turbine-driven pump.

at the entrance of the steam generator.

\*Deferred until cycle 3 refueling outage.



1

2

3

4

5

6

7

8

9

10

11

12

# CONTROLLED BY USER

## PLANT SYSTEMS

### BASES

---

#### SAFETY VALVES (continued)

- 10 = total number of secondary safety valves for one steam generator.
- N = number of inoperable main steam safety valves on the steam generator with the greater number of inoperable valves.
- 109.2 = ratio of main steam safety valve relieving capacity of 110% steam generator design pressure to calculated steam flow rate at 100% plant power + 2% uncertainty (see above text)
- .9.8 = BAND between the maximum thermal power and the variable over-power trip setpoint ceiling

#### 3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss-of-offsite power.

Each electric-driven <sup>LSO</sup> auxiliary feedwater pump is capable of delivering a minimum feedwater flow of 750 gpm at a pressure of 1270 psia <sup>at</sup> to the entrance of the steam generators. The steam-driven <sup>LSO</sup> auxiliary feedwater pump is capable of delivering a minimum feedwater flow of 750 gpm at a pressure of 1270 psia <sup>at</sup> to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the shutdown cooling system may be placed into operation.

#### 3/4.7.1.3 CONDENSATE STORAGE TANK

The OPERABILITY of the condensate storage tank ensures that a minimum water volume of 300,000 gallons is available to maintain the Reactor Coolant System at HOT STANDBY for 8 hours followed by an orderly cooldown to the shutdown cooling entry (350°F) temperature with concurrent total loss-of-site power. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.



TABLE 3.3-2

REACTOR PROTECTIVE INSTRUMENTATION RESPONSE TIMES

<u>FUNCTIONAL UNIT</u>	<u>RESPONSE TIME</u>
I. TRIP GENERATION	
A. Process	
1. Pressurizer Pressure - High	< 0.50 ≤ 1.15 seconds
2. Pressurizer Pressure - Low	≤ 1.15 seconds
3. Steam Generator Level - Low	≤ 1.15 seconds
4. Steam Generator Level - High	≤ 1.15 seconds
5. Steam Generator Pressure - Low	≤ 1.15 seconds
6. Containment Pressure - High	≤ 1.15 seconds
7. Reactor Coolant Flow - Low	≤ 0.58 second
8. Local Power Density - High	
a. Neutron Flux Power from Excore Neutron Detectors	< 0.75 second*
b. CEA Positions	≤ 1.35 second**
c. CEA Positions: CEAC Penalty Factor	≤ 0.75 second**
9. DNBR - Low	
a. Neutron Flux Power from Excore Neutron Detectors	< 0.75 second*
b. CEA Positions	≤ 1.35 second**
c. Cold Leg Temperature	≤ 0.75 second##
d. Hot Leg Temperature	≤ 0.75 second##
e. Primary Coolant Pump Shaft Speed	≤ 0.30 second#
f. Reactor Coolant Pressure from Pressurizer	≤ 0.75 second###
g. CEA Positions: CEAC Penalty Factor	≤ 0.75 second**
B. Excore Neutron Flux	
1. Variable Overpower Trip	≤ 0.55 second*
2. Logarithmic Power Level - High	
a. Startup and Operating	≤ 0.55 second*
b. Shutdown	≤ 0.55 second*

PALO VERDE - UNIT 3

3/4 3-11

AMENDMENT NO. 18

FOR INFORMATION ONLY



REACTOR COOLANT SYSTEM

3/4.4.2 SAFETY VALVES

SHUTDOWN

LIMITING CONDITION FOR OPERATION

---

3.4.2.1 A minimum of one pressurizer code safety valve shall be OPERABLE with a lift setting of 2500 psia  $\pm 1\%^*$ .  
 $+3, -1\%$

APPLICABILITY: MODE 4.

ACTION:

- a. With no pressurizer code safety valve OPERABLE, immediately suspend all operations involving positive reactivity changes and place an OPERABLE shutdown cooling loop into operation.
- b. The provisions of Specification 3.0.4 may be suspended for up to 12 hours for entering into and during operation in MODE 4 for purposes of setting the pressurizer code safety valves under ambient (HOT) conditions provided a preliminary cold setting was made prior to heatup.

SURVEILLANCE REQUIREMENTS

---

4.4.2.1 No additional Surveillance Requirements other than those required by Specification 4.0.5.

\*  
The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.



# CONTROLLED BY USER

## REACTOR COOLANT SYSTEM

### OPERATING

#### LIMITING CONDITION FOR OPERATION

---

3.4.2.2 All pressurizer code safety valves shall be OPERABLE with a lift setting of 2500 psia  $\pm 1\%^*$ .  
 $+3, -1\%$

APPLICABILITY: MODES 1, 2, and 3.

#### ACTION:

With one pressurizer code safety valve inoperable, either restore the inoperable valve to OPERABLE status within 15 minutes or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours with the shutdown cooling system suction line relief valves aligned to provide overpressure protection for the Reactor Coolant System.

#### SURVEILLANCE REQUIREMENTS

---

4.4.2.2 No additional Surveillance Requirements other than those required by Specification 4.0.5.

---

\*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.



10

11

12

13

14

15

16

# CONTROLLED BY USER

## TABLE 3.7-1

### STEAM LINE SAFETY VALVES PER LOOPS

VALVE NUMBER			LIFT SETTING	MINIMUM
	<u>S/G No. 1</u>	<u>S/G No. 2</u>	<u>(<math>\pm 1\%</math>)</u> * $\pm 3\%$	<u>RATED CAPACITY**</u>
a.	SGE PSV 572	SGE PSV 554	1250 psig	941,543 lb/hr
b.	SGE PSV 579	SGE PSV 561	1250 psig	941,543 lb/hr
c.	SGE PSV 573	SGE PSV 555	1290 psig	971,332 lb/hr
d.	SGE PSV 578	SGE PSV 560	1290 psig	971,332 lb/hr
e.	SGE PSV 574	SGE PSV 556	1315 psig	989,950 lb/hr
f.	SGE PSV 575	SGE PSV 557	1315 psig	989,950 lb/hr
g.	SGE PSV 576	SGE PSV 558	1315 psig	989,950 lb/hr
h.	SGE PSV 577	SGE PSV 559	1315 psig	989,950 lb/hr
i.	SGE PSV 691	SGE PSV 694	1315 psig	989,950 lb/hr
j.	SGE PSV 692	SGE PSV 695	1315 psig	989,950 lb/hr

\*The lift setting pressure shall correspond to ambient conditions at the valve at nominal operating temperature and pressure.

\*\*Capacity is rated at lift setting +3% accumulation.



100

100

100

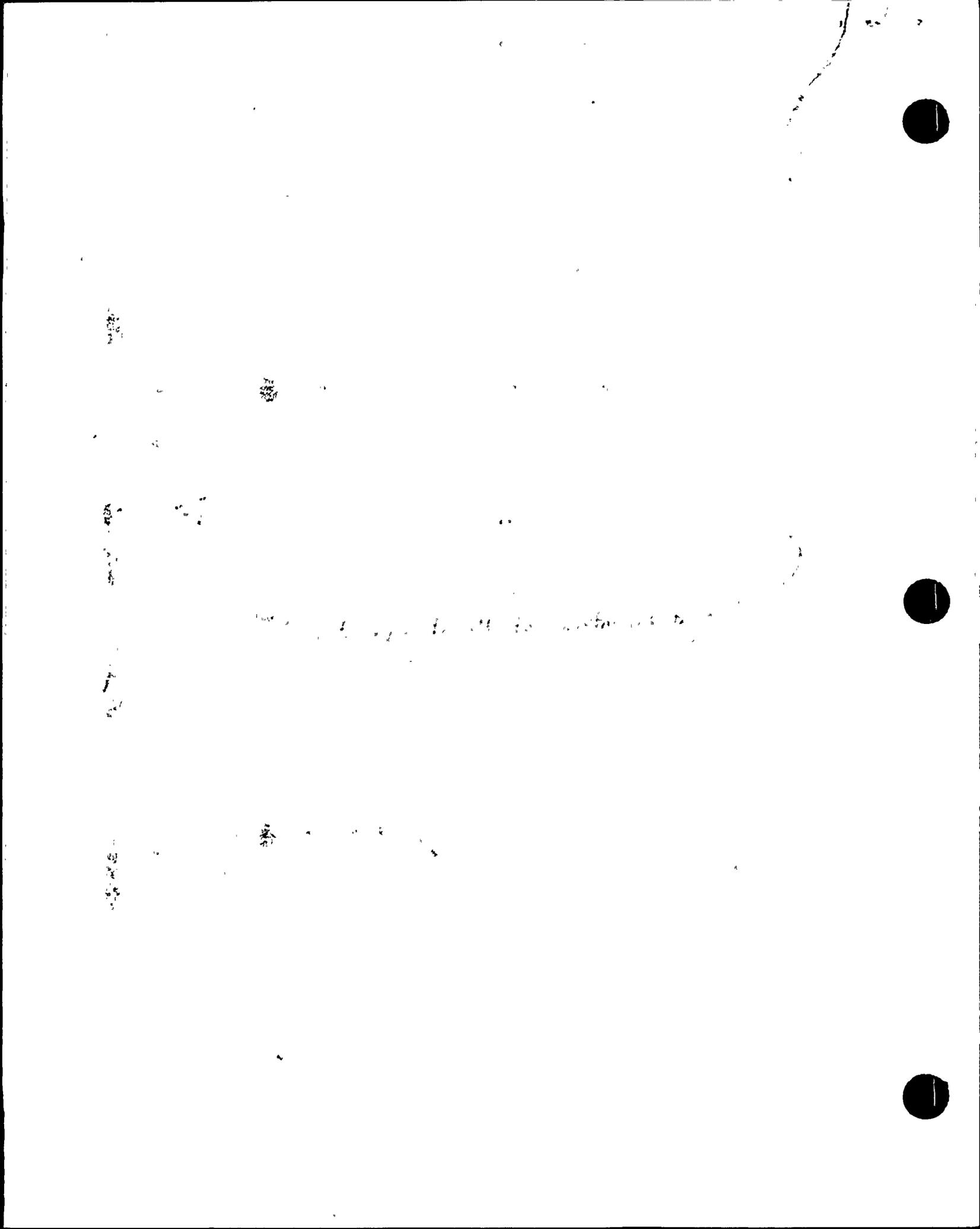
PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

---

- b. At least once per 18 months during shutdown by:
1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of an auxiliary feedwater actuation test signal.
  2. Verifying that each pump that starts automatically upon receipt of an auxiliary feedwater actuation test signal will start automatically upon receipt of an auxiliary feedwater actuation test signal.
- c. Prior to startup following any refueling shutdown or cold shutdown of 30 days or longer, by verifying on a STAGGERED TEST BASIS (by means of a flow test) that the normal flow path from the condensate storage tank to each of the steam generators through one of the essential auxiliary feedwater pumps delivers at least 750 gpm at 1270 psia or equivalent, <sup>650</sup>
- d. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or MODE 4 for the turbine-driven pump.

at the entrance of the steam generator.



PLANT SYSTEMSBASESSAFETY VALVES (continued)

- 10 = total number of secondary safety valves for one steam generator.
- N = number of inoperable main steam safety valves on the steam generator with the greater number of inoperable valves.
- 109.2 = ratio of main steam safety valve relieving capacity of 110% steam generator design pressure to calculated steam flow rate at 100% plant power + 2% uncertainty (see above text)
- 9.8 = BAND between the maximum thermal power and the variable over-power trip setpoint ceiling

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss-of-offsite power.

Each electric-driven <sup>650</sup> auxiliary feedwater pump is capable of delivering a minimum feedwater flow of 750 gpm at a pressure of 1270 psia to the entrance of the steam generators. The steam-driven <sup>650</sup> auxiliary feedwater pump is capable of delivering a minimum feedwater flow of 750 gpm at a pressure of 1270 psia <sup>at</sup> to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the shutdown cooling system may be placed into operation.

3/4.7.1.3 CONDENSATE STORAGE TANK

The OPERABILITY of the condensate storage tank ensures that a minimum water volume of 300,000 gallons is available to maintain the Reactor Coolant System at HOT STANDBY for 8 hours followed by an orderly cooldown to the shutdown cooling entry (350°F) temperature with concurrent total loss-of-site power. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

