

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Two Intermediate Range Neutron Flux channels inoperable.</p>	<p>G.1 -----NOTE----- Limited boron concentration changes associated with RCS inventory control or limited plant temperature changes are allowed. ----- Suspend operations involving positive reactivity additions.</p> <p><u>AND</u></p> <p>G.2 Reduce THERMAL POWER to < P-6.</p>	<p>Immediately</p> <p>2 hours</p>
<p>H. Not used.</p>		
<p>I. One Source Range Neutron Flux channel inoperable.</p>	<p>I.1 -----NOTE----- Limited boron concentration changes associated with RCS inventory control or limited plant temperature changes are allowed. ----- Suspend operations involving positive reactivity additions.</p>	<p>Immediately</p>
<p>J. Two Source Range Neutron Flux channels inoperable.</p>	<p>J.1 Open reactor trip breakers (RTBs).</p>	<p>Immediately</p>

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops - MODE 3

LCO 3.4.5

Two RCS loops shall be OPERABLE, and either:

- a. Two RCS loops shall be in operation when the Rod Control System is capable of rod withdrawal; or
- b. One RCS loop shall be in operation when the Rod Control System is not capable of rod withdrawal.

----- NOTE -----

All reactor coolant pumps may be removed from operation for \leq 1 hour per 8 hour period provided:

- a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
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APPLICABILITY: MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RCS loop inoperable.	A.1 Restore required RCS loop to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One required RCS loop not in operation with Rod Control System capable of rod withdrawal.</p>	<p>C.1 Restore required RCS loop to operation.</p> <p><u>OR</u></p> <p>C.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p>	<p>1 hour</p> <p>1 hour</p>
<p>D. Required RCS loops inoperable.</p> <p><u>OR</u></p> <p>No RCS loop in operation.</p>	<p>D.1 Place the Rod Control System in a condition incapable of rod withdrawal.</p> <p><u>AND</u></p> <p>D.2 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>D.3 Initiate action to restore one RCS loop to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops - MODE 4

LCO 3.4.6 Two loops consisting of any combination of RCS loops and residual heat removal (RHR) loops shall be OPERABLE, and one loop shall be in operation.

-----NOTES-----

1. All reactor coolant pumps (RCPs) and RHR pumps may be removed from operation for ≤ 1 hour per 8 hour period provided:
 - a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
2. No RCP shall be started with any RCS cold leg temperature $\leq 275^\circ\text{F}$ unless the secondary side water temperature of each steam generator (SG) is $\leq 50^\circ\text{F}$ above each of the RCS cold leg temperatures.

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required loop inoperable.	A.1 Initiate action to restore a second loop to OPERABLE status.	Immediately
	AND A.2 ----- NOTE----- Only required if one RHR loop is OPERABLE. ----- Be in MODE 5.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required loops inoperable.</p> <p><u>OR</u></p> <p>No RCS or RHR loop in operation.</p>	<p>B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>B.2 Initiate action to restore one loop to OPERABLE status and operation.</p>	<p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.6.1 Verify one RHR or RCS loop is in operation.</p>	<p>12 hours</p>
<p>SR 3.4.6.2 Verify SG secondary side narrow range water levels are $\geq 4\%$ for required RCS loops.</p>	<p>12 hours</p>
<p>SR 3.4.6.3 Verify correct breaker alignment and indicated power are available to the required pump that is not in operation.</p>	<p>7 days</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7 One residual heat removal (RHR) loop shall be OPERABLE and in operation, and either:

- a. One additional RHR loop shall be OPERABLE; or
- b. The secondary side wide range water level of at least two steam generators (SGs) shall be $\geq 66\%$.

-----NOTES-----

- 1. The RHR pump of the loop in operation may be removed from operation for ≤ 1 hour per 8 hour period provided:
 - a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
 - 2. One required RHR loop may be inoperable for up to 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.
 - 3. No reactor coolant pump shall be started with any RCS cold leg temperature $\leq 275^\circ\text{F}$ unless the secondary side water temperature of each SG is $\leq 50^\circ\text{F}$ above each of the RCS cold leg temperatures.
 - 4. All RHR loops may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation.
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APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One RHR loop inoperable. <u>AND</u> Required SGs secondary side water levels not within limits.</p>	<p>A.1 Initiate action to restore a second RHR loop to OPERABLE status. <u>OR</u> A.2 Initiate action to restore required SG secondary side water levels to within limits.</p>	<p>Immediately Immediately</p>
<p>B. Required RHR loops inoperable. <u>OR</u> No RHR loop in operation.</p>	<p>B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1. <u>AND</u> B.2 Initiate action to restore one RHR loop to OPERABLE status and operation.</p>	<p>Immediately Immediately</p>

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

-----NOTES-----

1. All RHR pumps may be removed from operation for ≤ 1 hour provided:
 - a. The core outlet temperature is maintained at least 10°F below saturation temperature.
 - b. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
 - c. No draining operations to further reduce the RCS water volume are permitted.
2. One RHR loop may be inoperable for ≤ 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

-----NOTE-----

While this LCO is not met, entry into MODE 5, Loops Not Filled from MODE 5, Loops Filled is not permitted.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One required offsite circuit inoperable. (continued)</p>	<p>A.2.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.</p>	<p>Immediately</p>
<p>B. One required DG inoperable.</p>	<p>B.1 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>B.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>B.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	<p>(continued)</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required DG inoperable. (continued)	B.4 Initiate action to restore required DG to OPERABLE status.	Immediately
C. One required LSELS (shutdown portion) inoperable.	C.1 Declare the affected DG and offsite circuit inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY																
<p>SR 3.8.2.1</p> <p>-----NOTE----- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.10, SR 3.8.1.11, SR 3.8.1.14 through SR 3.8.1.16, and SR 3.8.1.18, (Shutdown Load Sequencer only). -----</p> <p>For AC sources required to be OPERABLE, the following SRs are applicable:</p> <table> <tr> <td>SR 3.8.1.1</td> <td>SR 3.8.1.11</td> </tr> <tr> <td>SR 3.8.1.2</td> <td>SR 3.8.1.14</td> </tr> <tr> <td>SR 3.8.1.3</td> <td>SR 3.8.1.15</td> </tr> <tr> <td>SR 3.8.1.4</td> <td>SR 3.8.1.16</td> </tr> <tr> <td>SR 3.8.1.5</td> <td>SR 3.8.1.18 (shutdown load sequencer only)</td> </tr> <tr> <td>SR 3.8.1.6</td> <td></td> </tr> <tr> <td>SR 3.8.1.7</td> <td>SR 3.8.1.21 (shutdown load sequencer only)</td> </tr> <tr> <td>SR 3.8.1.10</td> <td></td> </tr> </table>	SR 3.8.1.1	SR 3.8.1.11	SR 3.8.1.2	SR 3.8.1.14	SR 3.8.1.3	SR 3.8.1.15	SR 3.8.1.4	SR 3.8.1.16	SR 3.8.1.5	SR 3.8.1.18 (shutdown load sequencer only)	SR 3.8.1.6		SR 3.8.1.7	SR 3.8.1.21 (shutdown load sequencer only)	SR 3.8.1.10		In accordance with applicable SRs
SR 3.8.1.1	SR 3.8.1.11																
SR 3.8.1.2	SR 3.8.1.14																
SR 3.8.1.3	SR 3.8.1.15																
SR 3.8.1.4	SR 3.8.1.16																
SR 3.8.1.5	SR 3.8.1.18 (shutdown load sequencer only)																
SR 3.8.1.6																	
SR 3.8.1.7	SR 3.8.1.21 (shutdown load sequencer only)																
SR 3.8.1.10																	

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 The Train A or Train B DC electrical power subsystem shall be OPERABLE to support one train of the DC electrical power distribution subsystems required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Required DC electrical power subsystem inoperable.</p>	<p>A.1 Declare affected required feature(s) inoperable.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>A.2.1 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p>
<p><u>AND</u></p>		
<p>A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p>	<p>Immediately</p>	
<p><u>AND</u></p>		
<p>(continued)</p>		

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required DC electrical power subsystem inoperable. (continued)	A.2.4 Initiate action to restore required DC electrical power subsystem to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY									
<p>SR 3.8.5.1 -----NOTE----- The following SRs are not required to be performed: SR 3.8.4.6, SR 3.8.4.7, and SR 3.8.4.8.</p> <hr/> <p>For DC sources required to be OPERABLE, the following SRs are applicable:</p> <table data-bbox="487 1071 1055 1176"> <tr> <td>SR 3.8.4.1</td> <td>SR 3.8.4.4</td> <td>SR 3.8.4.7</td> </tr> <tr> <td>SR 3.8.4.2</td> <td>SR 3.8.4.5</td> <td>SR 3.8.4.8</td> </tr> <tr> <td>SR 3.8.4.3</td> <td>SR 3.8.4.6</td> <td></td> </tr> </table>	SR 3.8.4.1	SR 3.8.4.4	SR 3.8.4.7	SR 3.8.4.2	SR 3.8.4.5	SR 3.8.4.8	SR 3.8.4.3	SR 3.8.4.6		<p>In accordance with applicable SRs</p>
SR 3.8.4.1	SR 3.8.4.4	SR 3.8.4.7								
SR 3.8.4.2	SR 3.8.4.5	SR 3.8.4.8								
SR 3.8.4.3	SR 3.8.4.6									

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8 The Train A or Train B inverters shall be OPERABLE to support one train of the onsite Class 1E AC vital bus electrical power distribution subsystems required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more required inverters inoperable.</p>	<p>A.1 Declare affected required feature(s) inoperable.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>A.2.1 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p>
<p><u>AND</u></p>		
<p>A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p>	<p>Immediately</p>	
<p><u>AND</u></p>		

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable. (continued)	A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.8.1 Verify correct inverter voltage, and alignments to required AC vital buses.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10 The necessary portion of the Train A or Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE to support one train of equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more required AC, DC, or AC vital bus electrical power distribution subsystems inoperable.</p>	<p>A.1 Declare associated supported required feature(s) inoperable.</p> <p><u>OR</u></p>	<p>Immediately</p>
	<p>A.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p>	<p>Immediately</p>
	<p>A.2.2 Suspend movement of irradiated fuel assemblies.</p> <p><u>AND</u></p>	<p>Immediately</p>
	<p>A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.</p> <p><u>AND</u></p>	<p>Immediately</p>
	<p><u>AND</u></p>	<p>(continued)</p>

3.9 REFUELING OPERATIONS

3.9.3 Nuclear Instrumentation

LCO 3.9.3 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required source range neutron flux monitor inoperable.	A.1 Suspend CORE ALTERATIONS. <u>AND</u> A.2 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately Immediately
B. Two required source range neutron flux monitors inoperable.	B.1 Initiate action to restore one source range neutron flux monitor to OPERABLE status. <u>AND</u> B.2 Perform SR 3.9.1.1.	Immediately Once per 12 hours

3.9 REFUELING OPERATIONS

3.9.5 Residual Heat Removal (RHR) and Coolant Circulation - High Water Level

LCO 3.9.5 One RHR loop shall be OPERABLE and in operation.

----- NOTE -----
 The required RHR loop may be removed from operation for ≤ 1 hour per 8 hour period, provided no operations are permitted that would cause introduction into the Reactor Coolant System, coolant with boron concentration less than that required to meet the minimum required boron concentration of LCO 3.9.1.

APPLICABILITY: MODE 6 with the water level ≥ 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RHR loop requirements not met.	A.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
	<u>AND</u>	
	A.2 Suspend loading irradiated fuel assemblies in the core.	Immediately
	<u>AND</u>	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RHR loop requirements not met. (continued)	A.3 Initiate action to satisfy RHR loop requirements.	Immediately
	<u>AND</u> A.4 Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.5.1 Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 1000 gpm.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR loop in operation.	B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet the boron concentration of LCO 3.9.1.	Immediately
	<u>AND</u>	
	B.2 Initiate action to restore one RHR loop to operation.	Immediately
	<u>AND</u>	
	B.3 Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.6.1 Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 1000 gpm.	12 hours
SR 3.9.6.2 Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	7 days