

### 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2 and LCO 3.0.7.

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LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.

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LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

- a. MODE 2 within 7 hours;
- b. MODE 3 within 13 hours; and
- c. MODE 4 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, and 3.

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LCO 3.0.4 When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS.

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## LCO APPLICABILITY

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LCO 3.0.4  
(continued)

Exceptions to this Specification are stated in the individual Specifications. These exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered allow unit operation in the MODE or other specified condition in the Applicability only for a limited period of time.

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LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY, or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

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LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, additional evaluations and limitations may be required in accordance with Specification 5.6, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

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LCO 3.0.7

Special Operations LCOs in Section 3.10 allow specified Technical Specifications (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Special Operations LCOs is optional. When a Special Operations LCO is desired to be met but is not met, the ACTIONS of the Special Operations LCO shall be met. When a Special Operations LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with the other applicable Specifications.

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### 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

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SR 3.0.1                SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

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SR 3.0.2                The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

For Frequencies specified as “once,” the above interval extension does not apply.

If a Completion Time requires periodic performance on a “once per ...” basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this Specification are stated in the individual Specifications.

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SR 3.0.3                If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is less. This delay period is permitted to allow performance of the Surveillance.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

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### 3.0 SR APPLICABILITY

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SR 3.0.4            Entry into a MODE or other specified condition in the Applicability of an LCO shall not be made unless the LCO's Surveillances have been met within their specified Frequency. This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS.

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## 3.1 REACTIVITY CONTROL SYSTEMS

## 3.1.1 SHUTDOWN MARGIN (SDM)

LCO 3.1.1 SDM shall be:

- a.  $\geq 0.38\% \Delta k/k$ , with the highest worth control rod or rod pair analytically determined; or
- b.  $\geq 0.28\% \Delta k/k$ , with the highest worth control rod or rod pair determined by test.

APPLICABILITY: MODES 1, 2, 3, 4, and 5.

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limits in MODE 1 or 2.	A.1 Restore SDM to within limits.	6 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3.	12 hours
C. SDM not within limits in MODE 3.	C.1 Initiate action to fully insert all insertable control rods.	Immediately
D. SDM not within limits in MODE 4.	D.1 Initiate action to fully insert all insertable control rods.  <u>AND</u> D.2 Initiate action to restore secondary containment to OPERABLE status.	Immediately   1 hour

(continued)

## ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	<u>AND</u>	
	D.3 Initiate action to restore one standby gas treatment (SGT) subsystem to OPERABLE status.	1 hour
	<u>AND</u>	
	D.4 Initiate action to restore one isolation valve and associated instrumentation to OPERABLE status in each required secondary containment penetration flow path not isolated.	1 hour
E. SDM not within limits in MODE 5.	E.1 Suspend CORE ALTERATIONS except for control rod insertion and fuel assembly removal.	Immediately
	<u>AND</u>	
	E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>AND</u>	
	E.3 Initiate action to restore secondary containment to OPERABLE status.	1 hour
	<u>AND</u>	

(continued)

## ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. (continued)	E.4 Initiate action to restore one SGT subsystem to OPERABLE status.	1 hour
	<u>AND</u> E.5 Initiate action to restore one isolation valve and associated instrumentation to OPERABLE status in each required secondary containment penetration flow path not isolated.	1 hour

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.1.1      Verify SDM is: <ul style="list-style-type: none"> <li>a. <math>\geq 0.38\% \Delta k/k</math> with the highest worth control rod or control rod pair analytically determined; or</li> <li>b. <math>\geq 0.28\% \Delta k/k</math> with the highest worth control rod or control rod pair determined by test.</li> </ul>	Prior to each in vessel fuel movement during fuel loading sequence  <u>AND</u>  Once within 4 hours after criticality following fuel movement within the reactor pressure vessel or control rod replacement

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.2 Reactivity Anomalies

LCO 3.1.2            The reactivity difference between the monitored core  $k_{\text{eff}}$  and the predicted core  $k_{\text{eff}}$  shall be within  $\pm 1\% \Delta k/k$ .

APPLICABILITY:    MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Core reactivity difference not within limit.	A.1    Restore core reactivity difference to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1    Be in MODE 3.	12 hours



SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	Verify core reactivity difference between the monitored core $k_{\text{eff}}$ and the predicted core $k_{\text{eff}}$ is within $\pm 1\% \Delta k/k$ .	<p>Once within 24 hours after reaching equilibrium conditions following startup after fuel movement within the reactor pressure vessel or control rod replacement</p> <p><u>AND</u></p> <p>1000 MW • d/t thereafter during operations in MODE 1</p>

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.3 Control Rod OPERABILITY

LCO 3.1.3 Each control rod shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each control rod.  
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CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One withdrawn control rod stuck.	<p>-----NOTE----- A stuck rod may be bypassed in the Rod Action and Position Information (RAPI) Subsystem in accordance with SR 3.3.5.1.7 required to allow continued operation. -----</p>	2 hours
	<p>A.1 Disarm the associated control rod drive (CRD).</p> <p><u>AND</u></p> <p>A.2 -----NOTE----- Not applicable when less than or equal to the low power setpoint (LPSP) of the Rod Control and Information System (RCIS). -----</p>	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	Perform SR 3.1.3.2 and SR 3.1.3.3 for each withdrawn OPERABLE control rod.	24 hours
	<u>AND</u> A.3 Perform SR 3.1.1.1.	72 hours
B. Two or more withdrawn control rods stuck.	B.1 Disarm the associated CRD.	2 hour
	<u>AND</u> B.2 Be in MODE 3.	12 hours
C. One or more control rods inoperable for reasons other than Condition A or B.	<p>-----NOTE-----</p> <p>1. Inoperable control rods may be bypassed in the RAPI Subsystem in accordance with SR 3.3.5.1.7, if required, to allow insertion of inoperable control rod and continued operation.</p> <p>2. Inoperable control rods with failed motor drives can only be fully inserted by individual scram.</p> <p>-----</p>	
	C.1 Fully insert inoperable control rod	3 hours
	<u>AND</u>	
	C.2 Disarm the associated CRD.	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. -----NOTE----- Not applicable when THERMAL POWER > 10% RTP. -----  Two or more inoperable control rods not in compliance with Ganged Withdrawal Sequence Restrictions (GWSR) and not separated by two or more OPERABLE control rods.	D.1      Restore compliance with GWSR.  <u>OR</u>  D.2      Restore control rod to OPERABLE status.	4 hours    4 hours
E. Required Action and associated Completion Time of Condition A, C, or D not met.  <u>OR</u>  Nine or more control rods inoperable.	E.1      Be in MODE 3.	12 hours

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Determine the position of each control rod.	24 hours
SR 3.1.3.2	<p>-----NOTE----- Not required to be performed until 7 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RCIS. -----</p> <p>Insert each fully withdrawn control rod two notches.</p>	7 days
SR 3.1.3.3	<p>-----NOTE----- Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RCIS. -----</p> <p>Insert each partially withdrawn control rod two notches.</p>	31 days
SR 3.1.3.4	Verify each control rod scram time from fully withdrawn to 60% rod insertion position is $\leq [ ]$ seconds.	In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4
SR 3.1.3.5	Verify each control rod does not go to the withdrawn overtravel position.	<p>Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling</p> <p><u>AND</u></p> <p>Once the first time the control rod is withdrawn to “full out” position after the associated orificed fuel support has been moved</p>

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Control Rod Scram Times

- LCO 3.1.4
- a. No more than [8] OPERABLE control rods shall be “slow,” in accordance with Table 3.1.4-1; and
  - b. No more than 2 OPERABLE control rods that are “slow” shall occupy adjacent locations.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----

During single or pair control rod scram time Surveillances, the control rod drive (CRD) pumps shall be isolated from the associated scram accumulator.

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SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify each control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure $\geq 6.55$ MPaG.	Prior to exceeding 40% RTP after fuel movement within the reactor pressure vessel  <u>AND</u>  Prior to exceeding 40% RTP after each reactor shutdown $\geq 120$ days
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure $\geq 6.55$ MPaG.	120 days cumulative operation in MODE 1
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure $\geq 6.55$ MPaG.	Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

Table 3.1.4-1  
Control Rod Scram Times

-----NOTES-----

1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
  2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod Operability," for control rods with scram times > [ ] seconds to 60% rod insertion position. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."
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ROD POSITION PERCENT INSERTION (%)	SCRAM TIMES <sup>(a)</sup> (seconds)		
	REACTOR STEAM DOME PRESSURE <sup>(b)</sup> 0 MPaG	REACTOR STEAM DOME PRESSURE <sup>(b)</sup> 6.55 MPaG	REACTOR STEAM DOME PRESSURE <sup>(b)</sup> 7.24 MPaG
10	(c)	[ ]	[ ]
40	(c)	[ ]	[ ]
60		[ ]	[ ]

- (a) Maximum scram time from fully withdrawn position, based on de-energization of scram pilot valve solenoids as time zero.
- (b) For intermediate reactor steam dome pressures, the scram time criteria are determined by linear interpolation.
- (c) For reactor steam dome pressure  $\leq 6.55$  MPaG, only 60% rod insertion position scram time limit applies.



### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.5 Control Rod Scram Accumulators

LCO 3.1.5 Each control rod scram accumulator shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each control rod scram accumulator.  
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CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One control rod scram accumulator inoperable.	A.1 Declare the associated control rod(s) inoperable.	8 hours
B. Two or more control rod scram accumulators inoperable.	B.1 Declare the associated control rod(s) inoperable.	1 hour
C. Required Action and associated Completion Time of Required Action A.1 or B.1 not met.	C.1 -----NOTE----- Not applicable if all inoperable control rod scram accumulators are associated with fully inserted control rods. ----- Place the reactor mode switch in the shutdown position.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each control rod scram accumulator pressure is $\geq 12.75$ MPaG.	7 days

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.6 Rod Pattern Control

LCO 3.1.6 OPERABLE control rods shall comply with the requirements of the Ganged Withdrawal Sequence Restrictions (GWSR).

APPLICABILITY: MODES 1 and 2 with THERMAL POWER  $\leq$  10% RTP.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more OPERABLE control rods not in compliance with GWSR.	A.1 -----NOTE----- Affected control rods may be bypassed in the Rod Action and Position Information (RAPI) Subsystem in accordance with SR 3.3.5.1.7. -----	8 hours
	Move associated control rod(s) to correct position.	
	<u>OR</u> A.2 Declare associated control rod(s) inoperable.	8 hours
B. Nine or more OPERABLE control rods not in compliance with GWSR.	B.1 -----NOTE----- Affected control rods may be bypassed in the RAPI Subsystem in accordance with SR 3.3.5.1.7 for insertion only. -----	Immediately
	Suspend withdrawal of control rods. <u>AND</u>	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Place the reactor mode switch in the Shutdown position.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify all OPERABLE control rods comply with GWSR.	24 hours

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Concentration of boron in solution not within limits.	A.1 Restore concentration of boron in solution to within limits.	72 hours  <u>AND</u>  10 days from discovery of failure to meet the LCO
B. One SLC subsystem inoperable for reasons other than Condition A.	B.1 Restore SLC subsystem to OPERABLE status.	7 days  <u>AND</u>  10 days from discovery of failure to meet the LCO
C. Two SLC subsystems inoperable for reasons other than Condition A.	C.1 Restore one SLC subsystem to OPERABLE status.	8 hours
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	12 hours

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is $\geq 23.1 \text{ m}^3$ .	24 hours
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is within the limits of Figure 3.1.7-1.	24 hours
SR 3.1.7.3	Verify the concentration of boron in solution is within the limits of Figure 3.1.7-1.	<p>31 days</p> <p><u>AND</u></p> <p>Once within 24 hours after water or boron is added to solution</p> <p><u>AND</u></p> <p>Once within 24 hours after solution temperature is restored within the limits of Figure 3.1.7-1</p>
SR 3.1.7.4	Verify each SLC subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position.	31 days
SR 3.1.7.5	Verify each pump develops a flow rate $\geq 11.4 \text{ m}^3/\text{h}$ at a discharge pressure $\geq 8.43 \text{ MPaG}$ .	92 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.6	Verify one complete cycle of each motor operated valve.	92 days
SR 3.1.7.7	Verify flow through one SLC subsystem from pump into reactor pressure vessel.	18 months on a STAGGERED TEST BASIS
SR 3.1.7.8	Verify that simultaneous operation of both pumps develop a flow rate $\geq 22.7 \text{ m}^3/\text{h}$ at a pressure $\geq 8.43 \text{ MPaG}$ .	18 months

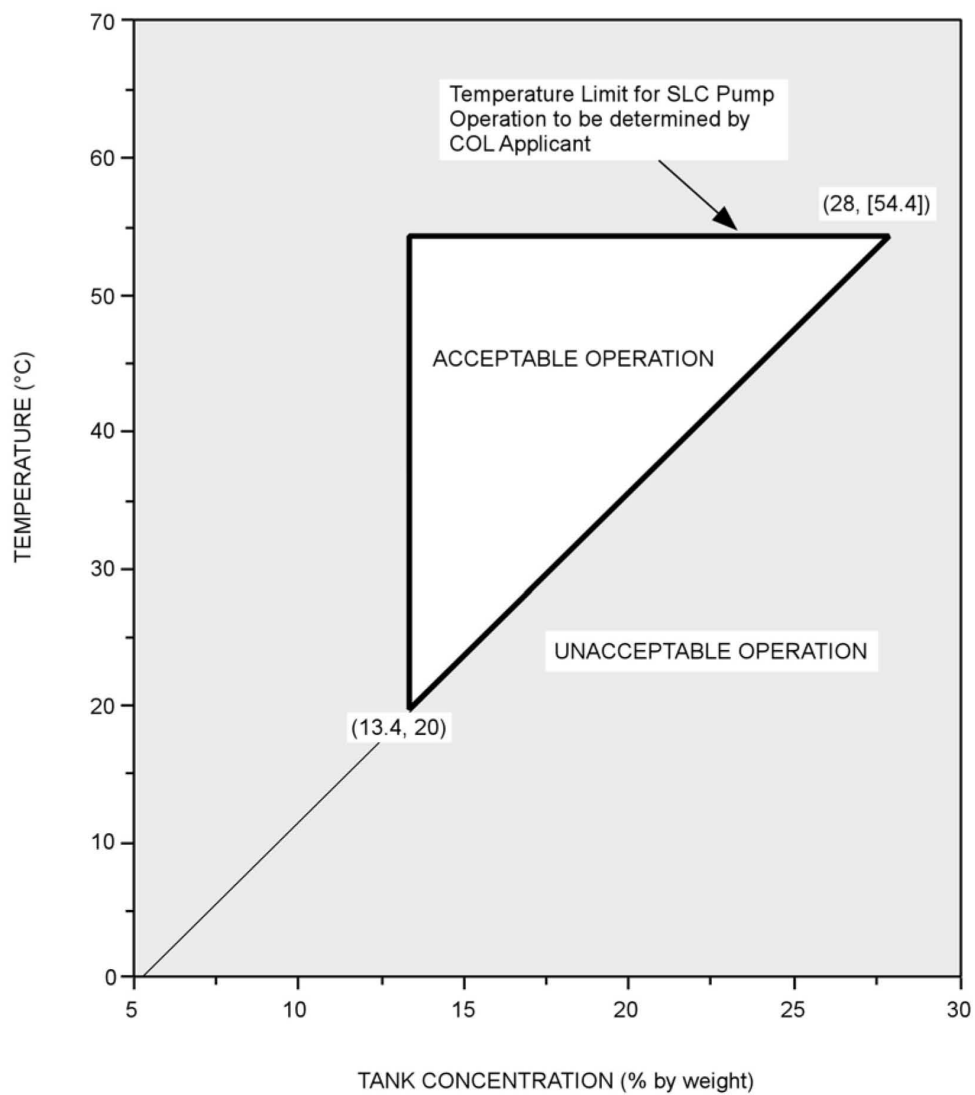


Figure 3.1.7-1 (Page 1 of 1)

Sodium Pentaborate Solution Temperature / Concentration Requirements



## 3.2 POWER DISTRIBUTION LIMITS

### 3.2.1 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

LCO 3.2.1 All APLHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER  $\geq$  25% RTP.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any APLHGR not within limits.	A.1 Restore APLHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.1.1 Verify all APLHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after $\geq$ 25% RTP  <u>AND</u>  24 hours thereafter

## 3.2 POWER DISTRIBUTION LIMITS

### 3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR)

LCO 3.2.2 All MCPRs shall be greater than or equal to the MCPR operating limits specified in the COLR.

APPLICABILITY: THERMAL POWER  $\geq$  25% RTP.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any MCPR not within limits.	A.1 Restore MCPR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.2.1 Verify all MCPRs are greater than or equal to the limits specified in the COLR.	Once within 12 hours after $\geq$ 25% RTP  <u>AND</u>  24 hours thereafter

## 3.2 POWER DISTRIBUTION LIMITS

### 3.2.3 LINEAR HEAT GENERATION RATE (LHGR) (Non-GE Fuel)

LCO 3.2.3 All LHGRs shall be less than or equal to the limits specified in the COLR.

APPLICABILITY: THERMAL POWER  $\geq$  25% RTP.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any LHGR not within limits.	A.1 Restore LHGR(s) to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to < 25% RTP.	4 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.3.1 Verify all LHGRs are less than or equal to the limits specified in the COLR.	Once within 12 hours after $\geq$ 25% RTP  <u>AND</u>  24 hours thereafter

### 3.3 INSTRUMENTATION

### 3.3.1.1 Safety System Logic and Control (SSLC) Sensor Instrumentation

LCO 3.3.1.1 The SSLC instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.1-1.

## ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required SENSOR CHANNEL inoperable.	A.1 Place SENSOR CHANNEL in trip.	6 hours
	<u>OR</u>	
	A.2.1.1 -----NOTE----- Applies only to Functions 3 through 33. -----	
	Place affected division in division of sensors bypass	6 hours
	<u>OR</u>	
	A.2.1.2 -----NOTE----- Applies only to Functions 1 & 2. -----	
	Place channel in bypass at Neutron Monitoring System.	6 hours
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.2.2.1 Restore required channel to OPERABLE status.</p> <p><u>OR</u></p> <p>A.2.2.2 -----NOTE-----</p> <ol style="list-style-type: none"> <li>1. Remove division of sensors bypass or NMS channel bypass after placing channel in trip.</li> <li>2. Division of sensor bypass or NMS bypass is allowed for [6] hours for restoring channel to OPERABLE status.</li> <li>3. SENSOR CHANNEL(s) may be considered to remain in a tripped condition when a division containing tripped channel(s) is placed in division of sensors bypass due to subsequent entries into this condition.</li> </ol> <p>-----</p> <p>Place channel in trip.</p>	30 days
		30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with two required SENSOR CHANNELS inoperable.	B.1 Place one channel in trip.	3 hours
	<u>AND</u>	
	B.2.1 -----NOTE----- Applies only to Functions 3 through 33. -----	
	Place the other affected division in division of sensors bypass.	6 hours
	<u>OR</u>	
	B.2.2 -----NOTE----- Applies only to Functions 1 & 2. -----	
	Place the other affected channel in bypass.	6 hours
	<u>AND</u>	
	B.3 Restore at least one required channel to OPERABLE status.	30 days
C. One or more Functions with three required SENSOR CHANNELS inoperable.	C.1 Place one channel in trip.	Immediately
	<u>AND</u>	
	C.2 Restore at least one required channel to OPERABLE status.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more Functions with four required SENSOR CHANNELS inoperable.	D.1 Place one channel in trip.	Immediately
	<u>AND</u> D.2 Restore at least one required channel to OPERABLE status.	1 hour
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Enter the Condition referenced in Table 3.3.1.1-1 for the Function.	Immediately
F. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	F.1 Reduce THERMAL POWER to below the level listed in Table 3.3.1.1-1 for the Function.	4 hours
G. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	G.1 Be in MODE 2.	6 hours
H. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	H.1 Be in MODE 3.	12 hours
I. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	I.1 Initiate action to insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	J.1 Initiate action to place the reactor power/flow relationship outside of the region of applicability shown in Figure 3.3.1.1-1.	Immediately
	<u>OR</u> J.2 Initiate alternate method to detect and suppress thermal hydraulic instability oscillations.	Immediately
K. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	K.1 Isolate the affected penetration flow path(s).	1 hour
L. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	L.1 Isolate the affected penetration flow path(s).	Immediately
	<u>OR</u> L.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u> L.2.2 -----NOTE----- Applies only to Function 24. -----  Suspend movement of irradiated fuel assemblies in the containment.	Immediately
	<u>AND</u> L.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	<p>-----NOTE----- Only applicable if RCIC and/or HPCF pump suction is not aligned to the suppression pool. -----</p> <p>M.1     Align RCIC and HPCF suction to the suppression pool.</p>	1 hour from discovery of loss of transfer capability.
N. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	N.1     Declare supported feature(s) inoperable.	1 hour
O. Required Action and associated Completion Time of Condition M.1 not met.	O.1     Declare supported feature(s) inoperable.	Immediately
P. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	<p>P.1     Be in MODE 3.</p> <p><u>AND</u></p> <p>P.2     Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>
Q. As required by Required Action E.1 and referenced in Table 3.3.1.1-1.	<p>Q.1     Isolate the associated penetration flow path(s)</p> <p><u>OR</u></p> <p>Q.2.1   Be in MODE 3.</p> <p><u>AND</u></p> <p>Q.2.2   Be in MODE 4.</p>	<p>12 hours</p> <p>12 hours</p> <p>36 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
R. Required Action and associated Completion Time of Condition K.1 not met.	R.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	R.2 Be in MODE 4.	36 hours

## SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.1.1-1 to determine which SRs apply for each SSLC Sensor Instrumentation Function.  
-----

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform SENSOR CHANNEL CHECK.	12 hours
SR 3.3.1.1.2	<p>-----NOTE----- Only required to be met with THERMAL POWER <math>\geq 25\%</math> RTP. -----</p> <p>Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is <math>\leq 2\%</math> RTP</p>	[7] days
SR 3.3.1.1.3	<p>-----NOTE----- Not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. -----</p> <p>Perform DIVISION FUNCTIONAL TEST.</p>	[7] days
SR 3.3.1.1.4	Perform DIVISION FUNCTIONAL TEST.	[32] days
SR 3.3.1.1.5	Perform DIVISION FUNCTIONAL TEST	[92] days
SR 3.3.1.1.6	Perform CHANNEL FUNCTIONAL TEST	[92] days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.7	Calibrate the local power range monitors.	1000 MW·d/t average core exposure
SR 3.3.1.1.8	<p>-----NOTE-----</p> <ol style="list-style-type: none"> <li>1. Required to be met with THERMAL POWER <math>\leq 5\%</math> RTP prior to entry into MODE 1 from MODE 2.</li> <li>2. Required to be met prior to entry into MODE 2 from MODE 1.</li> </ol> <p>-----</p> <p>Verify the SRNM and APRM channels overlap within at least 1/2 decade.</p>	[7] days
SR 3.3.1.1.9	<p>-----NOTE-----</p> <p>Radiation and Neutron detectors are excluded.</p> <p>-----</p> <p>Perform COMPREHENSIVE FUNCTIONAL TEST.</p>	18 months
SR 3.3.1.1.10	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Neutron detectors are excluded.</li> <li>2. SENSOR CHANNEL CALIBRATION shall include calibration of all parameters used to calculate setpoints (e.g., recirculation flow for TPM setpoint) and all parameters used for trip function bypasses (e.g., NMS simulated thermal power).</li> </ol> <p>-----</p> <p>Perform SENSOR CHANNEL CALIBRATION.</p>	18 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.11	Perform CHANNEL CALIBRATION	18 months
SR 3.3.1.1.12	<p>-----NOTE----- Neutron detectors are excluded. -----</p> <p>Verify RPS RESPONSE TIME is within limits.</p>	18 months
SR 3.3.1.1.13	Verify ECCS RESPONSE TIME is within limits.	18 months
SR 3.3.1.1.14	<p>-----NOTE----- Neutron detectors are excluded. -----</p> <p>Verify ISOLATION RESPONSE TIME is within limits.</p>	18 months

Table 3.3.1.1-1 (Page 1 of 9)  
SSLC Sensor Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Startup Range Neutron Monitors					
1a. SRNM Neutron Flux – High	2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] % RTP
	5 <sup>(a)</sup>	4	I	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] % RTP
1b. SRNM Neutron Flux – Short Period	2 <sup>(b)</sup>	4	H	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] Seconds
	5 <sup>(a) (b)</sup>	4	I	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] Seconds
1c. SRNM ATWS Permissive	1,2	4	H	SR 3.3.1.1.5 SR 3.3.1.1.9	≤ [ ] RTP for ≥ [ ] min
1d. SRNM - Inop	1,2	4	H	SR 3.3.1.1.3 SR 3.3.1.1.9	NA
	5 <sup>(a)</sup>	4	I	SR 3.3.1.1.4 SR 3.3.1.1.9	
2. Average Power Range Monitors					
2a. APRM Neutron Flux – High, Setdown	2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.7 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] % RTP

Table 3.3.1.1-1 (Page 2 of 9)  
SSLC Sensor Instrumentation

FUNCTION		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2b.	APRM Simulated Thermal Power – High, Flow Biased	1	4	G	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.5 SR 3.3.1.1.7 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	$\leq [W + ]\%$ RTP and $\leq [ ]\%$ RTP
2c.	APRM Fixed Neutron Flux – High	1	4	G	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.5 SR 3.3.1.1.7 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	$[ ]\%$ RTP
2d.	APRM - Inop	1,2	4	H	SR 3.3.1.1.5 SR 3.3.1.1.7 SR 3.3.1.1.9	NA
2e.	Rapid Core Flow Decrease	$\geq [80]\%$ RTP	4	F	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	$\geq [ ]\%/s$
2f.	Oscillation Power Range Monitor.	Per Figure 3.3.1.1-1	4	J	SR 3.3.1.1.5 SR 3.3.1.1.7 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	See footnote (c)
2g.	APRM ATWS ADS Permissive	1,2	4	H	SR 3.3.1.1.5 SR 3.3.1.1.9	$\leq [ ]$ RTP for $\geq [ ]$ min
3.	Reactor Vessel Steam Dome Pressure – High					
3a.	RPS Trip Initiation	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	$\leq [ ]$ MPaG

Table 3.3.1.1-1 (Page 3 of 9)  
SSLC Sensor Instrumentation

FUNCTION		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3b.	Isolation Initiation	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	$\leq [ ]$ MPaG
3c.	SLCS and FWRB Initiation	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.6 SR 3.3.1.1.11	$\leq [ ]$ MPaG
4.	Reactor Steam Dome Pressure – Low (Injection Permissive)	1,2,3	4	N	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13	$\leq [ ]$ MPaG
5.	Reactor Vessel Water Level – High, Level 8	1,2,3 4 <sup>(e)</sup> ,5 <sup>(e)</sup>	4	N	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	$\leq [ ]$ cm
6.	Reactor Vessel Water Level – Low, Level 3					
6a.	RPS Trip Initiation.	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	$\geq [ ]$ cm
6b.	Isolation Initiation.	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	$\geq [ ]$ cm
		(f)	4	L	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	



Table 3.3.1.1-1 (Page 4 of 9)  
SSLC Sensor Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Reactor Vessel Water Level - Low, Level 2					
7a. ESF Initiation	1,2,3	4	N	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13	≥ [ ] cm
7b. Isolation Initiation.	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	≥ [ ] cm
	(f)	4	L	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	
7c. SLCS and FWRB Initiation	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.6 SR 3.3.1.1.11	≥ [ ] cm
8. Reactor Vessel Water Level – Low, Level 1.5					
8a. ESF Initiation.	1,2,3 4 <sup>(e)</sup> ,5 <sup>(e)</sup>	4	N	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13	≥ [ ] cm
8b. Isolation Initiation.	1,2,3	4	Q	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	≥ [ ] cm
8c. ATWS ADS Inhibit.	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	≥ [ ] cm

Table 3.3.1.1-1 (Page 5 of 9)  
SSLC Sensor Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
9. Reactor Vessel Water Level – Low, Level 1					
9a. ADS A, CAMS A, LPFL A & LPFL C Initiation	1,2,3 4 <sup>(e)</sup> ,5 <sup>(e)</sup>	4	N	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13	≥ [ ] cm
9b. ADS B, Diesel Generator, RCW, CAMS B, & LPFL B Initiation	1,2,3 4 <sup>(e)</sup> ,5 <sup>(e)</sup>	4	N	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13	≥ [ ] cm
9c. Isolation Initiation	1,2,3	4	Q	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	≥ [ ] cm
10. Main Steam Isolation Valve - Closure	1	4	G	SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	≤ [ ]% closed
11. Drywell Pressure – High					
11a. RPS Initiation.	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	≤ [ ] MPaG
11b. ESF Initiation.	1,2,3	4	P	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13	≤ [ ] MPaG
11c. Isolation Initiation.	1,2,3	4	Q	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ [ ] MPaG

Table 3.3.1.1-1 (Page 6 of 9)  
SSLC Sensor Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
11d. Feedwater Line Break Mitigation Initiation.	1,2,3	4	P	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13	≤ [ ] MPaG
12. CRD Water Header Charging Pressure - Low	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] MPaG
	5 <sup>(a)</sup>	4	I	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	
13. Turbine Stop Valve - Closure	≥ [40]% RTP	4	F	SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	≤ [ ]% closed
14. Turbine Control Valve Fast Closure, Trip Oil Pressure – Low	≥ [40]% RTP	4	F	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	≥ [ ] MPaG oil pressure
15. Feedwater Line Differential Pressure - High	1,2,3	4	P	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13	≤ [ ] MPaD
16. Suppression Pool Temperature - High					
16a. RPS Initiation.	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.12	≤ [ ] °C
16b. ESF Initiation.	1,2,3	4	N	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] °C

Table 3.3.1.1-1 (Page 7 of 9)  
SSLC Sensor Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
17. Condensate Storage Tank Level - Low	1,2,3 4 <sup>(e)</sup> ,5 <sup>(e)</sup>	4	M	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	≥ [ ] cm
18. Suppression Pool Water Level - High	1,2,3 4 <sup>(e)</sup> ,5 <sup>(e)</sup>	4	M	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] cm
19. Main Steam Line Pressure – Low	1	4	G	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] MPaG
20. Main Steam Line Flow — High	1,2,3	4 per MSL	Q	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	≥ kg/hr
21. Condenser Vacuum – Low	1,2 <sup>(d)</sup> ,3 <sup>(d)</sup>	4	Q	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	≥ [ ] MPaG
22. Main Steam Tunnel Temperature – High	1,2,3	4	Q	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] °C
23. Main Turbine Area Temperature - High	1,2,3	4	Q	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	≤ [ ] °C
24a.Reactor Building Area Exhaust Air Radiation - High	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	≤ [ ] gray
	(f), (g)	4	L	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	

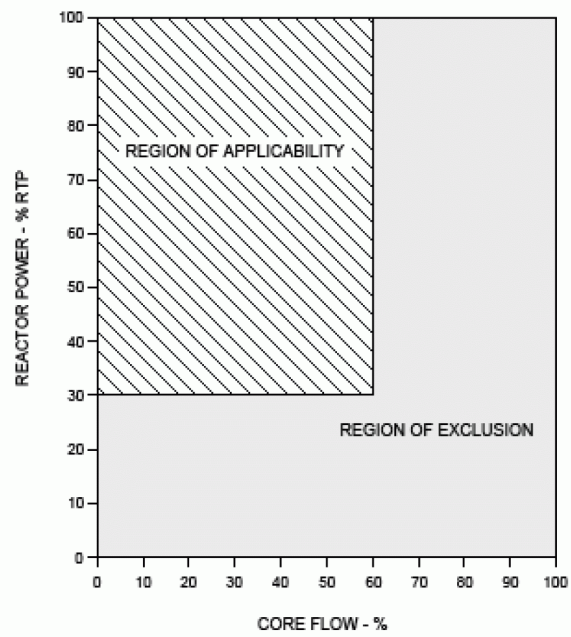
Table 3.3.1.1-1 (Page 8 of 9)  
SSLC Sensor Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
24b. Fuel Handling Area Exhaust Air Radiation - High	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	$\leq [ ]$ gray
	(f),(g)	4	L	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.14	
25. RCIC Steam Line Flow – High	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	$\geq$ kg/hr
26. Not Used					
27. RCIC Equipment Area Temperature – High	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	$\leq [ ]$ °C
28. RHR Area Temperature - High	2,3	4 each RHR area	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	$\leq [ ]$ °C
29. CUW Differential Flow – High	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	$\leq [ ]$ Liters/min for $\leq [ ]$ Seconds
30. CUW Regenerative Heat Exchanger Area Temperature – High	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	$\leq [ ]$ °C
31. CUW non-regenerative Heat Exchanger Area Temperature – High	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	$\leq [ ]$ °C

Table 3.3.1.1-1 (Page 9 of 9)  
SSLC Sensor Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
32. CUW Equipment Area Temperature – High	1,2,3	4	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	$\leq [ ]^{\circ}\text{C}$
33. RCW/RSW Heat Exchanger Room Water Level – High	(h)	4 each RCW/RSW HX Room	K	SR 3.3.1.1.1 SR 3.3.1.1.5 SR 3.3.1.1.9 SR 3.3.1.1.10	$\leq [ ]\text{ m}$

- (a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.
- (b) Trip automatically bypassed within each SRNM and not required to be OPERABLE at reactor power levels  $\leq [0.0001]\%$  RTP.
- (c) 1. Neutron flux oscillations within any OPRM cell have a period between [1.0] seconds and [3.5] seconds that persists for [10] cycles with a peak to peak amplitude of that is [10]% of point or greater.
- 2. Neutron flux oscillations within any OPRM cell that have a period between [0.31] and [2.2] seconds become larger than [30]% of point within [3] periods or oscillations with the specified period range that are greater than [10]% of point grow by [30]% of point within [3] cycles.
- (d) With any Turbine Stop Valve not fully closed.
- (e) When associated features are required to be operable.
- (f) During CORE ALTERATIONS or operations with a potential for draining the reactor vessel.
- (g) During movement of irradiated fuel assemblies in the secondary containment.
- (h) When RSW pumps are required to be OPERABLE or in operation.



**FIGURE 3.3.1.1-1**  
**OSCILLATION POWER RANGE FUNCTION CONDITIONS OF OPERABILITY**

### 3.3 INSTRUMENTATION

3.3.1.2 Reactor Protection System (RPS) and Main Steam Isolation Valve (MSIV) Actuation

LCO 3.3.1.2 The RPS and MSIV Actuation Functions in Table 3.3.1.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.2-1.

-----NOTE-----  
Separate condition entry is allowed for each channel.  
-----

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel inoperable.	-----NOTE----- Only applicable to Functions 1a, 2a, and 5. -----	
	A.1 Place affected division in trip.	6 hours
	<u>OR</u>	
	A.2.1 Place affected division in TLU logic output bypass.	6 hours
	<u>AND</u>	
	A.2.2.1 Restore required channel(s) to OPERABLE status	30 days
	<u>OR</u>	
	A.2.2.2 Place affected division in trip.	30 days



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with two channels inoperable.	<p>-----NOTE----- Only applicable to Functions 1a, 2a, and 5. -----</p>	
	<p>B.1 Place one affected division in trip.</p> <p><u>AND</u></p>	3 hours
	<p>B.2 Place the other affected division in TLU logic output bypass.</p> <p><u>AND</u></p>	6 hours
	<p>B.3 Restore at least one inoperable channel to OPERABLE status.</p>	30 days
C. One or more Functions with three channels inoperable.	<p>-----NOTE----- Only applicable to Functions 1a, 2a, and 5. -----</p>	
	<p>C.1 Place one affected division in trip.</p> <p><u>AND</u></p>	Immediately
	<p>C.2 Restore at least one inoperable channel to OPERABLE status</p>	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more Functions with four channels inoperable.	<p>-----NOTE----- Only applicable to Functions 1a, 2a, and 5. -----</p> <p>D.1 Place one affected division in trip.</p> <p><u>AND</u></p> <p>D.2 Restore at least one inoperable channel to OPERABLE status</p>	<p>Immediately</p> <p>1 hour</p>
E. One or more Functions with one OUTPUT CHANNEL inoperable.	<p>-----NOTE----- Only applicable to Functions 1.b and 2.b. -----</p> <p>E.1 Place inoperable channel in trip</p>	<p>6 hours</p>
F. One or more Functions with two OUTPUT CHANNELs inoperable.	<p>-----NOTE----- Only applicable to Functions 1b and 2b. -----</p> <p>F.1 Place one inoperable channel in trip.</p> <p><u>AND</u></p> <p>F.2 Restore at least one inoperable channel to OPERABLE status.</p>	<p>1 hour</p> <p>7 days</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. One or more Functions with three or more OUTPUT CHANNELs inoperable.	<p>-----NOTE----- Only applicable to Functions 1b and 2b. -----</p> <p>G.1 Restore at least two channels to OPERABLE status.</p>	1 hour
H. One or more Reactor Mode Switch-Shutdown Position channels inoperable.	H.1 Restore required channel to OPERABLE status.	1 hour
I. One RPS manual scram channel inoperable.	<p>I.1 Place affected division in trip.</p> <p><u>AND</u></p> <p>I.2 Restore required channel to OPERABLE status.</p>	<p>1 hour</p> <p>30 days</p>
J. Required Action and associated Completion Time not met for Conditions A, B, C, D, E, F, G, H, or I in MODE 1 or 2.	<p>-----NOTE----- Only applicable to Functions 1, 3 and 4. -----</p> <p>J.1 Be in MODE 3.</p>	12 hours
K. Required Action and associated Completion Time not met for Conditions A, B, C, D, E, F, G, H, or I in MODE 5 with any control rod withdrawn in a core cell containing at least one fuel assembly.	<p>-----NOTE----- Only applicable to Functions 1, 3 and 4. -----</p> <p>K.1 Initiate action to insert all insertable control rods in core cells containing one or more fuel assemblies.</p>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. Required Action and associated Completion Time not met for Conditions A, B, C, D, E, F or G.	-----NOTE----- Only applicable to Functions 2 and 5. -----	
	L.1 Isolate the associated penetration flow path(s).	12 hours
	<u>OR</u>	
	L.2.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	L.2.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.1.2-1 to determine which SRs apply for each RPS and MSIV Actuation Function.  
-----

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.1	Perform CHANNEL FUNCTIONAL TEST.	[7] days
SR 3.3.1.2.2	Perform DIVISION FUNCTIONAL TEST.	[92] days
SR 3.3.1.2.3	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.1.2.4	Perform COMPREHENSIVE FUNCTIONAL TEST.	18 months
SR 3.3.1.2.5	Perform OUTPUT CHANNEL FUNCTIONAL TEST.	18 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.2.6	Verify RPS RESPONSE TIME is within limits.	18 months
SR 3.3.1.2.7	Verify ISOLATION RESPONSE TIME is within limits	18 months

Table 3.3.1.2-1 (Page 1 of 1)  
RPS and MSIV Actuation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
1. RPS Actuation.			
a. LOGIC CHANNELs	1, 2, 5(a)(b)	4	SR 3.3.1.2.2 SR 3.3.1.2.4 SR 3.3.1.2.6
b. OUTPUT CHANNELs	1, 2, 5(a)	4	SR 3.3.1.2.4 SR 3.3.1.2.5 SR 3.3.1.2.6
2. MSIVs and MSL Drain Valves Actuation.			
a. LOGIC CHANNELs	1, 2, 3	4	SR 3.3.1.2.2 SR 3.3.1.2.4 SR 3.3.1.2.7
b. OUTPUT CHANNELs	1, 2, 3	4	SR 3.3.1.2.4 SR 3.3.1.2.5 SR 3.3.1.2.7
3. Manual RPS Scram.	1, 2, 5(a)	2	SR 3.3.1.2.1
4. Reactor Mode Switch-Shutdown Position.	1, 2, 5(a)	2	SR 3.3.1.2.4
5. Manual MSIV Actuation.	1, 2, 3	4	SR 3.3.1.2.3 SR 3.3.1.2.4

- (a) With any control rod withdrawn in a core cell containing at least one fuel assembly.  
(b) SRNM and APRM LOGIC CHANNELs are only required to be OPERABLE when the associated Functions in LCO 3.3.1.1 are required to be OPERABLE.

### 3.3 INSTRUMENTATION

#### 3.3.1.3 Standby Liquid Control (SLC) and Feedwater Runback (FWRB) Actuation

LCO 3.3.1.3 The SLC and FWRB Actuation Functions in Table 3.3.1.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1 AND 2.

-----NOTE-----  
Separate condition entry is allowed for each channel.  
-----

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more Functions with one LOGIC CHANNEL inoperable.</p> <p><u>OR</u></p> <p>One division with one or two manual ARI channels inoperable.</p>	<p>-----NOTE----- Only applicable to Functions 1.a, 2.a, and 3. -----</p>	
	<p>A.1 Place affected division in ATWS logic output bypass.</p>	6 hours
	<p><u>AND</u></p> <p>A.2 Restore channel to OPERABLE status.</p>	30 days
<p>B. One or more Functions with two LOGIC CHANNELS inoperable.</p> <p><u>OR</u></p> <p>Two divisions with one or more manual ARI channels inoperable.</p>	<p>-----NOTE----- Only applicable to Functions 1.a, 2.a, and 3. -----</p>	
	<p>B.1 Place one affected division in ATWS logic output bypass.</p>	6 hours
	<p><u>AND</u></p> <p>B.2 Restore the bypassed inoperable division to OPERABLE status.</p>	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with one OUTPUT CHANNEL inoperable.	<p>-----NOTE----- Only applicable to Functions 1.b and 2.b. -----</p> <p>C.1     Restore channel to OPERABLE status.</p>	30 days
D. One or more Functions with two OUTPUT CHANNELs inoperable.	<p>-----NOTE----- Only applicable to Functions 1.b and 2.b. -----</p> <p>D.1     Restore at least one inoperable channel to OPERABLE status.</p>	7 days
<p>E. Required Action and associated Completion Time not met for Conditions A, B, C, or D.</p> <p><u>OR</u></p> <p>One or more Functions with three or more LOGIC CHANNELS or OUTPUT CHANNELS inoperable.</p> <p><u>OR</u></p> <p>Three or more divisions with one or more manual ARI channels inoperable</p>	E.1     Declare SLC System inoperable.	1 hour



SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.1.3-1 to determine which SRs apply for each function.  
-----

SURVEILLANCE		FREQUENCY
SR 3.3.1.3.1	Perform DIVISION FUNCTIONAL TEST.	[92] days
SR 3.3.1.3.2	Perform LOGIC SYSTEM FUNCTIONAL TEST.	18 months
SR 3.3.1.3.3	Perform OUTPUT CHANNEL FUNCTIONAL TEST.	18 months

Table 3.3.1.3-1 (Page 1 of 1)  
SLC and FWRB Actuation

FUNCTION	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
1. SLC Actuation.		
a. LOGIC CHANNELs	4	SR 3.3.1.3.1 SR 3.3.1.3.2
b. OUTPUT CHANNELs	4	SR 3.3.1.3.2 SR 3.3.1.3.3
2. FWRB Actuation.		
a. LOGIC CHANNELs	4	SR 3.3.1.3.1 SR 3.3.1.3.2
b. OUTPUT CHANNELs	4	SR 3.3.1.3.2 SR 3.3.1.3.3
3. Manual ATWS-ARI/SLCS Initiation.	2/division	SR 3.3.1.3.1 SR 3.3.1.3.2

### 3.3 INSTRUMENTATION

#### 3.3.1.4 ESF Actuation Instrumentation

LCO 3.3.1.4 The ESF Actuation Instrumentation for each Function in Table 3.3.1.4-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.4-1.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more channels inoperable.	A.1 Enter the Conditions referenced in Table 3.3.1.4-1.	Immediately
B. One or more Functions with one or more LOGIC CHANNELS inoperable.  <u>OR</u>  One or more Functions with one or more OUTPUT CHANNELS inoperable.	B.1 Restore channel(s) to OPERABLE status.	1 hour
C. One or more Functions with one or more SENSOR CHANNELS inoperable.	C.1 Restore channel(s) to OPERABLE status.	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One or more Functions with one or more OUTPUT CHANNELs inoperable.</p> <p><u>OR</u></p> <p>HPCF C diverse logic manual initiation channel inoperable.</p>	<p>D.1 Restore ESF actuation capability for the affected devices.</p>	1 hour
	<p><u>OR</u></p> <p>D.2 -----NOTE----- This Action applies only to Functions 10.b, 12.b, 13.b, and 14.b. -----  Actuate associated device(s).</p>	1 hour
<p>E. One or more Functions with one or more inoperable SENSOR CHANNELS.</p>	<p>E.1 Restore inoperable channel.</p>	24 hours
	<p><u>OR</u></p> <p>E.2 Declare associated device(s) inoperable.</p>	24 hours
<p>F. One or more Functions with one or more manual initiation channels inoperable.</p>	<p>F.1 Restore manual initiation capability for the affected Functions.</p>	7 days
<p>G. Required Action and associated Completion Time not met for Condition B, C, D, E, or F.</p>	<p>G.1 Declare supported feature(s) inoperable.</p>	1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>H. One or more ADS OUTPUT CHANNELS inoperable in one ADS division.</p> <p><u>OR</u></p> <p>One or more ADS LOGIC CHANNELS inoperable in one ADS division.</p> <p><u>OR</u></p> <p>One or more ADS manual initiation channels inoperable in one ADS division.</p> <p><u>OR</u></p> <p>One or more ATWS manual ADS inhibit channels inoperable in one ADS division.</p> <p><u>OR</u></p> <p>Five required ADS SENSOR CHANNELS inoperable in one ADS division.</p>	<p>H.1 Restore channel(s) to OPERABLE status.</p>	<p>3 days if only one high pressure ECCS subsystem is OPERABLE</p> <p><u>AND</u></p> <p>7 days if two or more high pressure ECCS subsystems are OPERABLE.</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. One or more ADS OUTPUT CHANNELS inoperable in two ADS divisions.</p> <p><u>OR</u></p> <p>One or more ADS LOGIC CHANNELS inoperable in two ADS divisions.</p> <p><u>OR</u></p> <p>One or more ADS manual initiation channels inoperable in two ADS divisions.</p> <p><u>OR</u></p> <p>One or more ATWS manual ADS inhibit channels inoperable in two ADS divisions.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition H not met.</p>	<p>I.1 Declare associated ESF features inoperable.</p>	<p>1 hour</p>
<p>J. One or two required SENSOR CHANNELS inoperable in one or more ADS divisions.</p>	<p>J.1 Restore required channel(s) to OPERABLE status.</p>	<p>Prior to entering MODE 2 following the next MODE 4 entry</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. Three required SENSOR CHANNELS inoperable in one or more ADS divisions.	K.1 Restore three required channels to OPERABLE status.	7 days.
L. Four required SENSOR CHANNELS inoperable in one or more ADS divisions.	L.1 Restore two required channels to OPERABLE status.	24 hours.
M. ADS initiation capability not maintained in both ADS divisions.  <u>OR</u>  Required Actions and associated Completion Times of Condition J, K, or L not met.	M.1 Declare ADS valves inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.1.4-1 to determine which SRs apply for each ESF Actuation Instrumentation Functions.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.1.4.1 Perform SENSOR CHANNEL CHECK.	12 hours
SR 3.3.1.4.2 Perform OUTPUT CHANNEL FUNCTIONAL TEST.	18 months
SR 3.3.1.4.3 Perform DIVISIONAL FUNCTIONAL TEST.	[92] days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.4.4	Perform COMPREHENSIVE FUNCTIONAL TEST.	18 months
SR 3.3.1.4.5	Perform ECCS RESPONSE TIME TEST.	18 months
SR 3.3.1.4.6	Perform SENSOR CHANNEL CALIBRATION.	18 months
SR 3.3.1.4.7	Perform CHANNEL FUNCTIONAL TEST.	18 months



Table 3.3.1.4-1 (Page 1 of 7)  
ESF Actuation Instrumentation

FUNCTION		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	APPLICABLE CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Low Pressure Core Flooder Actuation.						
1.a	LPFL Pump Discharge Pressure – High.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per pump <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≥ [ ] MPaG
1.b	LPFL Pump Discharge Flow – Low.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per pump <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≤ [ ] liters per min
1.c	LPFL System Initiation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	2 per subsystem <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.5	NA
1.d	LPFL Device Actuation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per actuated device <sup>(c)</sup>	B	SR 3.3.1.4.2 SR 3.3.1.4.4 SR 3.3.1.4.5	NA
1.e	LPFL Manual Initiation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	2 per subsystem <sup>(d)</sup>	F	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA
2. High Pressure Core Flooder Actuation.						
2.a	HPCF Pump Discharge Pressure – High.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per pump <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≥ [ ] MPaG
2.b	HPCF Pump Discharge Flow – Low.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per pump <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≤ [ ] liters per min
2.c	HPCF Pump Suction Pressure – Low.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per pump <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≥ [ ] MPaG
2.d	HPCF System Initiation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	2 per subsystem <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.5	NA

Table 3.3.1.4-1 (Page 2 of 7)  
ESF Actuation Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	APPLICABLE CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2.e	HPCF Device Actuation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per actuated device <sup>(c)</sup>	B	SR 3.3.1.4.2 SR 3.3.1.4.4 SR 3.3.1.4.5	NA
2.f	HPCF B Manual Initiation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	2 <sup>(d)</sup>	F	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA
2.g	HPCF C Diverse Logic Manual Initiation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 <sup>(d)</sup>	D	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA
3.	Reactor Core Isolation Cooling System Actuation.					
3.a	RCIC Pump Discharge Pressure – High.	1,2 <sup>(e)</sup> ,3 <sup>(e)</sup>	1 <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≥ [ ] MPaG
3.b	RCIC Pump Discharge Flow – Low.	1,2 <sup>(e)</sup> ,3 <sup>(e)</sup>	1 <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≤ [ ] liters per min
3.c	RCIC System Initiation.	1,2 <sup>(e)</sup> ,3 <sup>(e)</sup>	2 <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.5	NA
3.d	RCIC Device Actuation.	1,2 <sup>(e)</sup> ,3 <sup>(e)</sup>	1 per actuated device <sup>(c)</sup>	B	SR 3.3.1.4.2 SR 3.3.1.4.4 SR 3.3.1.4.5	NA
3.e	RCIC Manual Initiation.	1,2 <sup>(e)</sup> ,3 <sup>(e)</sup>	2 <sup>(d)</sup>	F	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA

Table 3.3.1.4-1 (Page 3 of 7)  
ESF Actuation Instrumentation

FUNCTION		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	APPLICABLE CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Automatic Depressurization System.						
4.a	ADS System Initiation.	1, 2 <sup>(f)</sup> , 3 <sup>(f)</sup>	2 per subsystem <sup>(b)</sup>	H, I	SR 3.3.1.4.3 SR 3.3.1.4.4	NA
4.b	ADS Device Actuation.	1, 2 <sup>(f)</sup> , 3 <sup>(f)</sup>	2 per ADS valve <sup>(c)</sup>	H, I	SR 3.3.1.4.2 SR 3.3.1.4.4 SR 3.3.1.4.5	NA
4.c	ADS Manual Initiation.	1, 2 <sup>(f)</sup> , 3 <sup>(f)</sup>	2 per subsystem <sup>(d)</sup>	H, I	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA
4.d	ADS Division I ECCS Pump Discharge Pressure – High (permissive)	1, 2 <sup>(f)</sup> , 3 <sup>(f)</sup>	1 per each of 5 pumps <sup>(a)</sup>	H, J, K, L, M	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≥ [ ] MPaG
4.e	ADS Division II ECCS Pump Discharge Pressure – High (permissive)	1, 2 <sup>(f)</sup> , 3 <sup>(f)</sup>	1 per each of 5 pumps <sup>(a)</sup>	H, J, K, L, M	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≥ [ ] MPaG
4.f	ATWS Manual ADS Inhibit.	1, 2	2 per subsystem <sup>(d)</sup>	H, I	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA
5. Diesel-Generator Actuation.						
5.a	Division I, II, & III Loss of Voltage – 4.16 kV.	1, 2, 3, 4 <sup>(h)</sup> , 5 <sup>(h)</sup>	1 per phase <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.2 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.5 SR 3.3.1.4.6	≥ [ ] V and ≤ [ ] V for ≥ [ ] s and ≤ [ ] s
5.b	Division I, II, & III Degraded Voltage – 4.16 kV.	1, 2, 3, 4 <sup>(h)</sup> , 5 <sup>(h)</sup>	1 per phase <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.2 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.5 SR 3.3.1.4.6	≥ [ ] V and ≤ [ ] V for ≥ [ ] s and ≤ [ ] s

Table 3.3.1.4-1 (Page 4 of 7)  
ESF Actuation Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	APPLICABLE CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5.c	DG System Initiation.	1,2,3, 4 <sup>(h)</sup> ,5 <sup>(h)</sup>	1 per DG <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.5	NA
5.d	DG Device Actuation.	1,2,3, 4 <sup>(h)</sup> ,5 <sup>(h)</sup>	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
5.e	DG Manual Initiation.	1,2,3, 4 <sup>(h)</sup> ,5 <sup>(h)</sup>	1 per DG <sup>(d)</sup>	F	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA
6.	Standby Gas Treatment System Actuation.					
6.a	SGTS Initiation.	1,2,3 (i)(j)	1 per subsystem <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4	NA
6.b	SGTS Device Actuation.	1,2,3 (i)(j)	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
7.	Reactor Building Cooling Water/Service Water Actuation.					
7.a	RCW/RSW System Initiation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per subsystem <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4	NA
7.b	RCW/RSW Device Actuation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
7.c	RCW/RSW Manual Initiation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per subsystem <sup>(d)</sup>	F	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA
7.d	Division I, II, & III Loss of Voltage - 4.16 kV.	1,2,3, 4 <sup>(h)</sup> ,5 <sup>(h)</sup>	1 per phase <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.2 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.5 SR 3.3.1.4.6	≥ [ ] V and ≤ [ ] V for ≥ [ ] s and ≤ [ ] s

Table 3.3.1.4-1 (Page 5 of 7)  
ESF Actuation Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	APPLICABLE CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7.e	Division I, II, & III Degraded Voltage - 4.16 kV.	1,2,3, 4 <sup>(h)</sup> ,5 <sup>(h)</sup>	1 per phase <sup>(a)</sup>	C	SR 3.3.1.4.1 SR 3.3.1.4.2 SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.5 SR 3.3.1.4.6	≥ [ ] V and ≤ [ ] V for ≥ [ ] s and ≤ [ ] s
8.	Containment Atmospheric Monitoring.					
8.a	CAM System Initiation.	1,2,3	1 per subsystem <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4	NA
8.b	CAM Device Actuation.	1,2,3	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
9.	Suppression Pool Cooling Actuation.					
9.a	SPC System Initiation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per subsystem <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4	NA
9.b	SPC Device Actuation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
9.c	SPC Manual Initiation.	1,2,3, 4 <sup>(g)</sup> ,5 <sup>(g)</sup>	1 per subsystem <sup>(d)</sup>	F	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA
10.	Containment Isolation Valves Actuation.					
10.a	CIV System Initiation.	1,2,3	1 per division <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4	NA
10.b	CIV Device Actuation.	1,2,3	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
10.c	Drywell Sump Drain LCW Radiation – High	1,2,3	1 <sup>(a)</sup>	E	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≤ [ ] gray

Table 3.3.1.4-1 (Page 6 of 7)  
ESF Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	APPLICABLE CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
10.d Drywell Sump Drain HCW Radiation - High	1,2,3	1 <sup>(a)</sup>	E	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.6	≤ [ ] gray
10.e RCW Inside Drywell System Isolation Initiation.	1,2,3	2 per division <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4	NA
10.f RCW Inside Drywell Isolation Device Actuation.	1,2,3	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
10.g Exhaust Air Radiation – High Isolation Initiation.	1,2,3, (i),(j)	1 per division <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4	NA
10.h Exhaust Air Radiation – High Isolation Device Actuation.	1,2,3. (i),(j)	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
11. CIV Divisional Manual Initiation.	1,2,3 (i)	1 per division <sup>(d)</sup>	F	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA
12. Reactor Core Isolation Cooling Isolation Actuation.					
12.a RCIC System Isolation Initiation	1,2,3	1 per division <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4	NA
12.b RCIC Isolation Device Actuation.	1,2,3	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
12.c RCIC Manual Isolation Initiation.	1,2,3	1 per division <sup>(d)</sup>	F	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.7	NA
13. Reactor Water Cleanup Isolation Actuation.					
13.a CUW System Isolation Initiation.	1,2,3 (i)	1 per division <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4	NA

Table 3.3.1.4-1 (Page 7 of 7)  
ESF Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	APPLICABLE CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
13.b CUW Isolation Device Actuation.	1,2,3 ( i )	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
13.c CUW Isolation on SLC Initiation.	1,2	1 per SLC division <sup>(a)</sup>	E	SR 3.3.1.4.4	NA
14. Shutdown Cooling System Isolation Actuation.					
14.a SD Cooling System Isolation Initiation.	1,2,3, (i)	1 per division <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4	NA
14.b SD Cooling Isolation Device Actuation.	1,2,3, (i)	1 per actuated device <sup>(c)</sup>	D	SR 3.3.1.4.2 SR 3.3.1.4.4	NA
15. Feedwater Line Break Mitigation Actuation.					
15.a Feedwater Line Break Mitigation Initiation.	1,2,3	1 per division <sup>(b)</sup>	B	SR 3.3.1.4.3 SR 3.3.1.4.4 SR 3.3.1.4.5	NA
15.b Feedwater Line Break Mitigation Device Actuation.	1,2,3	1 per actuated device <sup>(c)</sup>	B	SR 3.3.1.4.2 SR 3.3.1.4.4 SR 3.3.1.4.5	NA

(a) These are SENSOR CHANNEL Functions.

(b) These are LOGIC CHANNEL Functions.

(c) These are OUTPUT CHANNEL Functions.

(d) These are manual channel Functions.

(e) With reactor pressure greater than 1.03 MPaG.

(f) With reactor pressure greater than 0.343 MPaG.

(g) When associated subsystems are required to be operable.

(h) When associated Diesel-Generator is required to be OPERABLE per LCO 3.8.2 "AC Sources – Shutdown"

(i) During CORE ALTERATIONS and operations with the potential for draining the reactor vessel.

(j) During movement of irradiated fuel assemblies in the secondary containment.

### 3.3 INSTRUMENTATION

#### 3.3.2.1 Startup Range Monitor (SRNM) Instrumentation

LCO 3.3.2.1 The SRNM instrumentation for each Function in Table 3.3.2.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2.1-1.

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required channel inoperable in one or more bypass groups.	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>A.1 Place channel in bypass.</p> <p><u>OR</u></p> <p>A.2 Place channel in trip.</p>	1 hour
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>Four or more required channels inoperable.</p>	B.1 Be in MODE 3.	12 hours
C. One or more required SRNMs inoperable in MODE 3 or 4.	<p>C.1 Fully insert all insertable control rods.</p> <p><u>AND</u></p>	1 hour



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Place reactor mode switch in the shutdown position.	1 hour
D. One required SRNM inoperable in MODE 5.	D.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u>	
	D.2 Initiate action to insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>And</u>	
	D.3 Initiate action to restore required SRNM to OPERABLE status.	7 days
E. Two required SRNMs inoperable in MODE 5.	E.1 Initiate action to restore one required SRNM to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.2.1-1 to determine which SRs apply for each applicable MOD or other specified conditions.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.2.1.1 Perform CHANNEL CHECK.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.2.1.2 -----NOTE-----</p> <ol style="list-style-type: none"> <li>1. Only required to be met during CORE ALTERATIONS.</li> <li>2. Only part a. is required under the conditions specified in footnote (a) of Table 3.3.2.1-1.</li> <li>3. One SRNM may be used to satisfy more than one of the following.</li> </ol> <p>-----</p> <p>Verify an OPERABLE SRNM detector is located in:</p> <ol style="list-style-type: none"> <li>a. The fueled region;</li> <li>b. The core quadrant where CORE ALTERATIONS are being performed when the associated SRNM is included in the fueled region; and</li> <li>c. A core quadrant adjacent to where CORE ALTERATIONS are being performed, when the associated SRNM is included in the fueled region.</li> </ol>	<p>12 hours</p> <p><u>AND</u></p> <p>Following a change in the core quadrant where CORE ALTERATIONS are being performed.</p>
<p>SR 3.3.2.1.3 -----NOTE-----</p> <p>Not required to be met with four or less fuel assemblies adjacent to the SRNM and no other fuel assemblies in the associated core quadrant.</p> <p>-----</p> <p>Verify count rate is <math>\geq 3.0</math> cps.</p>	<p>12 hours during CORE ALTERATIONS</p> <p><u>AND</u></p> <p>24 hours</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.1.4	Perform CHANNEL FUNCTIONAL TEST.	[7] days
SR 3.3.2.1.5	Perform CHANNEL FUNCTIONAL TEST.	[31] days
SR 3.3.2.1.6	<p>-----NOTE-----</p> <p>Neutron detectors are excluded.</p> <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	18 months

Table 3.3.2.1-1 (page 1 of 1)  
Startup Range Neutron Monitor Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
1. Startup Range Neutron Monitor	2	Group # 1 - 4 Group # 2 - 3 Group # 3 - 3	SR 3.3.2.1.1 SR 3.3.2.1.3 SR 3.3.2.1.5 SR 3.3.2.1.6
	3,4	2	SR 3.3.2.1.1 SR 3.3.2.1.3 SR 3.3.2.1.5 SR 3.3.2.1.6
	5	2 <sup>(a),(b)</sup>	SR 3.3.2.1.1 SR 3.3.2.1.2 SR 3.3.2.1.3 SR 3.3.2.1.4 SR 3.3.2.1.6

- (a) Only one SRNM channel is required to be OPERABLE during spiral offload or reload when the fueled region includes only that SRNM detector.
- (b) Special movable detectors may be used in place of SRNMs if connected to normal SRNM circuits.

### 3.3 INSTRUMENTATION

#### 3.3.3.1 Essential Communication Function (ECF)

LCO 3.3.3.1 Four divisions of ECF data transmission shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, and 5.

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more data transmission segments inoperable in one ECF division with data transmission maintained.	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>A.1 Restore all data transmission segments to OPERABLE status.</p>	Prior to entering MODE 2 following next MODE 4 entry.
B. One or more data transmission segments inoperable in two or more ECF divisions with data transmission maintained in all divisions.	B.1 Restore all data transmission segments in at least three ECF divisions to OPERABLE status.	[30] days
C. Required Actions and associated Completion Times of Condition B not met.	<p>C.1 Verify data transmission capability.</p> <p><u>AND</u></p> <p>C.2 Initiate action in accordance with Specification 5.5.2.10.</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 24 hours thereafter.</p> <p>Immediately</p>

ACTIONS (continued)

D. One or more ECF divisions inoperable.	<p>-----NOTE----- LCO 3.0.4 is not applicable.</p> <hr/> <p>D.1     Declare affected Functions and supported Features inoperable.</p>	4 hours
--	---	---------

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.3.1.1     Verify the required data transmission path segments are OPERABLE.	[92] days
SR 3.3.3.1.2     Perform a comprehensive network performance test.	18 months

### 3.3 INSTRUMENTATION

#### 3.3.4.1 Anticipated Transient Without Scram (ATWS) and End-of-Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation

LCO 3.3.4.1 The channels for each Function listed in Table 3.3.4.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.4.1-1.

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one inoperable channel.	-----NOTE----- Applies only to Functions 1, 3, 5, 11, and 14 in Table 3.3.4.1-1. -----	14 days
	A.1 Restore channel to OPERABLE status.	
B. One or more Functions with two or more channels inoperable.	B.1 -----NOTE----- Applies only to Functions 1, 3, 5, and 11 in Table 3.3.4.1-1. -----	72 hours
	B.1 Restore two channels to OPERABLE status.	
	<u>OR</u> B.2 -----NOTE----- Applies only to Function 14 in Table 3.3.4.1-1. ----- Restore one channel to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with one channel inoperable.	<p>-----NOTE----- Applies only to Functions 2 and 4 in Table 3.3.4.1-1. -----</p> <p>C.1.1 Place channel(s) in bypass.  <u>AND</u> C.1.2.1 Restore channel(s) to OPERABLE status.  <u>OR</u> C.1.2.2 Place channel(s) in trip.  <u>OR</u> C.2 Place channel(s) in trip.</p>	<p>6 hours</p> <p>30 days</p> <p>30 days</p> <p>6 hours</p>
D. One channel inoperable.	<p>-----NOTE----- Applies only to Function 9 in Table 3.3.4.1-1. -----</p> <p>D.1 Restore channel to OPERABLE status.</p>	<p>30 days</p>
E. One or more Functions with two channels inoperable.	<p>-----NOTE----- Applies only to Functions 2, 4, and 9 in Table 3.3.4.1-1. -----</p> <p>E.1 Restore one inoperable channel to OPERABLE status.</p>	<p>72 hours</p>



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One or more Functions with three or more channels inoperable.	<p>-----NOTE-----</p> <p>Applies only to Functions 2, 4, and 9 in Table 3.3.4.1-1.</p> <p>-----</p> <p>F.1     Restore at least one inoperable channel to OPERABLE status.</p>	[24] hours
G. Required Action and associated Completion Time of Condition C, E, or F not met.	<p>-----NOTE-----</p> <p>Applies only to Function 4 in Table 3.3.4.1-1.</p> <p>-----</p> <p>G.1     Apply the MCPR limit for inoperable EOC-RPT as specified in the COLR.</p> <p><u>OR</u></p> <p>G.2     Reduce power to <math>\leq 40\%</math> RTP.</p>	<p>[2] hours</p> <p>[2] hours</p>
H. One or more Functions with one or more channels inoperable.	<p>-----NOTE-----</p> <p>Applies only to Functions 6, 7, 8, 10, 12, 13, 15, and 16 in Table 3.3.4.1-1.</p> <p>-----</p> <p>H.1     Restore channels to OPERABLE status.</p>	[24] hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. Required Action and associated Completion Time not met.	I.1 -----NOTE----- Applies only to Functions 6, 7, 8, and 16 in Table 3.3.4.1-1. ----- Remove the associated Reactor Internal Pump from service.	12 hours
	<u>OR</u>	
	I.2 -----NOTE----- Applies only to Functions 1, 2, 3, 5, 9, 10, 11, 12, 13, 14, and 15 in Table 3.3.4.1-1. ----- Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.4.1-1 to determine the applicability of the SRs to each RPT Function.  
-----

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.1	Perform SENSOR CHANNEL CHECK.	12 hours
SR 3.3.4.1.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.4.1.3	Perform SENSOR CHANNEL CALIBRATION.	18 months
SR 3.3.4.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	18 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.4.1.5	Verify the RPT SYSTEM RESPONSE TIME is within limits.	18 months
SR 3.3.4.1.6	Perform COMPREHENSIVE FUNCTIONAL TEST.	18 months
SR 3.3.4.1.7	Perform CHANNEL FUNCTIONAL TEST	7 days

Table 3.3.4.1-1 (page 1 of 2)  
ATWS and EOC-RPT Instrumentation

FUNCTION	REQUIRED CHANNELS	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUES
1. Feedwater Reactor Vessel Water Level - Low, Level 3.	3	1,2	SR 3.3.4.1.1 SR 3.3.4.1.2 SR 3.3.4.1.3 SR 3.3.4.1.4 SR 3.3.4.1.5	$\geq [ ]$ cm
2. Reactor Water Vessel Level – Low, Level 2.	4	1,2	SR 3.3.4.1.1 SR 3.3.4.1.2 SR 3.3.4.1.3 SR 3.3.4.1.4 SR 3.3.4.1.5 SR 3.3.4.1.6	$\geq [ ]$ cm
3. SB&PC Reactor Steam Dome Pressure – High.	3	1,2	SR 3.3.4.1.1 SR 3.3.4.1.2 SR 3.3.4.1.3 SR 3.3.4.1.4 SR 3.3.4.1.5	$\leq [ ]$ MPaG
4. EOC-RPT Initiation	4	$\geq 40\%$ RTP.	SR 3.3.4.1.2 SR 3.3.4.1.5 SR 3.3.4.1.6	NA
5. RPT Trip Initiation Function of the RFC.	3	1,2	SR 3.3.4.1.2 SR 3.3.4.1.4	NA
6. ASD Pump Trip Actuation.	1 per ASD	1,2	SR 3.3.4.1.4	NA
7. ASD Pump Trip Timers.	1 per ASD	1,2	SR 3.3.4.1.3 SR 3.3.4.1.4	footnote <sup>(a)</sup>
8. ASD Pump Trip Load Interruption	1 per ASD	1,2	SR 3.3.4.1.4	NA
9. RPS Scram Follow Signal.	4	1,2	SR 3.3.4.1.4 SR 3.3.4.1.6	NA
10. Manual ATWS-ARI/SLCS Initiation.	2	1,2	SR 3.3.4.1.4 SR 3.3.4.1.7	NA
11. ATWS-ARI Trip Initiation Function of the RFC.	3	1,2	SR 3.3.4.1.4	NA
12. ATWS-FMCRD Initiation Function of the RCIS.	2	1,2	SR 3.3.4.1.4	NA

Table 3.3.4.1-1 (page 2 of 2)  
ATWS and EOC-RPT Instrumentation

FUNCTION	REQUIRED CHANNELS	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUES
13. FMCRD Insertion Confirmatory Logic.	1	1,2	SR 3.3.4.1.4	
14. ATWS-ARI Valve Actuation.	2	1,2	SR 3.3.4.1.4	NA
15. FMCRD Emergency Insertion Invertor Control Logic.	1 per rod	1,2	SR 3.3.4.1.4	NA
16. Recirculation Runback.	1 per pump	1,2	SR 3.3.4.1.4	NA

(a)  $\leq [ ]$  seconds for RIPs [C, G, & K].

### 3.3 INSTRUMENTATION

#### 3.3.4.2 Feedwater Pump and Main Turbine Trip Instrumentation

LCO 3.3.4.2 The following feedwater pump and main turbine trip instrumentation shall be OPERABLE:

- a. Three instrumentation channels;
- b. Three digital controllers; and
- c. Two termination modules per operating feedwater pump and the main turbine.

APPLICABILITY: THERMAL POWER  $\geq$  25% RTP.

-----NOTE-----

Separate Condition entry is allowed for each instrumentation channel, digital controller, or termination module.

-----

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One instrumentation channel inoperable.	A.1 Restore instrumentation channel to OPERABLE status.	14 days
B. One digital controller inoperable.	B.1 Restore digital controller to OPERABLE status.	14 days
C. Two or more instrumentation channels inoperable.	C.1 Restore two instrumentation channels to OPERABLE status.	72 hours
D. Two or more digital controllers inoperable.	D.1 Restore two digital controllers to OPERABLE status.	72 hours

ACTIONS (continued)

E. One or more termination modules inoperable.	E.1	Restore termination module to OPERABLE status.	72 hours
F. Required Action and associated Completion Time not met.	F.1	Reduce THERMAL POWER to < 25% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.4.2.2	<p>-----NOTE-----</p> <p>When performing the functional test entry into associated Conditions and Required Actions may be delayed up to 2 hours.</p> <p>-----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	[92] days
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The allowable value shall be $\leq [ ]$ inches.	18 months
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including trip actuation.	18 months

### 3.3 INSTRUMENTATION

#### 3.3.5.1 Control Rod Block Instrumentation

LCO 3.3.5.1 The control rod block instrumentation for each Function in Table 3.3.5.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5.1-1.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Automated Thermal Limit Motor (ATLM) channel inoperable.	<p>A.1 Restore channel to OPERABLE status.</p> <p><u>OR</u></p> <p>A.2 Verify the thermal limits are met.</p>	<p>[72] hours</p> <p>4 hours <u>AND</u> Once per 4 hours thereafter</p>
B. Two ATLM channels inoperable.	<p>-----NOTE----- Removal of ATLM block under administrative control is permitted provided manual control of rod movement and thermal limits are verified by a second licensed operator. -----</p> <p>B.1 Insert an ATLM block.</p> <p><u>AND</u></p> <p>B.2 Verify RCIS blocks control rod movement by attempting to withdraw one rod or one gang of rods.</p>	<p>Immediately</p> <p>4 hours <u>AND</u> Once per 4 hours thereafter</p>



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One Rod Worth Minimizer (RWM) channel inoperable.	C.1 Restore channel to OPERABLE status.	[72] Hours
D. Two RWM channels inoperable.  <u>OR</u>  Required Actions and associated Completion Time of Condition C not met.	D.1 Suspend control rod movement, except by scram.	Immediately
E. One or more Reactor Mode Switch - Shutdown Position channels inoperable.	E.1 Suspend control rod withdrawal.  <u>AND</u>  E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately    Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.5.1-1 to determine which SRs apply for each Control Rod Block Function.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.5.1.1 -----NOTE----- Not required to be performed until 1 hour after THERMAL POWER is > [30]% RTP. ----- Perform CHANNEL FUNCTIONAL TEST.	[92] days

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.1.2	<p>-----NOTE----- Not required to be performed until 1 hour after any control rod is withdrawn in MODE 2. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	[92] days
SR 3.3.5.1.3	Verify the RWM is not bypassed when THERMAL POWER is $\leq$ [10]% RTP.	18 months
SR 3.3.5.1.4	Verify the ATLM is not bypassed when THERMAL POWER is $\geq$ [30]% RTP.	18 months
SR 3.3.5.1.5	<p>-----NOTE----- Not required to be performed until 1 hour after reactor mode switch is in the shutdown position. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	18 months
SR 3.3.5.1.6	Perform CHANNEL CHECK of process parameter and setpoint inputs to the ATLM.	[24] hours
SR 3.3.5.1.7	Verify the bypassing and movement of control rods required to be bypassed in the Rod Action and Position Information (RAPI) Subsystem by a second licensed operator or other qualified member of the technical staff.	Prior to and during movement of control rods bypassed in the RAPI Subsystem

Table 3.3.5.1-1 (page 1 of 1)  
Control Rod Block Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS
1. Rod Control & Information System			
a. Automated Thermal Limit Monitor	[(a)]	2	SR 3.3.5.1.1 SR 3.3.5.1.4 SR 3.3.5.1.6
b. Rod Worth Minimizer	1 <sup>(b)</sup> , 2 <sup>(b)</sup>	2	SR 3.3.5.1.2 SR 3.3.5.1.3
2. Reactor Mode Switch - Shutdown Position	(c)	4	SR 3.3.5.1.5

(a) THERMAL POWER > [30]% RTP.

(b) With THERMAL POWER  $\leq$  [10]% RTP.

(c) Reactor mode switch in the shutdown position.

### 3.3 INSTRUMENTATION

#### 3.3.6.1 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.6.1 The PAM instrumentation for each Function in Table 3.3.6.1-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

-----NOTE-----

1. LCO 3.0.4 is not applicable.
  2. Separate Condition entry is allowed for each Function.
- 

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Provide alternate method of monitoring, determine the cause of the inoperability, and submit plans and schedule for restoring the instrumentation channels of the Functions to OPERABLE status to the NRC.	14 days
C. One or more Functions with two required channels inoperable.	C.1 Restore at least one inoperable channel to OPERABLE status.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.6.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.6.1-1.	E.1 Be in MODE 3.	12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.6.1-1.	F.1 Provide alternate method of monitoring, determine the cause of the inoperability, and submit plans and schedule for restoring the instrumentation channels of the Functions to OPERABLE status to the NRC.	14 days

## SURVEILLANCE REQUIREMENTS

--NOTE.

1. These SRs apply to each Function in Table 3.3.6.1-1.
2. SR 3.3.6.1.1 does not apply to Function 8.

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	[31] days
SR 3.3.6.1.2	<p>-----NOTE-----</p> <p>Neutron detectors are excluded.</p> <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	18 months

Table 3.3.6.1-1 (page 1 of 1)  
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION E.1
1. Reactor Steam Dome Pressure.	2	E
2. Reactor Vessel Water Level - Wide Range.	2	E
3. Reactor Vessel Water Level - Fuel Zone.	2	E
4. Suppression Pool Water Level.	2	E
5. Containment Pressure.		
5a. Drywell Pressure.	2	E
5b. Wetwell Pressure.	2	E
6. Drywell Area Radiation.	2	F
7. Wetwell Area Radiation.	2	F
8. PCIV Position.	2 per penetration flow path <sup>(a),(b)</sup>	E
9. Startup Range Neutron Monitor - Neutron Flux.	2 <sup>(c)</sup>	E
10. Average Power Range Monitor - Neutron Flux.	2 <sup>(d)</sup>	E
11. Suppression Pool Water Temperature.	2 <sup>(e)</sup>	E
12. Drywell Atmosphere Temperature.	2	E
13. Wetwell Atmosphere Temperature.	2	E

- (a) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.
- (b) Not required for isolation valves whose associated penetration flow path is isolated by at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.
- (c) When power is  $\leq$  [10]% RTP
- (d) When power is  $>$  [10]% RTP
- (e) Bulk average temperature.

### 3.3 INSTRUMENTATION

#### 3.3.6.2 Remote Shutdown System

LCO 3.3.6.2            The Remote Shutdown System (RSS) instrumentation for each Function listed in Table 3.3.6.2-1 shall be OPERABLE.

APPLICABILITY:        MODES 1 and 2.

-----NOTE-----

1. LCO 3.0.4. is not applicable.
  2. Separate Condition entry is allowed for each Function.
- 

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RSS division with one or more required Functions inoperable.	A.1    Restore required Functions to OPERABLE status.	90 days
B. Two RSS divisions with one or more required Functions inoperable.	B.1    Restore required Functions to OPERABLE status.	30 days
C. Required Action and associated Completion Time not met.	C.1    Be in MODE 3.	12 hours



SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK for each required instrumentation channel.	[31] days
SR 3.3.6.2.2	Verify each required control circuit and transfer switch is capable of performing the intended functions.	18 months
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION for each required instrumentation channel.	18 months

Table 3.3.6.2-1 (page 1 of 1)  
Remote Shutdown System Instrumentation

FUNCTION (INSTRUMENT OR CONTROL PARAMETER)	REQUIRED NUMBER OF DIVISIONS
1. Reactor Steam Dome Pressure.	2
2. HPCF B Flow.	1
3. HPCF B Controls.	1(c)
4. HPCF B Pump Discharge Pressure.	1
5. RHR Flow.	2(a)
6. RHR Hx Inlet Temperature.	2(a)
7. RHR Hx Outlet Temperature.	2(a)
8. RHR Hx Bypass Valve Position.	2(a)
9. RHR Hx Outlet Valve Position.	2(a)
10. RHR Pump Discharge Pressure.	2(a)
11. RHR Controls.	2(a)(c)
12. RPV Wide Range Water Level.	2
13. RPV Shutdown Range Water Level.	2
14. Reactor Building Cooling Water Flow.	2
15. Reactor Building Cooling Water Controls.	2(c)
16. Reactor Building Service Water System Controls.	2(c)
17. RSW Strainer Differential Pressure.	2
18. Suppression Pool Water Level.	2
19. Condensate Storage Tank Water Level.	1
20. Suppression Pool Temperature.	2
21. Medium Voltage Power Distribution System Controls.	2(c)
22. Diesel Generator Interlock and Monitors.	2
23. SRV Controls.	(b)(c)

(a) RHR A for division I RSS panel, RHR B for division II RSS panel.

(b) Three on the Division I RSS, 1 on division II RSS.

(c) The specified number of channels are required to be OPERABLE for each device that can be controlled from the RSS panels.

### 3.3 INSTRUMENTATION

#### 3.3.7.1 Control Room Habitability Area (CRHA) Emergency Filtration (EF) System Instrumentation

LCO 3.3.7.1 The CRHA EF System instrumentation for each Function in Table 3.3.7.1-1 shall be OPERABLE.

- APPLICABILITY:
- a. MODES 1, 2, and 3.
  - b. During movement of irradiated fuel assemblies in the secondary containment.
  - c. During CORE ALTERATIONS.
  - d. During operations with a potential for draining the reactor vessel.

-----NOTE-----  
Separate Condition entry is allowed for each channel.  
-----

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more EF divisions with one control room ventilation radiation monitor channel inoperable.	A.1 Place channel in trip.	6 hours
	<u>OR</u> A.2 Place channel in bypass.	6 hours
B. One or more EF divisions with two control room ventilation radiation monitor channels inoperable.	B.1 Place one channel in trip and the other in bypass.	6 hours
	<u>AND</u> B.2 Restore one channel to OPERABLE status.	Prior to completion of next CHANNEL FUNCTIONAL TEST

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition A or B not met.</p> <p><u>OR</u></p> <p>One or more EF divisions with one or more Manual Switch channel or low flow actuation channel inoperable.</p> <p><u>OR</u></p> <p>One or more EF divisions with 3 or more control room radiation monitor channels inoperable.</p>	C.1 Place the associated EF division in the emergency filtration mode of operation.	1 hour
	<u>OR</u>	
	C.2 Declare associated EF division inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.7.1-1 to determine which SRs apply for each Function.  
-----

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	[24] hours
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION.	18 months
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	18 months

Table 3.3.7.1-1 (page 1 of 1)  
Control Room Habitability Area - Emergency Filtration System Instrumentation

FUNCTION	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Control Room Ventilation Radiation Monitors	4 per EF division	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	$\leq [ ]$ mGy/h
2. Emergency Filtration System Low Flow	2 per EF division	SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	$\leq [ ]$ kg/h
3. Emergency Filtration System Manual Switch	1 per EF division	SR 3.3.7.1.2 SR 3.3.7.1.4	NA

### 3.3 INSTRUMENTATION

#### 3.3.8.1 Electric Power Monitoring

LCO 3.3.8.1 Two Electric Power Monitoring assemblies shall be OPERABLE for each inservice Class 1E Constant Voltage Constant Frequency (CVCF) power supply.

APPLICABILITY: MODES 1, 2, and 3,  
MODES 4 and 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies, or with both residual heat removal (RHR) shutdown cooling isolation valves open.

-----NOTE-----  
Separate Condition entry is allowed for each CVCF power supply.  
-----

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more inservice CVCF power supplies with one Electric Power Monitoring assembly inoperable.	A.1 Place the associated Electric Power Monitoring assembly circuit breaker in the tripped condition.	1 hour
B. One or more inservice CVCF power supplies with both Electric Power Monitoring assemblies inoperable.	B.1 Remove associated inservice power supply(s) from service.	72 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3. <u>AND</u>	12 hours
	C.2 Be in MODE 4.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met in MODE 4 or 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies or with both RHR shutdown cooling isolation valves open.	D.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>AND</u>	
	D.2.1 Initiate action to restore one Electric Power Monitoring assembly to OPERABLE status for inservice power supply(s).	Immediately
	<u>OR</u>	
	D.2.2 Initiate action to isolate the Residual Heat Removal Shutdown Cooling Systems.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1.1	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.8.1.2	Perform CHANNEL CALIBRATION. The Allowable Values for Divisions I, II, III, and IV shall be:  a. Undervoltage: $\leq$ [108] VAC.  b. Overvoltage: $\geq$ [132] VAC.  c. Underfrequency: $\leq$ [57] Hz.  d. Overfrequency: $\geq$ [63] Hz.	[92] days
SR 3.3.8.1.3	Perform SYSTEM FUNCTIONAL TEST.	18 months

### 3.3 INSTRUMENTATION

#### 3.3.8.2 Reactor Coolant Temperature Monitoring - Shutdown

LCO 3.3.8.2 One Reactor Coolant Temperature Monitoring channel associated with each RHR subsystem operating in the Shutdown Cooling Mode shall be OPERABLE.

APPLICABILITY: When RHR is operating in the Shutdown Cooling Mode.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more reactor coolant temperature monitoring channels inoperable.	A.1 Verify at least one RHR subsystem is operating in the Shutdown Cooling Mode.	Immediately.
	<u>AND</u> A.2 Verify an alternate method of reactor coolant temperature monitoring is available.	1 hour <u>AND</u> Once per 24 hours thereafter.
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to restore reactor coolant temperature monitoring capability.	Immediately.



SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.2.1	Perform CHANNEL CHECK.	[7] days
SR 3.3.8.2.2	Perform CHANNEL FUNCTIONAL TEST.	[92] days
SR 3.3.8.2.3	Perform CHANNEL CALIBRATION.	18 months

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.1 Reactor Internal Pumps (RIPs) - Operating

LCO 3.4.1 At least nine RIPs shall be in operation.

[OR]

[ ] RIPs may be in operation provided the following limits are applied when the associated LCO is applicable:

- a. LCO 3.2.1, "AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)," limits specified in the COLR for [ ] RIPs in operation; and
- b. LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits specified in the COLR for [ ] RIPs in operation; and
- c. LCO 3.3.1.1, "SSLC Sensor Instrumentation," Function 2.b (Average Power Range Monitors Flow Biased Simulated Thermal Power - High), Allowable Value of Table 3.3.1.1-1 is reset for operation with [ ] RIPs.]

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Be in MODE 3.	12 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.1.1 Verify at least the required number of RIPs are operating at any THERMAL POWER level.	24 hours

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.2 Safety/Relief Valves (S/RVs)

LCO 3.4.2            The safety function of twelve S/RVs shall be OPERABLE.

APPLICABILITY:    MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required S/RV inoperable.	A.1    Restore required S/RV to OPERABLE status.	14 day
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u>  Two or more required S/RVs inoperable.	B.1    Be in MODE 3.  <u>AND</u>  B.2    Be in MODE 4.	12 hours    36 hours

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY												
SR 3.4.2.1	Verify the safety function lift setpoints of the required S/RVs are as follows:	In accordance with the Inservice Testing Program												
	<table><tr><th><u>Number of S/RVs</u></th><th><u>Setpoint (MPaG)</u></th></tr><tr><td>2</td><td>8.00 ± 0.24</td></tr><tr><td>4</td><td>8.07 ± 0.24</td></tr><tr><td>4</td><td>8.14 ± 0.24</td></tr><tr><td>4</td><td>8.20 ± 0.25</td></tr><tr><td>4</td><td>8.27 ± 0.25</td></tr></table>		<u>Number of S/RVs</u>	<u>Setpoint (MPaG)</u>	2	8.00 ± 0.24	4	8.07 ± 0.24	4	8.14 ± 0.24	4	8.20 ± 0.25	4	8.27 ± 0.25
	<u>Number of S/RVs</u>		<u>Setpoint (MPaG)</u>											
	2		8.00 ± 0.24											
	4		8.07 ± 0.24											
	4		8.14 ± 0.24											
	4		8.20 ± 0.25											
4	8.27 ± 0.25													
Following testing, lift settings shall be within ± 1%.														
SR 3.4.2.2	-----NOTE----- Not required to be performed until 12 hours after reactor steam dome pressure is ≥ 6.55 MPaG. -----	18 months												
	Verify each required S/RV opens when manually actuated.													

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.3 RCS Operational LEAKAGE

LCO 3.4.3 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE;
- b.  $\leq 19$  L/min unidentified LEAKAGE;
- c.  $\leq 114$  L/min total LEAKAGE averaged over the previous 24 hour period; and
- d.  $\leq 8$  L/min increase in unidentified LEAKAGE within previous 4 hour period in MODE 1.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Unidentified LEAKAGE not within limit.  <u>OR</u>  Total LEAKAGE not within limit.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Unidentified LEAKAGE increase not within limit.	B.1 Reduce LEAKAGE to within limits.  <u>OR</u>  B.2 Verify source of unidentified LEAKAGE increase is not service sensitive type 304 or type 316 austenitic stainless steel.	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.  <u>OR</u>  Pressure boundary LEAKAGE exists.	C.1 Be in MODE 3.	12 hours
	<u>AND</u>  C.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify RCS unidentified, total LEAKAGE and unidentified LEAKAGE increase are within limits.	8 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.4 The leakage from each RCS PIV shall be within limit.

APPLICABILITY: MODES 1 and 2,  
MODE 3, except valves in the residual heat removal (RHR) shutdown cooling flowpath are not required to meet the requirements of this LCO when in the shutdown cooling mode of operation.

ACTIONS

- NOTES-----
- 1. Separate Condition entry is allowed for each flow path.
  - 2. Enter applicable Conditions and Required Actions for systems made inoperable by PIVs.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Leakage from one or more RCS PIVs not within limit.	<p>-----NOTE----- Each valve used to satisfy Required Action A.1 and Required Action A.2 shall have been verified to meet SR 3.4.4.1 and be in the reactor coolant pressure boundary. -----</p> <p>A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve.</p> <p><u>AND</u></p>	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.  <u>AND</u>	12 hours
	B.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.4.1</p> <p>-----NOTE----- Not required to be performed in MODE 3. -----</p> <p>Verify equivalent leakage of each RCS PIV is  <math>\leq 1.9</math> L/min per 2.54 cm (nominal inch) of valve size  up to a maximum of 19 L/min, at an RCS pressure  <math>\geq 7.17</math> MPaG and <math>\leq 7.31</math> MPaG.</p>	18 months



### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.5 RCS Leakage Detection Instrumentation

- LCO 3.4.5            The following RCS leakage detection instrumentation shall be OPERABLE:
- a.    Drywell floor drain sump monitoring system;
  - b.    The airborne particulate channel of the drywell fission products monitoring system; and
  - c.    The gaseous radioactivity channel of the drywell fission products monitoring system or the drywell air cooler condensate flow monitoring system.

APPLICABILITY:    MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell floor drain sump monitoring system inoperable.	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>A.1    Restore drywell floor drain sump monitoring system to OPERABLE status.</p>	30 days
B. Airborne particulate channel of drywell fission products monitoring system inoperable.	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>B.1    Analyze grab samples of drywell atmosphere.</p> <p><u>AND</u></p>	Once per 12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Restore airborne particulate channel of drywell fission product monitoring system to OPERABLE status.	30 days
C. Gaseous radioactivity channel of drywell fission products monitoring system inoperable.  <u>AND</u>  Drywell air cooler condensate flow monitoring system inoperable.	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>C.1 Restore gaseous radioactivity channel of drywell fission products monitoring system to OPERABLE status.</p> <p><u>OR</u></p> <p>C.2 Restore drywell air cooler condensate flow monitoring system to OPERABLE status.</p>	<p>30 days</p> <p>30 days</p>
D. Required Action and associated Completion Time of Condition A, B, or C not met.	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>
E. All required leakage detection systems inoperable.	E.1 Enter LCO 3.0.3.	Immediately

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Perform CHANNEL CHECK of required drywell atmospheric monitoring system.	12 hours
SR 3.4.5.2	Perform CHANNEL FUNCTIONAL TEST of required leakage detection instrumentation.	31 days
SR 3.4.5.3	Perform CHANNEL CALIBRATION of required leakage detection instrumentation.	18 months

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.6 RCS Specific Activity

LCO 3.4.6 The specific activity of the reactor coolant shall be limited to:

- a. DOSE EQUIVALENT I-131 specific activity  $\leq 7400$  Bq/g; and
- b. Gross specific activity  $\leq (3.7 \times 10^6 / \bar{E})$  Bq/g.

APPLICABILITY: MODE 1,  
MODES 2 and 3 with any main steam line not isolated.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor coolant specific activity $> 7400$ Bq/g and $\leq 148,000$ Bq/g DOSE EQUIVALENT I-131.	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>A.1 Determine DOSE EQUIVALENT I-131.</p> <p><u>AND</u></p> <p>A.2 Restore DOSE EQUIVALENT I-131 to within limits.</p>	<p>Once per 4 hours</p> <p>48 hours</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>Reactor coolant specific activity <math>&gt; 148,000</math> Bq/g DOSE EQUIVALENT I-131.</p>	<p>B.1 Determine DOSE EQUIVALENT I-131.</p> <p><u>AND</u></p> <p>B.2.1 Isolate all main steam lines.</p> <p><u>OR</u></p> <p>B.2.2.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>B.2.2.2 Be in MODE 4.</p>	<p>Once per 4 hours</p> <p>12 hours</p> <p>12 hours</p> <p>36 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Reactor coolant specific activity > $(3.7 \times 10^6 / \bar{E})$ Bq/g.	C.1 Isolate all main steam lines.	12 hours
	<u>OR</u>	
	C.2.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	C.2.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify reactor coolant gross specific activity is $\leq (3.7 \times 10^6 / \bar{E})$ Bq/g.	7 days
SR 3.4.6.2	<p>-----NOTE----- Only required to be performed in MODE 1. -----</p> <p>Verify reactor coolant DOSE EQUIVALENT I-131 specific activity is <math>\leq 7400</math> Bq/g.</p>	31 days
SR 3.4.6.3	<p>-----NOTE----- Not required to be performed until 31 days after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for <math>\geq 48</math> hours. -----</p> <p>Determine <math>\bar{E}</math> from a sample taken in MODE 1 after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for <math>\geq 48</math> hours.</p>	184 days

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.7 Residual Heat Removal (RHR) Shutdown Cooling System – Hot Shutdown

LCO 3.4.7 Three RHR shutdown cooling subsystems shall be OPERABLE, and, with less than 5 reactor internal pumps (RIPs) in operation, at least one RHR shutdown cooling subsystem shall be in operation.

#### NOTES

1. All RHR shutdown cooling subsystems and reactor internal pumps may be removed from operation for up to 2 hours per 8 hour period.
2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for performance of Surveillances provided one of the remaining RHR shutdown cooling subsystems is OPERABLE.

APPLICABILITY: MODE 3 with reactor steam dome pressure < 0.932 MPaG.

#### ACTIONS

#### NOTE

LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required RHR shutdown cooling subsystems inoperable.	A.1 Initiate action to restore required RHR shutdown cooling subsystem(s) to OPERABLE status.	Immediately
	<u>AND</u> A.2 Initiate action to be in MODE 4.	Immediately
	<u>AND</u>	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3    Verify an alternate method of decay heat removal is available for each required inoperable RHR shutdown cooling subsystem.	1 hour
<p>B. No RHR shutdown cooling subsystem in operation.</p> <p><u>AND</u></p> <p>Less than 5 RIPs in operation.</p>	<p>B.1.1    Initiate action to restore one RHR shutdown cooling subsystem to operation.</p> <p><u>OR</u></p> <p>B.1.2    Initiate action to restore at least 5 RIPs to operation.</p> <p><u>AND</u></p> <p>B.2    Verify reactor coolant circulation by an alternate method.</p> <p><u>AND</u></p> <p>B.3    Monitor reactor coolant temperature and pressure.</p>	<p>Immediately</p> <p>Immediately</p> <p>1 hour from discovery of no reactor coolant circulation</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>Once per hour</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	<p>-----NOTE----- Not required to be met until 2 hours after reactor steam dome pressure is &lt; 0.932 MPaG. -----</p> <p>Verify one RHR shutdown cooling subsystem or at least 5 RIPs are operating.</p>	12 hours



### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.8 Residual Heat Removal (RHR) Shutdown Cooling System – Cold Shutdown

LCO 3.4.8 Three RHR shutdown cooling subsystems shall be OPERABLE, and, with less than 5 reactor internal pumps (RIPs) in operation, at least one RHR shutdown cooling subsystem shall be in operation.

-----NOTES-----

1. All RHR shutdown cooling subsystems and reactor internal pumps may be removed from operation for up to 2 hours per 8 hour period.
  2. One RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.
  3. One RHR shutdown cooling subsystem may be inoperable after 30 hours from initial entry into MODE 4 from MODE 3.
- 

APPLICABILITY: MODE 4.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each required inoperable RHR shutdown cooling subsystem.	1 hour  <u>AND</u>  Once per 24 hours thereafter

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. No RHR shutdown cooling subsystem in operation.  <u>AND</u>  Less than 5 RIPs in operation.	B.1 Verify reactor coolant circulating by an alternate method.	1 hour from discovery of no reactor coolant circulation  <u>AND</u>  Once per 12 hours thereafter
	<u>AND</u>  B.2 Monitor reactor coolant temperature and pressure.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.8.1      Verify one RHR shutdown cooling subsystem or at least 5 RIPs are operating.	12 hours

### 3.4 REACTOR COOLANT SYSTEM (RCS)

### 3.4.9 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.9 RCS pressure, RCS temperature, RCS heatup and cooldown rate requirements shall be maintained within the limits specified in the PTLR.

APPLICABILITY: At all times.

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. -----NOTE----- Required Action A.2 shall be completed if this Condition is entered. -----  Requirements of the LCO not met in MODES 1, 2, and 3.	A.1     Restore parameter(s) to within limits.  <u>AND</u>  A.2     Determine RCS is acceptable for continued operation.	30 minutes         72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1     Be in MODE 3.  <u>AND</u>  B.3     Be in MODE 4.	12 hours         36 hours
C. -----NOTE----- Required Action C.2 shall be completed if this Condition is entered. -----  Requirements of the LCO not met in other than MODES 1, 2, and 3.	C.1     Initiate action to restore parameter(s) to within limits.  <u>AND</u>  C.2     Determine RCS is acceptable for operation.	Immediately         Prior to entering MODE 2 or 3

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	<p>-----NOTE----- Only required to be performed during RCS heatup and cooldown operations, and RCS inservice leak and hydrostatic testing. -----</p> <p>Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates are within the limits specified in the PTLR.</p>	30 minutes
SR 3.4.9.2	Verify RCS pressure and RCS temperature are within the criticality limits specified in the PTLR.	Once within 15 minutes prior to control rod withdrawal for the purpose of achieving criticality
SR 3.4.9.3	<p>-----NOTE----- Only required to be performed when tensioning the reactor vessel head bolting studs. -----</p> <p>Verify reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.</p>	30 minutes
SR 3.4.9.4	<p>-----NOTE----- Not required to be performed until 30 minutes after RCS temperature <math>\leq 27^{\circ}\text{C}</math> in MODE 4. -----</p> <p>Verify reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.</p>	30 minutes

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<div data-bbox="207 432 355 464">SR 3.4.9.5</div> <div data-bbox="456 432 1133 464">-----NOTE-----</div> <div data-bbox="456 468 1084 537">Not required to be performed until 12 hours after RCS temperature <math>\leq 38^{\circ}\text{C}</math> in MODE 4.</div> <div data-bbox="456 548 1133 558">-----</div> <div data-bbox="456 604 1089 701">Verify reactor vessel flange and head flange temperatures are within the limits specified in the PTLR.</div>	<div data-bbox="1174 604 1289 636">12 hours</div>

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.10 Reactor Steam Dome Pressure

LCO 3.4.10 The reactor steam dome pressure shall be  $\leq 7.17$  MPaG.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor steam dome pressure not within limit.	A.1 Restore reactor steam dome pressure to within limit.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.10.1 Verify reactor steam dome pressure is $\leq 7.17$ MPaG.	12 hours

### 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

### 3.5.1 ECCS – Operating

LCO 3.5.1 Each ECCS subsystem and the Automatic Depressurization System (ADS) function of eight safety/relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,  
MODES 2 and 3, except ADS valves and RCIC are not required to be  
OPERABLE with reactor steam dome pressure  $\leq 0.343$  MPaG for  
ADS and  $\leq 1.03$  MPaG for RCIC.

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two ECCS subsystems inoperable provided RCIC is OPERABLE.	A.1 Restore ECCS subsystem(s) to OPERABLE status.	14 days
B. RCIC inoperable.  <u>OR</u>  RCIC and any one other ECCS subsystem inoperable.	<p>B.1.1 Verify the CTG is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.</p> <p><u>AND</u></p> <p>B.1.2 Verify the CTG circuit breakers are capable of being aligned to each of the ESF buses</p> <p><u>OR</u></p> <p>B.2 Verify the ACIWA mode of RHR(C) subsystem is functional.</p> <p><u>AND</u></p>	<p>7 days</p> <p>7 days</p> <p><u>AND</u> Once per 8 hours thereafter</p> <p>7 days</p>

---

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Restore ECCS subsystem(s) to OPERABLE status.	14 days
C. RCIC and any other two ECCS subsystems inoperable provided at least one HPCF subsystem is OPERABLE.	<p>C.1.1.1 Verify the CTG is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.</p> <p><u>AND</u></p> <p>C.1.1.2 Verify the CTG circuit breakers are capable of being aligned to each of the ESF buses.</p> <p><u>OR</u></p> <p>C.1.2 Verify the ACIWA mode of RHR(C) subsystem is functional.</p> <p><u>AND</u></p> <p>C.2 Restore one ECCS subsystem to OPERABLE status.</p>	<p>72 hours</p> <p>72 hours</p> <p><u>AND</u></p> <p>Once per 8 hours thereafter</p> <p>72 hours</p> <p>7 days</p>
D. Any three ECCS subsystems inoperable provided RCIC is OPERABLE.	D.1 Restore one ECCS subsystem to OPERABLE status.	3 days
E. Three high pressure ECCS subsystems inoperable.	E.1 Restore one high pressure ECCS subsystem to OPERABLE status.	12 hours

(continued)



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time of Condition A, B, C, D or E not met.</p> <p><u>OR</u></p> <p>Any four ECCS subsystems inoperable.</p>	<p>F.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>F.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>
<p>G. -----NOTE----- This Condition may exist concurrently with Conditions A through D. -----</p> <p>One or two ADS valves inoperable.</p>	<p>G.1 Restore ADS valves to OPERABLE status.</p>	<p>14 days</p>
<p>H. -----NOTE----- This Condition may exist concurrently with Conditions A through C. -----</p> <p>Three ADS valves inoperable.</p>	<p>H.1 Restore one ADS valve to OPERABLE status.</p>	<p>7 days</p>
<p>I. Four or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition G or H not met.</p>	<p>I.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>I.2 Reduce reactor steam dome pressure to <math>\leq 0.343</math> MPaG.</p>	<p>12 hours</p> <p>36 hours</p>

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY									
SR 3.5.1.1	Verify, for each ECCS subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days									
SR 3.5.1.2	<p>-----NOTE-----</p> <p>Low pressure core flooders (LPFL) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than 0.932 MPaG in MODE 3, if capable of being manually realigned and not otherwise inoperable.</p> <p>-----</p> <p>Verify each ECCS subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days									
SR 3.5.1.3	Verify ADS nitrogen supply pressure is $\geq 1.11$ MPaG.	31 days									
SR 3.5.1.4	<p>Verify each motor driven ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure.</p> <table> <tr> <th><u>SYSTEM</u></th><th><u>FLOW RATE</u></th><th><u>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</u></th></tr> <tr> <td>LPFL</td><td><math>\geq 954 \text{ m}^3/\text{h}</math></td><td><math>\geq 0.275 \text{ MPaG}</math></td></tr> <tr> <td>HPCF</td><td><math>\geq 182 \text{ m}^3/\text{h}</math></td><td><math>\geq 8.12 \text{ MPaG}</math></td></tr> </table>	<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</u>	LPFL	$\geq 954 \text{ m}^3/\text{h}$	$\geq 0.275 \text{ MPaG}$	HPCF	$\geq 182 \text{ m}^3/\text{h}$	$\geq 8.12 \text{ MPaG}$	92 days
<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</u>									
LPFL	$\geq 954 \text{ m}^3/\text{h}$	$\geq 0.275 \text{ MPaG}$									
HPCF	$\geq 182 \text{ m}^3/\text{h}$	$\geq 8.12 \text{ MPaG}$									

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.5	<p>-----NOTE-----</p> <p>Not required to be performed until 12 hours after reactor steam dome pressure is <math>\geq 6.55</math> MPaG.</p> <p>-----</p> <p>Verify, with RCIC steam supply pressure <math>\leq 7.07</math> MPaG and <math>\geq 6.55</math> MPaG, the RCIC pump can develop a flow <math>\geq 182</math> m<sup>3</sup>/h against a system head corresponding to reactor pressure.</p>	92 days
SR 3.5.1.6	<p>-----NOTE-----</p> <p>Not required to be performed until 12 hours after reactor steam dome pressure is <math>\geq 1.03</math> MPaG.</p> <p>-----</p> <p>Verify, with RCIC steam supply pressure <math>\leq 1.14</math> MPaG, the RCIC pump can develop a flow rate <math>\geq 182</math> m<sup>3</sup>/h against a system head corresponding to reactor pressure.</p>	18 months
SR 3.5.1.7	<p>-----NOTE-----</p> <p>Vessel injection may be excluded.</p> <p>-----</p> <p>Verify each ECCS subsystem actuates on an actual or simulated automatic initiation signal.</p>	18 months
SR 3.5.1.8	<p>-----NOTE-----</p> <p>Valve actuation may be excluded.</p> <p>-----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.9	-----NOTE----- Not required to be performed until 12 hours after reactor steam dome pressure is $\geq 6.55$ MPaG. -----	18 months
	Verify each ADS valve opens when manually actuated.	

### 3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

#### 3.5.2 ECCS – Shutdown

LCO 3.5.2 Two ECCS subsystems shall be OPERABLE.

APPLICABILITY: MODE 4,  
MODE 5 except with the reactor cavity to dryer/separator storage pool  
gate removed and water level  $\geq 7.0$  m over the top of the reactor  
pressure vessel flange.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required ECCS subsystem inoperable.	A.1 Restore required ECCS subsystem to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
C. Two required ECCS subsystems inoperable.	C.1 Initiate action to suspend OPDRVs.  <u>AND</u> C.2 Restore one ECCS subsystem to OPERABLE status.	Immediately  4 hours

(continued)

ACTIONS (continued)		
CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action C.2 and associated Completion Time not met.	D.1 Initiate action to restore secondary containment to OPERABLE status.	Immediately
	<u>AND</u>	
	D.2 Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately
	<u>AND</u>	
	D.3 Initiate action to restore one isolation valve and associated instrumentation to OPERABLE status in each secondary containment penetration flow path not isolated.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify, for each required Low Pressure Core Flooder (LPFL) subsystem, the suppression pool water level is $\geq 7.0$ m.	12 hours
SR 3.5.2.2	Verify, for the required High Pressure Core Flooder (HPCF) subsystem, the: <ul style="list-style-type: none"> <li>a. Suppression pool water level is <math>\geq 7.0</math> m, or</li> <li>b. Condensate storage tank water level is <math>\geq [ \quad ]</math>.</li> </ul>	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY												
SR 3.5.2.3	Verify, for each required ECCS subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days												
SR 3.5.2.4	<div>-----NOTE-----</div> <div>Low Pressure Core Flooder (LPFL) subsystem may be considered OPERABLE during alignment and operation in the decay heat removal shutdown cooling mode, if capable of being manually realigned and not otherwise inoperable.</div> <div>-----</div> <div>Verify each required ECCS subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</div>	31 days												
SR 3.5.2.5	<div>Verify each required ECCS pump develops the specified flow rate against a system head corresponding to the specified reactor pressure.</div> <table><thead><tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO OF PUMPS</th><th>SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF</th></tr></thead><tbody><tr><td>LPFL</td><td>≥ 954 m<sup>3</sup>/h</td><td>1</td><td>≥ 0.275 MPaG</td></tr><tr><td>HPCF</td><td>≥ 182 m<sup>3</sup>/h</td><td>1</td><td>≥ 8.12 MPaG</td></tr></tbody></table>	SYSTEM	FLOW RATE	NO OF PUMPS	SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF	LPFL	≥ 954 m <sup>3</sup> /h	1	≥ 0.275 MPaG	HPCF	≥ 182 m <sup>3</sup> /h	1	≥ 8.12 MPaG	92 days
SYSTEM	FLOW RATE	NO OF PUMPS	SYSTEM HEAD CORRESPONDING TO A REACTOR PRESSURE OF											
LPFL	≥ 954 m <sup>3</sup> /h	1	≥ 0.275 MPaG											
HPCF	≥ 182 m <sup>3</sup> /h	1	≥ 8.12 MPaG											
SR 3.5.2.6	<div>-----NOTE-----</div> <div>Vessel injection may be excluded.</div> <div>-----</div> <div>Verify each required ECCS subsystem actuates on an actual or simulated automatic initiation signal.</div>	18 months												

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.1 Primary Containment

LCO 3.6.1.1 Primary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment inoperable.	A.1 Restore primary containment to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours



**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.1.1      Perform required visual examinations and leakage rate testing except for primary containment air lock testing, in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.</p> <p>The maximum allowable leakage rate, <math>L_a</math>, is 0.5% of primary containment air weight per day at the calculated peak containment pressure, <math>P_a</math>.</p>	<p>-----NOTE----- SR 3.0.2 is not applicable -----</p> <p>In accordance with 10 CFR 50, Appendix J, as modified by approved exemptions</p>
<p>SR 3.6.1.1.2      Verify drywell to suppression chamber differential pressure does not decrease at a rate &gt; 12 mm water gauge per minute tested over a 15 minute period at an initial differential pressure of 0.031 MPaD.</p>	<p>18 months</p> <p><u>AND</u></p> <p>-----NOTE----- Only required after two consecutive tests fail and continues until two consecutive tests pass -----</p> <p>9 months</p>

### 3.6 CONTAINMENT SYSTEMS

### 3.6.1.2 Primary Containment Air Locks

LCO 3.6.1.2 Two primary containment air locks shall be OPERABLE.

**APPLICABILITY:** MODES 1, 2, and 3.

## ACTIONS

## -NOTES.

1. Entry and exit is permissible to perform repairs of the affected air lock components.
2. Separate Condition entry is allowed for each air lock.
3. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when air lock leakage results in exceeding overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more primary containment air locks with one primary containment air lock door inoperable.	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered.</li> <li>2. Entry and exit is permissible for 7 days under administrative controls if both air locks are inoperable.</li> </ol> <p>-----</p>	

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.1    Verify the OPERABLE door is closed in the affected air lock(s).	1 hour
	<u>AND</u>	
	A.2    Lock the OPERABLE door closed in the affected air lock(s).	24 hours
	<u>AND</u>	
	A.3    -----NOTE----- Air lock doors in high radiation areas or areas with limited access due to inerting may be verified locked closed by administrative means. -----  Verify the OPERABLE door is locked closed in the affected air lock(s).	Once per 31 days

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more primary containment air locks with primary containment air lock interlock mechanism inoperable.	<p>-----NOTES-----</p> <p>1. Required Actions B.1, B.2, and B.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered.</p> <p>2. Entry into and exit from containment is permissible under the control of a dedicated individual.</p> <p>-----</p>	
	<p>B.1     Verify an OPERABLE door is closed in the affected air lock(s).</p> <p><u>AND</u></p>	1 hour
	<p>B.2     Lock an OPERABLE door closed in the affected air lock(s).</p> <p><u>AND</u></p>	24 hours
	<p>B.3     -----NOTE----- Air lock doors in high radiation areas or areas with limited access due to inerting may be verified locked closed by administrative means. -----</p>	
	<p>Verify an OPERABLE door is locked closed in the affected air lock(s).</p>	Once per 31 days

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more primary containment air locks inoperable for reasons other than Condition A or B.	C.1 Initiate action to evaluate primary containment overall leakage rate per LCO 3.6.1.1, using current air lock test results.	Immediately
	<u>AND</u>	
	C.2 Verify a door is closed in the affected air lock(s).	1 hour
	<u>AND</u>	
	C.3 Restore air lock(s) to OPERABLE status.	24 hours
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	D.2 Be in MODE 4.	36 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.2.1</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test.</li> <li>2. Results shall be evaluated against acceptance criteria of SR 3.6.1.1.1 in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.</li> </ol> <p>-----</p> <p>Perform required primary containment air lock leakage rate testing in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.</p> <p>The acceptance criteria for air lock testing are:</p> <ol style="list-style-type: none"> <li>a. Overall air lock leakage rate is <math>\leq 0.05 L_a</math> when tested at <math>\geq P_a</math>.</li> <li>b. For each door, leakage rate is <math>\leq 0.01 L_a</math> when the gap between the door seals is pressurized to <math>\geq [ ]</math> MPaG for at least 15 minutes.</li> </ol>	<p>-----NOTE-----</p> <p>SR 3.0.2 is not applicable</p> <p>-----</p> <p>In accordance with 10 CFR 50, Appendix J, as modified by approved exemptions</p>
<p>SR 3.6.1.2.2</p> <p>-----NOTE-----</p> <p>Only required to be performed upon entry into primary containment when the primary containment is de-inerted.</p> <p>-----</p> <p>Verify only one door in the primary containment air lock can be opened at a time.</p>	<p>184 days</p>

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
When associated instrumentation is required to be OPERABLE per  
LCO 3.3.1.1, "SSLC Sensor Instrumentation," and LCO 3.3.1.4, "ESF  
Actuation Instrumentation."

#### ACTIONS

#### NOTES

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable to penetration flow paths with two PCIVs. -----</p> <p>One or more penetration flow paths with one PCIV inoperable except for purge valve leakage, main steam line isolation valve leakage, or hydrostatically tested line leakage, not within limit.</p>	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p><u>AND</u></p>	<p>4 hours except for main steam line</p> <p><u>AND</u></p> <p>8 hours for main steam line</p>

# ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. (continued)</p>	<p>A.2</p> <p>-----NOTE----- Valves and blind flanges in high radiation areas may be verified by use of administrative means. -----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days for isolation devices outside primary containment, drywell, and steam tunnel</p> <p><u>AND</u></p> <p>Prior to entering MODE 2 or 3 from MODE 4, if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days, for isolation devices inside primary containment</p>
<p>B. -----NOTE----- Only applicable to penetration flow paths with two PCIVs. -----</p> <p>One or more penetration flow paths with two PCIVs inoperable except for purge valve leakage, main steam isolation valve leakage, or hydrostatically tested line leakage not within limit.</p>	<p>B.1</p> <p>Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>1 hour</p>



**ACTIONS** (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. -----NOTE----- Only applicable to penetration flow paths with only one PCIV. -----</p> <p>One or more penetration flow paths with one PCIV inoperable.</p>	<p>C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p> <p><u>AND</u></p> <p>C.2 -----NOTE----- Valves and blind flanges in high radiation areas may be verified by use of administrative means. -----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>4 hours except for excess flow check valves (EFCVs)</p> <p><u>AND</u></p> <p>12 hours for EFCVs</p> <p>Once per 31 days</p>
<p>D. Purge valve leakage rate, main steam isolation valve leakage, or hydrostatically tested line leakage not within limit.</p>	<p>D.1 Restore leakage to within limit.</p>	<p>[4 hours except for main steam line isolation valve leakage]</p> <p><u>AND</u></p> <p>8 hours for main steam line isolation valve leakage]</p>
<p>E. Required Action and associated Completion Time of Condition A, B, C, or D not met in MODE 1, 2, or 3.</p>	<p>E.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>E.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A, B, or C not met for PCIV(s) required to be OPERABLE during movement of irradiated fuel assemblies in the secondary containment.	<p>F.1 -----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>Suspend movement of irradiated fuel assemblies in the secondary containment.</p>	Immediately
G. Required Action and associated Completion Time of Condition A, B, or C not met for PCIV(s) required to be OPERABLE during CORE ALTERATIONS.	G.1 Suspend CORE ALTERATIONS.	Immediately
H. Required Action and associated Completion Time of Condition A, B, or C not met for PCIV(s) required to be OPERABLE during MODE 4 or 5 or during operations with a potential for draining the reactor vessel (OPDRVs).	<p>H.1 Initiate action to suspend OPDRVs.</p> <p><u>OR</u></p> <p>H.2 Initiate action to restore valve(s) to OPERABLE status.</p>	<p>Immediately</p> <p>Immediately</p>

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.1.3.1</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Only required to be met in MODES 1, 2, and 3.</li> <li>2. Not required to be met when the 500 mm primary containment purge valves are open for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open.</li> </ol> <p>-----</p> <p>Verify each 500 mm primary containment purge valve is closed.</p>	<p>31 days</p>
<p>SR 3.6.1.3.2</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.</li> <li>2. Not required to be met for PCIVs that are open under administrative controls.</li> </ol> <p>-----</p> <p>Verify each primary containment isolation manual valve and blind flange that is located outside primary containment and is required to be closed during accident conditions is closed.</p>	<p>31 days</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.3	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>Valves and blind flanges in high radiation areas may be verified by use of administrative means.</li> <li>Not required to be met for PCIVs that are open under administrative controls.</li> </ol> <p>-----</p> <p>Verify each primary containment isolation manual valve and blind flange that is located inside primary containment and is required to be closed during accident conditions is closed.</p>	Prior to entering MODE 2 or 3 from MODE 4, if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days
SR 3.6.1.3.4	Verify continuity of the automatic traversing incore probe (ATIP) shear isolation valve explosive charge.	31 days
SR 3.6.1.3.5	Verify the isolation time of each power operated and each automatic PCIV, except MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.6	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>Only required to be met in MODES 1, 2, and 3.</li> <li>Results shall be evaluated against acceptance criteria of SR 3.6.1.1.1 in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.</li> </ol> <p>-----</p> <p>Perform leakage rate testing for each primary containment purge valve with resilient seals.</p>	<p>184 days</p> <p><u>AND</u></p> <p>Once within 92 days after opening the valve</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.7	Verify the isolation time (i.e., total closure time exclusive of electrical delays) of each MSIV is $\geq 3$ seconds and $\leq 4.5$ seconds.	3 months
SR 3.6.1.3.8	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	18 months
SR 3.6.1.3.9	Verify each reactor instrumentation line EFCV actuates on a simulated instrument line break to restrict flow to $\leq 1.05 \text{ cm}^3/\text{s}$ .	18 months
SR 3.6.1.3.10	Remove and test the explosive squib from each shear isolation valve of the ATIP System.	18 months on a STAGGERED TEST BASIS
SR 3.6.1.3.11	<p>-----NOTE-----</p> <ol style="list-style-type: none"> <li>Only required to be met in MODES 1, 2, and 3.</li> <li>Results shall be evaluated against acceptance criteria of SR 3.6.1.1.1 in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions.</li> </ol> <p>-----</p> <p>Verify the combined leakage rate of <math>0.277 \text{ cm}^3/\text{hr}</math> times the total number of PCIVs through hydrostatically tested lines that penetrate the primary containment is not exceeded when these isolation valves are tested at <math>\geq 0.294 \text{ MPaG}</math>.</p>	18 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.12	Verify leakage rate through each MSIV is $\leq 1 \text{ m}^3/\text{h}$ when tested at $\geq 0.170 \text{ MPaG}$ .	<p>-----NOTE----- SR 3.0.2 is not applicable -----</p> <p>In accordance with 10 CFR 50, Appendix J, as modified by approved exemptions</p>
SR 3.6.1.3.13	<p>-----NOTE----- Only required to be met in MODES 1, 2, and 3. -----</p> <p>Verify each 500 mm primary containment purge valve is blocked to restrict the valve from opening &gt; [50]%. -----</p>	18 months

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.4 Drywell Pressure

LCO 3.6.1.4 Drywell pressure shall be  $\leq 5.20$  kPaG.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell pressure not within limit.	A.1 Restore drywell pressure to within limit.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.4.1 Verify drywell pressure is within limit.	12 hours

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.5 Drywell Air Temperature

LCO 3.6.1.5 Drywell average air temperature shall be  $\leq 57^{\circ}\text{C}$ .

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell average air temperature not within limit.	A.1 Restore drywell average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.1.5.1 Verify drywell average air temperature is within limit.	24 hours



### 3.6 CONTAINMENT SYSTEMS

#### 3.6.1.6 Wetwell-to-Drywell Vacuum Breakers

LCO 3.6.1.6 Eight wetwell-to-drywell vacuum breakers shall be OPERABLE.

AND

Eight wetwell-to-drywell vacuum breakers shall be closed.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One wetwell-to-drywell vacuum breaker inoperable for opening.	A.1 Restore the inoperable vacuum breaker to OPERABLE status.	72 hours
B. One or more wetwell-to-drywell vacuum breaker(s) not closed.	B.1 Verify closure of the vacuum breaker(s) by alternate methods.	12 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u>	12 hours
	C.2 Be in MODE 4.	36 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.6.1.6.1	<p>-----NOTE-----            Not required to be met for vacuum breakers when performing their intended function.            -----</p> <p>Verify each vacuum breaker is closed.</p>	<p>14 days</p> <p><u>AND</u></p> <p>Within 2 hours after any discharge of steam to the wetwell from the safety/relief valves (S/RVs) or any operation that causes the wetwell-drywell differential pressure to be reduced by <math>\geq 0.69</math> kPaD.</p>
SR 3.6.1.6.2	Perform a functional test of each vacuum breaker.	18 months
SR 3.6.1.6.3	Verify each required vacuum breaker fully opens at $\leq 3.45$ kPaD.	18 months
SR 3.6.1.6.4	Perform CHANNEL CALIBRATION of vacuum breaker position indication channel.	18 months

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.2.1 Suppression Pool Average Temperature

LCO 3.6.2.1 Suppression pool average temperature shall be:

- a.  $\leq 35^{\circ}\text{C}$  when THERMAL POWER is  $> 1\%$  RTP and no testing that adds heat to the suppression pool is being performed;
- b.  $\leq 40.6^{\circ}\text{C}$  when THERMAL POWER is  $> 1\%$  RTP and testing that adds heat to the suppression pool is being performed; and
- c.  $\leq 43.3^{\circ}\text{C}$  when THERMAL POWER is  $\leq 1\%$  RTP.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool average temperature $> 35^{\circ}\text{C}$ but $\leq 43.3^{\circ}\text{C}$ .  <u>AND</u>  THERMAL POWER is $> 1\%$ RTP.  <u>AND</u>  Not performing testing that adds heat to the suppression pool.	A.1 Verify suppression pool average temperature $\leq 43.3^{\circ}\text{C}$ .	Once per hour
	<u>AND</u>  A.2 Restore suppression pool average temperature to $\leq 35^{\circ}\text{C}$ .	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Reduce THERMAL POWER to < 1% RTP.	12 hours
C. Suppression pool average temperature > 40.6°C.  <u>AND</u>  THERMAL POWER > 1% RTP.  <u>AND</u>  Performing testing that adds heat to the suppression pool.	C.1 Suspend all testing that adds heat to the suppression pool.	Immediately
D. Suppression pool average temperature > 43.3°C.	D.1 Determine suppression pool average temperature.  <u>AND</u>  D.2 Be in MODE 4.	Once per 30 minutes    36 hours
E. Suppression pool average temperature > 48.9°C.	E.1 Depressurize the reactor vessel to < 1.38 MPaG.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1.1	Verify suppression pool average temperature is within the applicable limits.	24 hours  <u>AND</u>  5 minutes when performing testing that adds heat to the suppression pool

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.2.2 Suppression Pool Water Level

LCO 3.6.2.2            Suppression pool water level shall be  $\geq 7$  meters and  $\leq 7.1$  meters.

APPLICABILITY:      MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Suppression pool water level not within limits.	A.1    Restore suppression pool water level to within limits.	2 hours
B. Required Action and associated Completion Time not met.	B.1    Be in MODE 3.	12 hours
	<u>AND</u> B.2    Be in MODE 4.	36 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.2.2.1      Verify suppression pool water level is within limits.	24 hours

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.2.3 Residual Heat Removal (RHR) Suppression Pool Cooling

LCO 3.6.2.3 Three RHR suppression pool cooling subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR suppression pool cooling subsystem inoperable.	A.1 Restore RHR suppression pool cooling subsystem to OPERABLE status.	14 days
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u>  Two or more RHR suppression pool cooling subsystems inoperable.	B.1 Be in MODE 3.  <u>AND</u>  B.2 Be in MODE 4.	12 hours   36 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.6.2.3.1	Verify each RHR suppression pool cooling subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.2.3.2	Verify each RHR pump develops a flow rate $\geq 954 \text{ m}^3/\text{h}$ through the associated heat exchanger while operating in the suppression pool cooling mode.	92 days



### 3.6 CONTAINMENT SYSTEMS

#### 3.6.2.4 Residual Heat Removal (RHR) Containment Spray

LCO 3.6.2.4 Two RHR containment spray subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR containment spray subsystem inoperable.	A.1 Verify the ACIWA mode of RHR(C) subsystem is functional.	7 days
	<u>AND</u> A.2 Restore RHR containment spray subsystem to OPERABLE status.	14 days
B. Two RHR containment spray subsystems inoperable.	B.1 Restore one RHR containment spray subsystem to OPERABLE status.	8 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.6.2.4.1	Verify each RHR containment spray subsystem manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position.	31 days
SR 3.6.2.4.2	Verify each associated (i.e., in subsystems B & C) RHR pump develops a flow rate $\geq 114 \text{ m}^3/\text{h}$ through the wetwell spray sparger.	92 days

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.3.1 Primary Containment Hydrogen Recombiners

Not Used.

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.3.2 Primary Containment Oxygen Concentration

LCO 3.6.3.2      The primary containment oxygen concentration shall be < 3.5 volume percent.

APPLICABILITY:      MODE 1 during the time period:

- a. From 24 hours after THERMAL POWER is > 15% RTP following startup, to
- b. 24 hours prior to reducing THERMAL POWER to < 15% RTP prior to the next scheduled reactor shutdown.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Primary containment oxygen concentration not within limit.	A.1 Restore oxygen concentration to within limit.	24 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to $\leq$ 15% RTP.	8 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.2.1      Verify primary containment oxygen concentration is within limits.	7 days

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.4.1 Secondary Containment

LCO 3.6.4.1 The secondary containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor vessel (OPDRVs).

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Secondary containment inoperable in MODE 1, 2, or 3.	A.1 Restore secondary containment to OPERABLE status.	4 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours  36 hours
C. Secondary containment inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	C.1 -----NOTE----- LCO 3.0.3 is not applicable. ----- Suspend movement of irradiated fuel assemblies in the secondary containment. <u>AND</u> C.2 Suspend CORE ALTERATIONS. <u>AND</u> C.3 Initiate action to suspend OPDRVs.	Immediately  Immediately  Immediately

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify secondary containment vacuum is $\geq 6.4$ mm water gauge.	24 hours
SR 3.6.4.1.2	Verify all secondary containment equipment hatches are closed and sealed.	31 days
SR 3.6.4.1.3	Verify each secondary containment access door is closed, except when the access opening is being used for entry and exit, then at least one door shall be closed.	31 days
SR 3.6.4.1.4	Verify each standby gas treatment (SGT) subsystem will draw down the secondary containment to $\geq 6.4$ mm water gauge vacuum in $\leq 20$ minutes.	18 months on a STAGGERED TEST BASIS
SR 3.6.4.1.5	Verify each SGT subsystem can maintain $\geq 6.4$ mm water gauge vacuum in the secondary containment for 1 hour at a flow rate $\leq 6800$ m <sup>3</sup> /h.	18 months on a STAGGERED TEST BASIS

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.4.2 Secondary Containment Isolation Valves (SCIVs)

LCO 3.6.4.2 Each SCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor vessel (OPDRVs).

#### ACTIONS

#### NOTES

1. Penetration flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by SCIVs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more penetration flow paths with one SCIV inoperable.	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p> <p><u>AND</u></p>	8 hours

# ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.2 -----NOTE----- Valves and blind flanges in high radiation areas may be verified by use of administrative means. -----</p> <p>Verify the affected penetration flow path is isolated.</p>	Once per 31 days
<p>B. -----NOTE----- Only applicable to penetration flow paths with two isolation valves. -----</p> <p>One or more penetration flow paths with two SCIVs inoperable.</p>	<p>B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	4 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A or B not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	D.1 -----NOTE----- LCO 3.0.3 is not applicable. -----	
	Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	
	D.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	D.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.2.1 -----NOTES----- 1. Valves and blind flanges in high radiation areas may be verified by use of administrative means.  2. Not required to be met for SCIVs that are open under administrative controls. -----  Verify each secondary containment isolation manual valve and blind flange that is required to be closed during accident conditions is closed.	31 days
SR 3.6.4.2.2 Verify the isolation time of each power operated and each automatic SCIV is within limits.	92 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.4.2.3	Verify each automatic SCIV actuates to the isolation position on an actual or simulated actuation signal.	18 months

### 3.6 CONTAINMENT SYSTEMS

#### 3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor vessel (OPDRVs).

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT train to OPERABLE status.	7 days
B. Two SGT trains inoperable in MODES 1, 2, or 3.	B.1 Restore one SGT train to OPERABLE status.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3.	12 hours
	<u>AND</u> C.2 Be in MODE 4.	36 hours

ACTIONS (continued)

<p>D. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.</p>	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>D.1 Place OPERABLE SGT train in operation.</p> <p><u>OR</u></p> <p>D.2.1 Suspend movement of irradiated fuel assemblies in secondary containment.</p> <p><u>AND</u></p> <p>D.2.2 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>D.2.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
<p>E. Two SGT subsystems inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.</p>	<p>E.1 -----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>Suspend movement of irradiated fuel assemblies in secondary containment.</p> <p><u>AND</u></p> <p>E.2 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>E.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.3.1	Operate each SGT train for $\geq 10$ continuous hours with heaters operating.	31 days
SR 3.6.4.3.2	Perform required SGT filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.4.3.3	Verify each SGT train actuates on an actual or simulated initiation signal.	18 months
SR 3.6.4.3.4	Verify each SGT filter cooler bypass damper can be opened and the fan started.	18 months

### 3.7 PLANT SYSTEMS

#### 3.7.1 Reactor Building Cooling Water(RCW) System, Reactor Service Water (RSW) System and Ultimate Heat Sink (UHS) – Operating

LCO 3.7.1 Divisions A, B and C of the RCW/RSW System and the UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RCW pump and/or one RSW pump and/or one RCW/RSW heat exchanger and/or one cooling tower cell in the UHS inoperable in a single division.	A.1 Restore pump(s) and/or heat exchanger and/or UHS cooling tower cell to OPERABLE status.	14 days
B. One RCW/RSW division inoperable for reasons other than Condition A.  <u>OR</u>  Both cooling tower cells in one UHS division inoperable.	B.1 Declare associated supported required feature(s) inoperable and enter applicable Conditions and Required Actions of the LCOs for the inoperable required feature(s).  <u>AND</u>  B.2 Initiate action to restore RCW/RSW division or both UHS cooling tower cells to OPERABLE status.	Immediately          Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Condition A exists in two or more RCW/RSW or UHS cooling tower divisions.	C.1 Restore one inoperable RCW/RSW or UHS cooling tower division to OPERABLE status.	7 days
<p>D. Required Action and associated Completion Time of Condition A, B or C not met.</p> <p><u>OR</u></p> <p>Two or more RCW/RSW divisions inoperable for reasons other than Condition C.</p> <p><u>OR</u></p> <p>UHS inoperable.</p> <p><u>OR</u></p> <p>Two or more UHS cooling tower divisions inoperable for reasons other than Condition C.</p>	<p>D.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2 Be in MODE 4.</p>	<p>12 hours</p> <p>36 hours</p>

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify the water level of the UHS basin is $\geq 13.56$ m (MSL).	24 hours
SR 3.7.1.2	Verify the water level in each RSW pump well of the UHS basin is $\geq [ ]$ m.	24 hours
SR 3.7.1.3	Verify the RSW water temperature at the inlet to the RCW/RSW heat exchangers is $\leq [33.3]^{\circ}\text{C}$ .	24 hours
SR 3.7.1.4	Operate each cooling tower cell fan for $\geq 15$ minutes.	31 days
SR 3.7.1.5	<p>-----NOTE-----</p> <p>Isolation of flow to individual components does not render RCW/RSW System inoperable.</p> <p>-----</p> <p>Verify each RCW/RSW division and associated UHS cooling tower division manual, power operated, and automatic valve in the flow path servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days
SR 3.7.1.6	Verify each RCW/RSW division and associated UHS cooling tower division actuate on an actual or simulated initiation signal.	18 months



### 3.7 PLANT SYSTEMS

#### 3.7.2 Reactor Building Cooling Water (RCW) System, Reactor Service Water (RSW) System and Ultimate Heat Sink (UHS) – Shutdown

LCO 3.7.2 Three RCW/RSW divisions and UHS shall be OPERABLE.

-----NOTE-----  
One RCW/RSW division may be inoperable in MODE 5, and after 30 hours from initial entry into MODE 4 from MODE 3.  
-----

APPLICABILITY: MODE 4,  
MODE 5 with irradiated fuel in the reactor pressure vessel (RPV) and water level < 7.0 m over the top of the reactor pressure vessel flange.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RCW pump and/or one RSW pump and/or one RCW/RSW heat exchanger and/or one cooling tower cell in the UHS in one required division inoperable.	A.1 Restore pump(s) and/or heat exchanger and/or UHS cooling tower cell to OPERABLE status.	14 days
B. Condition A exists in two or more required RCW/RSW or UHS cooling tower divisions.	B.1 Restore one inoperable RCW/RSW or UHS cooling tower division to OPERABLE status.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One or more required RCW/RSW division or UHS cooling tower divisions inoperable for reasons other than Condition A or B.</p> <p><u>OR</u></p> <p>UHS inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A or B not met.</p>	<p>C.1 Enter applicable Conditions and Required Actions of LCO 3.8.11, “AC Sources – Shutdown (Low Water Level)” for diesel generator(s) made inoperable by RCW/RSW.</p>	Immediately
	<p><u>AND</u></p> <p>C.2 Enter applicable Conditions and Required Actions of LCO 3.4.8, “Residual Heat Removal (RHR) – MODE 4,” or LCO 3.9.8, “RHR – Low Water Level”, for RHR shutdown cooling made inoperable by RCW/RSW.</p>	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify the water level of the UHS basin is $\geq 13.56$ m (MSL).	24 hours
SR 3.7.2.2	Verify the water level in each RSW pump well of the UHS basin is $\geq [ ]$ m.	24 hours
SR 3.7.2.3	Verify the RSW water temperature at the inlet to the RCW/RSW heat exchangers is $\leq [33.3]^{\circ}\text{C}$ .	24 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.2.4	Operate each cooling tower cell fan for ≥ 15 minutes.	31 days
SR 3.7.2.5	<p>-----NOTE-----</p> <p>Isolation of flow to individual components does not render RCW/RSW System inoperable.</p> <p>-----</p> <p>Verify each RCW/RSW division and associated UHS cooling tower division manual, power operated, and automatic valve in the flow path servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days
SR 3.7.2.6	Verify each RCW/RSW division and associated UHS [cooling tower] division actuate on an actual or simulated initiation signal.	18 months

### 3.7 PLANT SYSTEMS

#### 3.7.3 Reactor Building Cooling Water (RCW) System and Reactor Service Water (RSW) System and Ultimate Heat Sink (UHS) – Refueling

LCO 3.7.3 One RCW/RSW division and UHS shall be OPERABLE.

APPLICABILITY: MODE 5 with irradiated fuel in the reactor pressure vessel and water level  $\geq 7.0$  m over the top of the reactor pressure vessel flange.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. No RCW/RSW division OPERABLE.  <u>OR</u>  UHS inoperable.  <u>OR</u>  Associated divisional UHS cooling towers inoperable.	A.1 Enter applicable Conditions and Required Actions of LCO 3.8.2, “AC Sources-Refueling” for the diesel generator made inoperable by RCW/RSW.	Immediately
	<u>AND</u>  A.2 Enter applicable Conditions and Required Actions of LCO 3.9.7, “RHR-High Water Level”, for RHR-Shutdown Cooling made inoperable by RCW/RSW.	Immediately

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify the water level of the UHS basin is $\geq 13.56$ m (MSL).	24 hours
SR 3.7.3.2	Verify the water level in each RSW pump well of the intake structure UHS basin is $\geq [ ]$ m.	24 hours
SR 3.7.3.3	Verify the RSW water temperature at the inlet to the RCW/RSW heat exchangers is $\leq [33.3]^{\circ}\text{C}$ .	24 hours
SR 3.7.3.4	Operate each cooling tower cell fan for $\geq 15$ minutes.	31 days
SR 3.7.3.5	<p>-----NOTE----- Isolation of flow to individual components does not render RCW/RSW System inoperable. -----</p> <p>Verify each RCW/RSW division and associated UHS cooling tower division manual, power operated, and automatic valve in the flow path servicing safety related systems or components, that is not locked, sealed, or otherwise secured in position is in the correct position.</p>	31 days
SR 3.7.3.6	Verify each RCW/RSW division and associated UHS [cooling tower] division actuate on an actual or simulated initiation signal.	18 months

### 3.7 PLANT SYSTEMS

#### 3.7.4 Control Room Habitability Area (CRHA) – Emergency Filtration (EF) System

LCO 3.7.4 Two divisions of the CRHA EF Systems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor vessel (OPDRVs).

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One EF division inoperable.	A.1 Restore EF division to OPERABLE status.	7 days
B. Required Action and Associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3.	12 hours
	<u>AND</u> B.2 Be in MODE 4.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p>	
	<p>C.1 Place OPERABLE EF division in standby mode.</p> <p><u>OR</u></p>	Immediately
	<p>C.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment.</p> <p><u>AND</u></p>	Immediately
	<p>C.2.2 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p>	Immediately
	<p>C.2.3 Initiate action to suspend OPDRVs.</p>	Immediately
D. Two EF divisions inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two EF divisions inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	-----NOTE----- LCO 3.0.3 is not applicable. -----	
	E.1 Suspend movement of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	
	E.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	E.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Operate each EF division for $\geq 10$ continuous hours with the heaters operating.	31 days
SR 3.7.4.2	Perform required EF filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.4.3	Verify each EF division actuates on an actual or simulated initiation signal.	18 months
SR 3.7.4.4	Verify each EF division can maintain a positive pressure of $\geq 3.2$ mm water gauge relative to the atmosphere during the isolation mode of operation at a flow rate of $\leq 3400$ m <sup>3</sup> /h.	18 months on a STAGGERED TEST BASIS



### 3.7 PLANT SYSTEM

#### 3.7.5 Control Room Habitability Area (CRHA) – Air Conditioning (AC) System

LCO 3.7.5 Two divisions of the CRHA AC System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of irradiated fuel assemblies in the secondary containment,  
During CORE ALTERATIONS,  
During operations with a potential for draining the reactor vessel (OPDRVs).

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One AC division inoperable.	A.1 Restore AC division to OPERABLE status.	30 days
B. Required Action and Associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.	12 hours  36 hours
C. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	-----NOTE----- LCO 3.0.3 is not applicable. ----- C.1 Place OPERABLE AC division in operation. <u>OR</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	<p>C.2.1 Suspend movement of irradiated fuel assemblies in the secondary containment.</p> <p><u>AND</u></p> <p>C.2.2 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>C.2.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>
D. Two AC divisions inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately
E. Two AC divisions inoperable during movement of irradiated fuel assemblies in the secondary containment, during CORE ALTERATIONS, or during OPDRVs.	<p>-----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>E.1 Suspend movement of irradiated fuel assemblies in the secondary containment.</p> <p><u>AND</u></p> <p>E.2 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>E.3 Initiate action to suspend OPDRVs.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	Verify each CRHA AC division has the capability to remove the assumed heat load.	18 months
SR 3.7.5.2	Verify each CRHA AC division actuates on an actual or simulated initiation signal.	18 months

### 3.7 PLANT SYSTEMS

#### 3.7.6 Main Condenser Offgas

LCO 3.7.6            The gross gamma activity rate of the noble gases measured at the offgas recombiner effluent shall be  $\leq 14.8$  GBq/second after decay of 30 minutes.

APPLICABILITY:    MODE 1,  
                              MODES 2 and 3 with any main steam line not isolated and steam jet air ejector (SJAE) in operation.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Gross gamma activity rate of the noble gases not within limit.	A.1    Restore gross gamma activity rate of the noble gases to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1    Isolate all main steam lines.	12 hours
	<u>OR</u>	
	B.2    Isolate SJAE.	12 hours
	<u>OR</u>	
	B.3.1   Be in MODE 3.	12 hours
	<u>AND</u>	
	B.3.2   Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.6.1</p> <p>-----NOTE-----            Not required to be performed until 31 days after any main steam line not isolated and SJAE in operation.            -----</p> <p>Verify the gross gamma activity rate of the noble gases is <math>\leq 14.8</math> GBq/second after decay of 30 minutes.</p>	<p>31 days</p> <p><u>AND</u></p> <p>Once within 4 hours after a <math>\geq 50\%</math> increase in the nominal steady state fission gas release after factoring out increases due to changes in THERMAL POWER level</p>

### 3.7 PLANT SYSTEMS

#### 3.7.7 Main Turbine Bypass System

LCO 3.7.7 The Main Turbine Bypass System shall be OPERABLE.

OR

LCO 3.2.2, "MINIMUM CRITICAL POWER RATIO (MCPR)," limits for an inoperable Main Turbine Bypass System, as specified in the Core Operating Limits Report (COLR), are made applicable.

APPLICABILITY: THERMAL POWER  $\geq$  40% RTP.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met or Main Turbine Bypass System inoperable.	A.1 Satisfy the requirements of the LCO or restore Main Turbine Bypass System to OPERABLE status.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to $\leq$ 40% RTP.	4 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.7.1 Perform bypass valve opening test to $\geq$ 10% position for each turbine bypass valve.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.7.2	Perform a system functional test.	18 months
SR 3.7.7.3	Verify the TURBINE BYPASS SYSTEM RESPONSE TIME is within limits.	18 months

### 3.7 PLANT SYSTEMS

#### 3.7.8 Fuel Pool Water Level

LCO 3.7.8 The fuel pool water level shall be  $\geq 7.0$  m over the top of irradiated fuel assemblies seated in the spent fuel storage pool.

APPLICABILITY: During movement of irradiated fuel assemblies in the associated fuel storage pool.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel pool water level not within limit.	<p>A.1 -----NOTE----- LCO 3.0.3 is not applicable. -----</p> <p>Suspend movement of irradiated fuel assemblies in the associated fuel storage pool(s).</p>	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.8.1 Verify the fuel pool water level is $\geq 7.0$ m over the top of irradiated fuel assemblies seated in the storage racks.	7 days



### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.1 AC Sources – Operating

LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:

- a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and
- b. Three diesel generators (DGs).

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One of two offsite AC power sources to one ESF bus inoperable.	A.1 Verify affected ESF bus is powered from the other operable offsite AC circuit.	72 hours <u>AND</u>
	<u>AND</u>	Once per 8 hours thereafter
	A.2 Verify the CTG is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.	72 hours <u>AND</u>
	<u>AND</u>	Once per 7 days thereafter
	A.3 Verify the CTG circuit breakers are aligned to the affected ESF bus.	72 hours <u>AND</u>
	<u>AND</u>	Once per 8 hours thereafter

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 Restore inoperable offsite AC power to affected ESF bus.	30 days
B. One required offsite circuit inoperable.	B.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit.	1 hour  <u>AND</u>  Once per 8 hours thereafter
	<u>AND</u>	
	B.2 Declare required feature(s) with no power available from an OPERABLE offsite circuit inoperable when the redundant required feature(s) are inoperable.	24 hours from discovery of no power available from an OPERABLE offsite circuit to one division concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	B.3 Verify the combustion turbine generator (CTG) is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.	72 hours
	<u>AND</u>	
	B.4 Verify the CTG circuit breakers are capable of being aligned to each of ESF buses.	72 hours  <u>AND</u>  Once per 8 hours thereafter
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.5 Restore required offsite circuit to OPERABLE status.	14 days  <u>AND</u>  1 day from discovery of two divisions with no power available from an OPERABLE offsite circuit  <u>AND</u>  15 days from discovery of failure to meet the LCO
C. -----NOTE----- Required Action C.3.1 or C.3.2 shall be completed if this Condition is entered. -----  One required DG inoperable.	C.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit(s).  <u>AND</u>  C.2 Declare required feature(s), supported by the inoperable DG, inoperable when the redundant required features(s) are inoperable.  <u>AND</u>  C.3.1 Determine OPERABLE DG(s) are not inoperable due to common cause failure.  <u>OR</u>	1 hour  <u>AND</u>  Once per 8 hours thereafter   4 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)   24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s).	24 hours
	<u>AND</u>	
	C.4 Verify the combustion turbine generator (CTG) is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.	72 hours
	<u>AND</u>	
	C.5 Verify the CTG circuit breakers are aligned to the ESF bus associated with the inoperable DG.	72 hours <u>AND</u> Once per 8 hours thereafter
	<u>AND</u>	
	C.6 Restore required DG to OPERABLE status.	14 days <u>AND</u> 15 days from discovery of failure to meet the LCO
D. Two required offsite circuits inoperable.	D.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition D concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	D.2 Restore one required offsite circuit to OPERABLE status.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. One required offsite circuit inoperable.</p> <p><u>AND</u></p> <p>One required DG inoperable.</p>	<p>-----NOTE-----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – Operating," when Condition D is entered with no required AC power source to one division.</p> <p>-----</p>	
	<p>E.1     Verify the combustion turbine generator (CTG) is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.</p>	12 hours
	<p><u>AND</u></p> <p>E.2     Verify the CTG circuit breakers are aligned to the ESF bus associated with the inoperable DG.</p>	12 hours
	<p><u>AND</u></p> <p>E.3.1   Restore required offsite circuit to OPERABLE status.</p>	72 hours
	<p><u>OR</u></p> <p>E.3.2   Restore required DG to OPERABLE status.</p>	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Two required DGs inoperable.	F.1 Verify the combustion turbine generator (CTG) is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.	2 hours
	<u>AND</u>	2 hours
	F.2 Verify the CTG circuit breakers are aligned to one ESF bus associated with an inoperable DG and capable of being aligned to the other ESF bus associated with an inoperable DG.	<u>AND</u> Once per 8 hours thereafter
	<u>AND</u>	72 hours
	F.3 Restore one required DG to OPERABLE status.	
G. Required Action and Associated Completion Time of Condition A, B, C, D, E or F not met.	G.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	G.2 Be in MODE 4.	36 hours
H. Three or more required AC sources inoperable.	H.1 Enter LCO 3.0.3.	Immediately

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	7 days
SR 3.8.1.2	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Performance of SR 3.8.1.7 satisfies this SR.</li> <li>2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading.</li> <li>3. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.</li> </ol> <p>-----</p> <p>Verify each DG starts from standby conditions and achieves steady state voltage <math>\geq [3744]</math> V and <math>\leq [4576]</math> V and frequency <math>\geq [58.8]</math> Hz and <math>\leq [61.2]</math> Hz.</p>	As specified in Table 3.8.1-1
SR 3.8.1.3	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. DG loadings may include gradual loading as recommended by the manufacturer.</li> <li>2. Momentary transients outside the load range do not invalidate this test.</li> <li>3. This Surveillance shall be conducted on only one DG at a time.</li> <li>4. This SR shall be preceded by, and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7.</li> </ol> <p>-----</p> <p>Verify each DG is synchronized and loaded and operates for <math>\geq 60</math> minutes at a load <math>\geq 7200</math> kW and <math>\leq [ ]</math> kW.</p>	As specified in Table 3.8.1-1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.4	Verify each day tank contains $\geq$ [ ] liters of fuel oil.	31 days
SR 3.8.1.5	Check for and remove accumulated water from each day tank.	31 days
SR 3.8.1.6	Verify the fuel oil transfer system operates to automatically transfer fuel oil from the storage tank to the day tank.	92 days
SR 3.8.1.7	<p>-----NOTE----- All DG starts may be preceded by an engine prelube period. -----</p> <p>Verify each DG starts from standby condition and achieves, in <math>\leq</math> 20 seconds, voltage <math>\geq</math> [3744] V and <math>\leq</math> [4576] V and frequency <math>\geq</math> [58.8] Hz and <math>\leq</math> [61.2] Hz.</p>	184 days
SR 3.8.1.8	<p>-----NOTES----- 1. This Surveillance shall not be performed in MODE 1 or 2. 2. Credit may be taken for unplanned events that satisfy this SR. -----</p> <p>Verify manual transfer of the [unit power supply] from the normal offsite circuit to each required alternate offsite circuit.</p>	18 months



SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.9</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall not be performed in MODE 1 or 2.</li> <li>2. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p style="text-align: center;">-----</p> </div> <p>Verify each DG operating at a power factor <math>\leq 0.9</math> rejects a load <math>\geq 540</math> kW for Division 1 and <math>\geq 1400</math> kW for Divisions 2 and 3, and:</p> <ol style="list-style-type: none"> <li>a. Following load rejection, the frequency is <math>\leq [ \quad ]</math> Hz;</li> <li>b. Within 3 seconds following load rejection, the voltage is <math>\geq [3744]</math> V and <math>\leq [4576]</math> V; and</li> <li>c. Within 3 seconds following load rejection, the frequency is <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz.</li> </ol>	<p>18 months</p>
<p>SR 3.8.1.10</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall not be performed in MODE 1 or 2.</li> <li>2. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p style="text-align: center;">-----</p> </div> <p>Verify each DG operating at a power factor <math>\leq 0.9</math> does not trip and voltage is maintained <math>\leq [ \quad ]</math> V during and following a load rejection of a load <math>\geq [5000]</math> V and <math>\leq [ \quad ]</math> kW.</p>	<p>18 months</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.11      -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. All DG starts may be preceded by an engine prelube period.</li> <li>2. This Surveillance shall not be performed in MODE 1, 2, or 3.</li> <li>3. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal:</p> <ol style="list-style-type: none"> <li>a. De-energization of emergency buses;</li> <li>b. Load shedding from emergency buses; and</li> <li>c. DG auto-starts from standby condition and:               <ol style="list-style-type: none"> <li>1. energizes permanently connected loads in <math>\leq 20</math> seconds,</li> <li>2. sequentially energizes auto-connected shutdown loads,</li> <li>3. maintains steady state voltage <math>\geq [3744]</math> V and <math>\leq [4576]</math> V,</li> <li>4. maintains steady state frequency <math>\geq [58.8]</math> Hz and <math>\leq [61.2]</math> Hz, and</li> <li>5. supplies permanently connected and auto-connected shutdown loads for <math>\geq 5</math> minutes.</li> </ol> </li> </ol>	<p>18 months</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.12      -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. All DG starts may be preceded by an engine prelube period.</li> <li>2. This Surveillance shall not be performed in MODE 1 or 2.</li> <li>3. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p>-----</p> <p>Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and:</p> <ol style="list-style-type: none"> <li>a. In <math>\leq 20</math> seconds after auto-start and during tests, achieves voltage <math>\geq [3744]</math> V and <math>\leq [4576]</math> V;</li> <li>b. In <math>\leq 20</math> seconds after auto-start and during tests, achieves frequency <math>\geq [58.8]</math> Hz and <math>\leq [61.2]</math> Hz;</li> <li>c. Operates for <math>\geq 5</math> minutes;</li> <li>d. Permanently connected loads remain energized from the offsite power system; and</li> <li>e. Emergency loads are sequentially energized from the offsite power system.</li> </ol>	<p>18 months</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.13      -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall not be performed in MODE 1, 2, or 3.</li> <li>2. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p>-----</p> <p>Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ECCS initiation signal except:</p> <ol style="list-style-type: none"> <li>a. Engine overspeed; and</li> <li>b. Generator differential current.</li> </ol>	<p>18 months</p>
<p>SR 3.8.1.14      -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Momentary transients outside the load and power factor ranges do not invalidate this test.</li> <li>2. This Surveillance shall not be performed in MODE 1 or 2.</li> <li>3. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p>-----</p> <p>Verify each DG operating at a power factor <math>\leq 0.9</math>, operates for <math>\geq 24</math> hours:</p> <ol style="list-style-type: none"> <li>a. For <math>\geq 2</math> hours loaded, <math>\geq 7560</math> kW and <math>\leq 7920</math> kW; and</li> <li>b. For the remaining hours of the test loaded <math>\geq 7200</math> kW and <math>\leq [ \quad ]</math>.</li> </ol>	<p>18 months</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.15</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated <math>\geq 2</math> hours loaded <math>\geq 7560</math> kW and <math>\leq 7920</math> kW.</li> </ol> <p>Momentary transients outside of load range do not invalidate this test.</p> <ol style="list-style-type: none"> <li>2. All DG starts may be preceded by an engine prelube period.</li> </ol> <p>-----</p> <p>Verify each DG starts and achieves, in <math>\leq 20</math> seconds, voltage <math>\geq [3744]</math> V and <math>\leq [4576]</math> V and frequency <math>\geq [58.8]</math> Hz and <math>\leq [61.2]</math> Hz.</p>	<p>18 months</p>
<p>SR 3.8.1.16</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall not be performed in MODE 1, 2, or 3.</li> <li>2. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p>-----</p> <p>Verify each DG:</p> <ol style="list-style-type: none"> <li>a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power;</li> <li>b. Transfers loads to offsite power source; and</li> <li>c. Returns to ready-to-load operation.</li> </ol>	<p>18 months</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.17      -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall not be performed in MODE 1, 2, or 3.</li> <li>2. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p>-----</p> <p>Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by:</p> <ol style="list-style-type: none"> <li>a. Returning DG to ready-to-load operation; and</li> <li>b. Automatically energizing the emergency load from offsite power.</li> </ol>	<p>18 months</p>
<p>SR 3.8.1.18      -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall not be performed in MODE 1, 2, or 3.</li> <li>2. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p>-----</p> <p>Verify interval between each sequenced load block is within <math>\pm 10\%</math> of design interval for each load sequencer timer.</p>	<p>18 months</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.19      -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. All DG starts may be preceded by an engine prelube period.</li> <li>2. This Surveillance shall not be performed in MODE 1, 2, or 3.</li> <li>3. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p>-----</p> <p>Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal:</p> <ol style="list-style-type: none"> <li>a. De-energization of emergency buses;</li> <li>b. Load shedding from emergency buses; and</li> <li>c. DG auto-starts from standby condition and:               <ol style="list-style-type: none"> <li>1. energizes permanently connected loads in <math>\leq 20</math> seconds,</li> <li>2. sequentially energizes auto-connected emergency loads,</li> <li>3. achieves steady state voltage <math>\geq [3744]</math> V and <math>\leq [4576]</math> V,</li> <li>4. achieves steady state frequency <math>\geq [58.8]</math> Hz and <math>\leq [61.2]</math> Hz, and</li> <li>5. supplies permanently connected and auto-connected emergency loads for <math>\geq 5</math> minutes.</li> </ol> </li> </ol>	<p>18 months</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.20</p> <p>-----NOTE----- All DG starts may be preceded by an engine prelube period. -----</p> <p>Verify, when started simultaneously from standby condition, each Division 1, 2, and 3 DG achieves, in <math>\leq 20</math> seconds, voltage <math>\geq [3744]</math> V and <math>\leq [4576]</math> V and frequency <math>\geq [58.8]</math> Hz and <math>\leq [61.2]</math> Hz.</p>	<p>10 years during shutdown</p>



Table 3.8.1-1 (page 1 of 1)  
Diesel Generator Test Schedule

NUMBER OF FAILURES IN LAST 25 VALID TESTS <sup>(a)</sup>	FREQUENCY
$\leq 3$	31 days
$\geq 4$	7 days <sup>(b)</sup> (but $\geq 24$ hours)

- (a) Criteria for determining number of failures and valid tests shall be in accordance with Regulatory Position C.2.1 of Regulatory Guide 1.9, Revision 3, where the number of tests and failures is determined on a per DG basis.
- (b) This test frequency shall be maintained until seven consecutive failure free starts from standby conditions and load and run tests have been performed. If, subsequent to the 7 failure free tests, 1 or more additional failures occur such that there are again 4 or more failures in the last 25 tests, the testing interval shall again be reduced as noted above and maintained until 7 consecutive failure free tests have been performed.

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.2 AC Sources – Refueling

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, “Distribution Systems – Shutdown”; and
- b. One or more diesel generator(s) (DG) capable of supplying at least one division of the required OPERABLE features via the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

APPLICABILITY: MODE 5 with water level in the refueling cavity  $\geq 7.0$  meters above the reactor pressure vessel flange, or during movement of irradiated fuel assemblies in secondary containment.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required offsite circuit inoperable.	<p>-----NOTE----- Enter applicable Condition and Required Actions of LCO 3.8.10, with one required division de-energized as a result of Condition A. -----</p> <p>A.1 Initiate action to restore required offsite circuit to OPERABLE status supplying power to all required ESF buses.</p> <p><u>AND</u></p>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.1.2 Declare affected required feature(s) with no power available from an OPERABLE offsite circuit inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	Immediately
	<u>AND</u>	
	A.2.4 Initiate action to restore required offsite circuit to OPERABLE status supplying power to all required ESF buses.	Immediately
B. One or more required DGs inoperable.	B.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	B.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to suspend OPDRVs.	Immediately
	<u>AND</u> B.4 Initiate action to restore required DG(s) to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1</p> <p>-----NOTE-----</p> <ol style="list-style-type: none"> <li>SR 3.8.1.3 is only required when more than the minimum number of AC sources required by LCO 3.8.2 are available, but at least every six months.</li> <li>SR 3.8.1.12, SR 3.8.1.13, SR 3.8.1.17, and SR 3.8.1.19 are only required when the associated ECCS loads are required to be OPERABLE.</li> </ol> <p>-----</p> <p>For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, except SR 3.8.1.8, SR 3.8.1.14, and SR 3.8.1.20 are applicable.</p>	In accordance with applicable SRs

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each DG.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel oil level < [ ] liters and ≥ [ ] liters in storage tank.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory < [ ] liters and ≥ [ ] liters.	B.1 Restore lube oil inventory to within limits.	48 hours
C. One or more DGs with stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates to within limit.	7 days
D. One or more DGs with new fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days

**ACTIONS (continued)**

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more DGs with pressure in at least one starting air receiver < [ ] kPaG and ≥ [ ] kPaG.	E.1 Restore starting air receiver pressure to ≥ [ ] kPaG.	48 hours
F. Required Actions and associated Completion Time not met.  <u>OR</u>  One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.	F.1 Declare associated DG inoperable.	Immediately

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
SR 3.8.3.1      Verify each fuel oil storage tank contains ≥ [ ] liters.	31 days
SR 3.8.3.2      Verify lube oil inventory for each DG is ≥ [ ] liters.	31 days
SR 3.8.3.3      Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4      Verify each required DG air start receiver pressure is ≥ [ ] kPaG.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	31 days
SR 3.8.3.6	For each fuel oil storage tank:  a. Drain the fuel oil;  b. Remove the sediment; and  c. Clean the tank.	10 years

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.4 DC Sources – Operating

LCO 3.8.4 The Division I, Division II, Division III, and Division IV DC electrical power subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One DC electrical power subsystem (either Division I, II, or III) inoperable.	A.1 Determine OPERABLE DC electrical subsystems are not inoperable due to common cause failure.	2 hours
	<u>AND</u>	
	A.2 Declare affected required features inoperable.	2 hours
	<u>AND</u>	
	A.3 Verify the combustion turbine generator (CTG) is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.	12 hours
	<u>AND</u>	
	A.4 Verify the CTG circuit breakers are capable of being aligned to the two unaffected ESF buses.	12 hours
		<u>AND</u>
		Once per 8 hours thereafter



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.5 Restore inoperable DC electrical power subsystem to OPERABLE status.	72 hours
B. Division IV DC electrical power subsystem inoperable.	B.1 Determine OPERABLE DC electrical subsystems are not inoperable due to common cause failure.  <u>AND</u> B.2 Declare affected required features inoperable.	2 hours  2 hours
C. One DC electrical power subsystem (either Division I, II, or III) inoperable.  <u>AND</u> Division IV DC electrical power subsystem inoperable.	C.1 Restore inoperable DC electrical power subsystem (other than Division IV) to OPERABLE status.  <u>OR</u> C.2 Restore Division IV DC electrical power subsystem to OPERABLE status.	2 hours  2 hours
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.  <u>AND</u> D.2 Be in MODE 4.	12 hours  36 hours

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is $\geq [ ]$ V on float charge.	7 days
SR 3.8.4.2	<p>Verify no visible corrosion at terminals and connectors.</p> <p><u>OR</u></p> <p>Verify connection resistance is</p> <p><math>\leq [ ]</math> ohms for inter-cell connections,  <math>\leq [ ]</math> ohms for inter-rack connections,  <math>\leq [ ]</math> ohms for inter-tier connections, and  <math>\leq [ ]</math> ohms for terminal connections.</p>	92 days
SR 3.8.4.3	Verify cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration.	12 months
SR 3.8.4.4	Remove visible corrosion, and verify cell to cell and terminal connections are coated with anti-corrosion material.	12 months
SR 3.8.4.5	<p>Verify connection resistance is</p> <p><math>\leq [ ]</math> ohms for inter-cell connections,  <math>\leq [ ]</math> ohms for inter-rack connections,  <math>\leq [ ]</math> ohms for inter-tier connections, and  <math>\leq [ ]</math> ohms for terminal connections.</p>	12 months
SR 3.8.4.6	<p>-----NOTES-----</p> <p>1. This Surveillance shall not be performed in MODE 1, 2, or 3.</p> <p>2. Credit may be taken for unplanned events that satisfy this SR.</p> <p>-----</p> <p>Verify each required battery charger supplies <math>\geq [ ]</math> amps at <math>\geq 125</math> V for <math>\geq 12</math> hours.</p>	18 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.7 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. The modified performance discharge test in SR 3.8.4.8 may be performed every 60 months in lieu of a service test in SR 3.8.4.7.</li> <li>2. This Surveillance shall not be performed in MODE 1, 2, or 3.</li> <li>3. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p>-----</p> <p>Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.</p>	<p>18 months</p>
<p>SR 3.8.4.8 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall not be performed in MODE 1, 2, or 3.</li> <li>2. Credit may be taken for unplanned events that satisfy this SR.</li> </ol> <p>-----</p> <p>Verify battery capacity is <math>\geq 80\%</math> of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.</p>	<p>60 months</p> <p><u>AND</u></p> <p>-----NOTE----- Only applicable when battery shows degradation or has reached 85% of expected life. -----</p> <p>12 months</p>

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.5 DC Sources – Shutdown

LCO 3.8.5 DC electrical power subsystem(s) shall be OPERABLE to support the required OPERABLE features and the electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems – Shutdown."

APPLICABILITY: MODES 4 and 5,  
During movement of irradiated fuel assemblies in secondary containment.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies in secondary containment.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	For DC sources required to be OPERABLE the following SRs are applicable:  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	In accordance with applicable SRs

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for the Division 1, 2, 3, and 4 batteries shall be within the Category A and B limits of Table 3.8.6-1.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each battery.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Table 3.8.6-1 Category A or B limits.	A.1 Verify pilot cells electrolyte level and float voltage meet Table 3.8.6-1 Category C limits.	1 hour
	<u>AND</u>	
	A.2 Verify battery cell parameters meet Table 3.8.6-1 Category C limits.	24 hours
	<u>AND</u>	
	A.3 Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.	31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required Action and associated Completion Time of Condition A not met.</p> <p><u>OR</u></p> <p>One or more batteries with average electrolyte temperature of the representative cells &lt; 10°C.</p> <p><u>OR</u></p> <p>One or more batteries with one or more battery cell parameters not within Category C limits.</p>	<p>B.1 Declare associated battery inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 Verify battery cell parameters meet Table 3.8.6-1 Category A limits.</p>	<p>7 days</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	92 days  <u>AND</u>  Once within 24 hours after battery discharge < [    ] V  <u>AND</u>  Once within 24 hours after battery overcharge > [    ] V
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is $\geq 10^{\circ}\text{C}$ .	92 days



Table 3.8.6-1 (page 1 of 1)  
Battery Cell Parameter Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ 6 mm above maximum level indication mark <sup>(a)</sup>	> Minimum level indication mark, and ≤ 6 mm above maximum level indication mark <sup>(a)</sup>	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity <sup>(b)(c)</sup>	≥ [    ]	≥ [    ]  <u>AND</u>  Average of all connected cells > [    ]	Not more than 0.020 below average of all connected cells  <u>AND</u>  Average of all connected cells ≥ [    ]

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum level during equalizing charges provided it is not overflowing.

(b) Corrected for electrolyte temperature and level.

(c) Or battery charging current is < [    ] amps when on float charge. This is acceptable only during a maximum of [    ] days following a battery recharge.

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.7 Inverters – Operating

LCO 3.8.7 The Division I, Division II, Division III, and Division IV inverters shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One inverter inoperable.	<p>-----NOTE----- Immediately enter applicable Conditions and Required Actions of LCO 3.8.9 “Distribution Systems – Operating” for de-energized AC Vital buses. -----</p>	
	<p>A.1 Restore inverters to OPERABLE status.</p>	7 days
	<p><u>AND</u></p> <p>A.2 Declare affected required features inoperable.</p>	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One inverter (either Division I, II, or III) inoperable.  <u>AND</u>  Division IV inverter inoperable.	-----NOTE----- Immediately enter applicable Conditions and Required Actions of LCO 3.8.9 "Distribution Systems – Operating," for de-energized AC Vital buses. -----	
	B.1     Restore inoperable inverter (other than Division IV) to OPERABLE status.	2 hours
	<u>OR</u>	
	B.2     Restore Division IV inverter to OPERABLE status.	2 hours
C. Required Action and associated Completion Time of Condition A, or B not met.	C.1     Be in MODE 3.	12 hours
	<u>AND</u>  C.2     Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, frequency, and alignment to required AC vital buses.	7 days

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.8 Inverters – Shutdown

LCO 3.8.8 Inverter(s) shall be OPERABLE to support required OPERABLE features and the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems – Shutdown."

APPLICABILITY: MODES 4 and 5,  
During movement of irradiated fuel assemblies in the secondary containment.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend handling of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	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, frequency, and alignments to required AC vital buses.	7 days

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.9 Distribution Systems – Operating

LCO 3.8.9 Division I, II, and III AC, Divisions I, II, III, and IV DC, and Divisions I, II, III, and IV AC vital bus electrical power distribution subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One AC electrical power distribution subsystem inoperable.	A.1 Declare affected required features inoperable.	2 hours
	<u>AND</u>	
	A.2 Verify the combustion turbine generator (CTG) is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.	12 hours
	<u>AND</u>	
	A.3 Verify the CTG circuit breakers are capable of being aligned to the OPERABLE ESF buses.	12 hours
	<u>AND</u>	<u>AND</u>
	A.4 Restore AC electrical power distribution subsystem to OPERABLE status.	Once per 8 hours thereafter
		<u>AND</u>
		72 hours
		<u>AND</u>
		7 days from discovery of failure to meet LCO

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One AC vital bus electrical power distribution subsystem inoperable.	B.1 Declare affected required features inoperable.	2 hours
	<u>AND</u> B.2 Restore AC vital bus electrical power distribution subsystem to OPERABLE status.	72 hours <u>AND</u> 7 days from discovery of failure to meet LCO
C. One AC vital bus electrical power distribution subsystem (either Division I, II, or III) inoperable.  <u>AND</u> Division IV AC vital bus inoperable.	C.1 Restore inoperable AC vital bus (other than Division IV) to OPERABLE status.	2 hours
	<u>OR</u> C.2 Restore inoperable Division IV AC vital bus to OPERABLE status.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One DC electrical power distribution subsystem (either Division I, II, or III) inoperable.	D.1 Declare affected required features inoperable.	2 hours
	<u>AND</u>	
	D.2 Verify the combustion turbine generator (CTG) is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.	12 hours
	<u>AND</u>	
	D.3 Verify the CTG circuit breakers are capable of being aligned to the two unaffected ESF buses.	12 hours
	<u>AND</u>	<u>AND</u>
	D.4 Restore DC electrical power distribution subsystems to OPERABLE status.	Once per 8 hours thereafter
		72 hours
		<u>AND</u>
		7 days from discovery of failure to meet LCO
E. Division IV DC electrical power distribution subsystem inoperable.	E.1 Declare affected required features inoperable.	2 hours



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One DC electrical power distribution subsystem (either Division I, II, or III) inoperable.  <u>AND</u>  Division IV DC electrical power distribution subsystem inoperable.	F.1 Restore inoperable DC electrical power distribution subsystems (other than Division IV) to OPERABLE status.	2 hours
	<u>OR</u>  F.2 Restore Division IV DC electrical power distribution subsystems to OPERABLE status.	2 hours
G. Required Action and associated Completion Time of Condition A, B, C, D, E, or F not met.	G.1 Be in MODE 3.	12 hours
	<u>AND</u>  G.2 Be in MODE 4.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.9.1      Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems.	7 days

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.10 Distribution Systems – Shutdown

LCO 3.8.10            The necessary portions of the Divisions I, II, and III AC, Divisions I, II, III, and 4 DC, and Divisions I, II, III, and IV AC vital bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY:        MODES 4 and 5,  
During movement of irradiated fuel assemblies in the secondary containment.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution subsystems inoperable.	A.1    Declare associated supported required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1    Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2    Suspend handling of irradiated fuel assemblies in the secondary containment.	Immediately
	<u>AND</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel.	Immediately
	<u>AND</u>	
	A.2.4 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution subsystems to OPERABLE status.	Immediately
	<u>AND</u>	
	A.2.5 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems.	7 days

### 3.8 ELECTRICAL POWER SYSTEMS

#### 3.8.11 AC Sources – Shutdown (Low Water Level)

LCO 3.8.11 The following AC electrical power sources shall be OPERABLE:

- a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystems required by LCO 3.8.10, "Distribution Systems – Shutdown;"
- b. Two or more diesel generators (DGs) capable of supplying the required OPERABLE features via the onsite Class 1E AC electrical power distribution subsystems required by LCO 3.8.10.

APPLICABILITY: MODE 4 and MODE 5 with water level in the refueling cavity < 7.0 meters above the reactor pressure vessel flange.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required offsite circuit inoperable.	<p>-----NOTE----- Enter applicable Condition and Required Actions of LCO 3.8.10, with one required division de-energized as a result of Condition A. -----</p> <p>A.1.1 Initiate action to restore required offsite circuit to OPERABLE status supplying power to all required ESF buses.</p> <p><u>AND</u></p> <p>A.1.2 Declare affected required feature(s) with no power available from an OPERABLE offsite circuit inoperable.</p>	Immediately
		8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	8 hours
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies in secondary containment.	8 hours
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel (OPDRVs).	8 hours
	<u>AND</u>	
	A.2.4 Initiate action to restore required offsite circuit to OPERABLE status supplying power to all required ESF buses.	Immediately
B. One required DG inoperable.	B.1 Verify the combustion turbine generator (CTG) is functional by verifying the CTG starts and achieves steady state voltage and frequency in less than 10 minutes.	1 hour
	<u>AND</u>	
	B.2 Verify the CTG circuit breakers are aligned to the ESF bus associated with the inoperable required DG.	1 hour
	<u>AND</u>	<u>AND</u> Once per 8 hours thereafter

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Restore required DG to OPERABLE status.	14 days
C. Required Action and Completion Time of Condition B not met.  <u>OR</u>  Two or more required DGs inoperable.	<p>C.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p> <p>C.2 Suspend movement of irradiated fuel assemblies in secondary containment.</p> <p><u>AND</u></p> <p>C.3 Initiate action to suspend OPDRVs.</p> <p><u>AND</u></p> <p>C.4 Initiate action to restore required DG(s) to OPERABLE status.</p> <p><u>AND</u></p> <p>C.5 Declare affected required features supported by the inoperable DG(s) inoperable.</p>	<p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>Immediately</p> <p>8 hours</p>

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.11.1	For AC sources required to be OPERABLE, the SRs of Specification 3.8.2 are applicable.	In accordance with applicable SRs

### 3.9 REFUELING OPERATIONS

#### 3.9.1 Refueling Equipment Interlocks

LCO 3.9.1 The refueling equipment interlocks associated with the reactor mode switch in the refuel position shall be OPERABLE.

APPLICABILITY: During in-vessel fuel movement with equipment associated with the interlocks when the reactor mode switch is in the refuel position.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required refueling equipment interlocks inoperable.	A.1 Suspend in-vessel fuel movement with equipment associated with the inoperable interlock(s).	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.1.1 Perform CHANNEL FUNCTIONAL TEST on each of the following required refueling equipment interlock inputs: <ul style="list-style-type: none"> <li>a. All-rods-in,</li> <li>b. Refuel machine position, and</li> <li>c. Refuel machine main hoist, fuel loaded.</li> </ul>	7 days

### 3.9 REFUELING OPERATIONS

#### 3.9.2 Refuel Position Rod-Out Interlock

LCO 3.9.2 The refuel position rod-out interlock shall be OPERABLE.

APPLICABILITY: MODE 5 with the reactor mode switch in the refuel position and any control rod withdrawn.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refuel position rod-out interlock inoperable.	A.1 Suspend control rod withdrawal.	Immediately
	<u>AND</u> A.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Verify reactor mode switch locked in refuel position.	12 hours
SR 3.9.2.2	<p>-----NOTE----- Not required to be performed until 1 hour after any control rod is withdrawn. -----</p> <p>Perform CHANNEL FUNCTIONAL TEST.</p>	7 days



### 3.9 REFUELING OPERATIONS

#### 3.9.3 Control Rod Position

LCO 3.9.3 All control rods shall be fully inserted.

APPLICABILITY: When loading fuel assemblies into the core.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more control rods not fully inserted.	A.1 Suspend loading fuel assemblies into the core.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.3.1 Verify all control rods are fully inserted.	12 hours

### 3.9 REFUELING OPERATIONS

#### 3.9.4 Control Rod Position Indication

LCO 3.9.4 One control rod "full-in" position indication channel for each control rod shall be OPERABLE in core cells containing one or more fuel assemblies.

APPLICABILITY: MODE 5.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each required channel.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required control rod position indication channels inoperable.	A.1.1 Suspend in-vessel fuel movement.  <u>AND</u>	Immediately
	A.1.2 Suspend control rod withdrawal.  <u>AND</u>	Immediately
	A.1.3 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.  <u>OR</u>	Immediately
	A.2.1 Initiate action to fully insert the control rod associated with the inoperable position indicator.  <u>AND</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Initiate action to disarm the associated fully inserted control rod drive.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.4.1      Verify the required channel has no "full-in" indication on each control rod that is not "full-in."	Each time the control rod is withdrawn from the "full-in" position

### 3.9 REFUELING OPERATIONS

#### 3.9.5 Control Rod OPERABILITY – Refueling

LCO 3.9.5 Each withdrawn control rod shall be OPERABLE.

APPLICABILITY: MODE 5.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more withdrawn control rods inoperable.	A.1 Initiate action to fully insert inoperable withdrawn control rods.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Insert each withdrawn control rod at least one step.	7 days
SR 3.9.5.2	Verify each withdrawn control rod scram accumulator pressure is $\geq 12.75$ MPaG.	7 days

### 3.9 REFUELING OPERATIONS

#### 3.9.6 Reactor Pressure Vessel (RPV) Water Level

LCO 3.9.6 RPV water level shall be  $\geq 7.0$  m above the top of the RPV flange.

APPLICABILITY: During movement of irradiated fuel assemblies within the RPV,  
During movement of new fuel assemblies or handling of control rods  
within the RPV, when irradiated fuel assemblies are seated within the  
RPV.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RPV water level not within limit.	A.1 Suspend movement of fuel assemblies and handling of control rods within the RPV.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.6.1 Verify RPV water level is $\geq 7.0$ m above the top of the RPV flange.	24 hours

### 3.9 REFUELING OPERATIONS

#### 3.9.7 Residual Heat Removal (RHR) – High Water Level

LCO 3.9.7 One RHR shutdown cooling subsystem shall be OPERABLE and in operation.

-----NOTE-----  
The required RHR shutdown cooling subsystem may be removed from operation for up to 2 hours per 8 hour period.  
-----

APPLICABILITY: MODE 5 with irradiated fuel in the reactor pressure vessel (RPV) and with the water level  $\geq 7.0$  m above the top of the RPV flange.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required RHR shutdown cooling subsystem inoperable.	A.1 Verify an alternate method of decay heat removal is available.	1 hour  <u>AND</u>  Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Suspend loading irradiated fuel assemblies into the RPV.  <u>AND</u>  B.2 Initiate action to restore the secondary containment to OPERABLE status.  <u>AND</u>	Immediately          Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to restore one standby gas treatment subsystem to OPERABLE status.	Immediately
	<u>AND</u> B.4 Initiate action to restore one secondary containment isolation valve and associated instrumentation to OPERABLE status in each associated penetration flow path not isolated.	Immediately
C. Required RHR shutdown cooling subsystem not in operation.	C.1 Establish reactor coolant circulation by an alternate method.	1 hour from discovery of no reactor coolant circulation
	<u>AND</u> C.2 Monitor reactor coolant temperature.	Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.7.1 Verify one RHR shutdown cooling subsystem is operating and circulating reactor coolant.	12 hours

### 3.9 REFUELING OPERATIONS

#### 3.9.8 Residual Heat Removal (RHR) – Low Water Level

LCO 3.9.8 Two RHR shutdown cooling subsystems shall be OPERABLE, and one RHR shutdown cooling subsystem shall be in operation.

-----NOTE-----  
The required operating shutdown cooling subsystem may be removed from operation for up to 2 hours per 8 hour period.  
-----

APPLICABILITY: MODE 5 with irradiated fuel in the reactor pressure vessel (RPV) and with the water level < 7.0 m above the top of the RPV flange.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two RHR shutdown cooling subsystems inoperable.	A.1 Verify an alternate method of decay heat removal is available for each inoperable RHR shutdown cooling subsystem.	1 hour  <u>AND</u> Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to restore the secondary containment to OPERABLE status.  <u>AND</u> B.2 Initiate action to restore one standby gas treatment subsystem to OPERABLE status.  <u>AND</u>	Immediately     Immediately



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Initiate action to restore one secondary containment isolation valve and associated instrumentation to OPERABLE status in each associated penetration flow path not isolated.	Immediately
C. No RHR shutdown cooling subsystem in operation.	C.1 Establish reactor coolant circulation by an alternate method.  <u>AND</u> C.2 Monitor reactor coolant temperature.	1 hour from discovery of no reactor coolant circulation   Once per hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.8.1      Verify one RHR shutdown cooling subsystem is operating and circulating reactor coolant.	12 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.1 Inservice Leak and Hydrostatic Testing Operation

LCO 3.10.1      The average reactor coolant temperature specified in Table 1.1-1 for MODE 4 may be changed to "NA," and operation considered not to be in MODE 3; and the requirements of LCO 3.4.8, "Residual Heat Removal (RHR) Shutdown Cooling System – Cold Shutdown," may be suspended, to allow performance of an inservice leak or hydrostatic test provided the following MODE 3 LCOs are met:

- a. LCO 3.3.1.1, "SSLC Sensor Instrumentation," Functions 7b, 24a and 24b];
- b. LCO 3.3.1.4, "ESF Actuation Instrumentation," Function 11;
- c. LCO 3.6.4.1, "Secondary Containment";
- d. LCO 3.6.4.2, "Secondary Containment Isolation Valves (SCIVs)"; and
- e. LCO 3.6.4.3, "Standby Gas Treatment (SGT) System."

APPLICABILITY:      MODE 4 with average reactor coolant temperature > 93°C.

## ACTIONS

### -----NOTE-----

Separate Condition entry is allowed for each requirement of the LCO.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 -----NOTE----- Required Actions to be in MODE 4 include reducing average reactor coolant temperature to $\leq 93^{\circ}\text{C}$ . -----  Enter the applicable Condition of the affected LCO.	Immediately
	<u>OR</u>	
	A.2.1 Suspend activities that could increase the average reactor coolant temperature or pressure.	Immediately
	<u>AND</u>  A.2.2 Reduce average reactor coolant temperature to $\leq 93^{\circ}\text{C}$ .	24 hours

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.1.1	Perform the applicable SRs for the required MODE 3 LCOs.	According to the applicable SRs

### 3.10 SPECIAL OPERATIONS

#### 3.10.2 Reactor Mode Switch Interlock Testing

LCO 3.10.2 The reactor mode switch position specified in Table 1.1-1 (Section 1.1, Definitions) for MODES 3, 4, and 5 may be changed to include the run, startup/hot standby, and refuel position, and operation considered not to be in MODE 1 or 2, to allow testing of instrumentation associated with the reactor mode switch interlock functions, provided:

- a. All control rods remain fully inserted in core cells containing one or more fuel assemblies; and
- b. No CORE ALTERATIONS are in progress.

APPLICABILITY: MODES 3 and 4 with the reactor mode switch in the run, startup/hot standby, or refuel position,  
MODE 5 with the reactor mode switch in the run or startup/hot standby position.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 Suspend CORE ALTERATIONS except for control rod insertion.	Immediately
	<u>AND</u>	
	A.2 Fully insert all insertable control rods in core cells containing one or more fuel assemblies.	1 hour
	<u>AND</u>	
	A.3.1 Place the reactor mode switch in the shutdown position.	1 hour
	<u>OR</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.3.2 -----NOTE----- Only applicable in MODE 5. -----</p> <p>Place the reactor mode switch in the refuel position.</p>	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.2.1	Verify all control rods are fully inserted in core cells containing one or more fuel assemblies.	12 hours
SR 3.10.2.2	Verify no CORE ALTERATIONS are in progress.	24 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.3 Control Rod Withdrawal – Hot Shutdown

- LCO 3.10.3      The reactor mode switch position specified in Table 1.1-1 for MODE 3 may be changed to include the refuel position, and operation considered not to be in MODE 2, to allow withdrawal of a single control rod or control rod pair, provided the following requirements are met:
- a.    LCO 3.9.2, “Refuel Position Rod-Out Interlock”;
  - b.    LCO 3.9.4, “Control Rod Position Indication”;
  - c.    All other control rods are fully inserted; and
  - d.    1.    LCO 3.3.1.1, “SSLC Sensor Instrumentation,” MODE 5 requirements for Functions 1.a, 1.d, 2.a, and 2.d of Table 3.3.1.1-1,  
            and  
            LCO 3.3.1.2, “RPS and MSIV Trip Actuation,” Functions 1.a, 1.b, 3, and 4,  
            and  
            LCO 3.9.5, “Control Rod OPERABILITY – Refueling,”  
  
            OR  
  
            2.    All other control rods in a five by five array centered on each control rod being withdrawn are disarmed, and  
  
            LCO 3.1.1, “SHUTDOWN MARGIN (SDM),” MODE 5 requirements, except the single control rod or pair to be withdrawn may be assumed to be the highest worth control rod.

APPLICABILITY:      MODE 3 with the reactor mode switch in the refuel position.

## ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each requirement of the LCO.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	<p>A.1 -----NOTES-----</p> <p>1. Required Actions to fully insert all insertable control rods include placing the reactor mode switch in the shutdown position.</p> <p>2. Only applicable if the requirement not met is a required LCO.</p> <p>-----</p> <p>Enter the applicable Condition of the affected LCO.</p>	Immediately
	<u>OR</u>	
	<p>A.2.1 Initiate action to fully insert all insertable control rods.</p>	Immediately
	<p><u>AND</u></p> <p>A.2.2 Place the reactor mode switch in the shutdown position.</p>	1 hour

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.3.1	Perform the applicable SRs for the required LCOs.	According to the applicable SRs
SR 3.10.3.2	<p>-----NOTE----- Not required to be met if SR 3.10.3.1 is satisfied for LCO 3.10.3.d.1 requirements. -----</p> <p>Verify all control rods, other than the control rod or rod pair being withdrawn, in a five by five array centered on each control rod being withdrawn, are disarmed.</p>	24 hours
SR 3.10.3.3	Verify all control rods, other than the control rod or rod pair being withdrawn, are fully inserted.	24 hours



### 3.10 SPECIAL OPERATIONS

#### 3.10.4 Control Rod Withdrawal – Cold Shutdown

- LCO 3.10.4      The reactor mode switch position specified in Table 1.1-1 for MODE 4 may be changed to include the refuel position, and operation considered not to be in MODE 2, to allow withdrawal of a single control rod or control rod pair, and subsequent removal of the associated control rod drives (CRD) if desired, provided the following requirements are met:
- a. All other control rods are fully inserted;
  - b. 1. LCO 3.9.2, “Refuel Position Rod-Out Interlock,” and  
LCO 3.9.4, “Control Rod Position Indication,”  
  
OR  
2. A control rod withdrawal block is inserted; and
  - c. 1. LCO 3.3.1.1, “SSLC Sensor Instrumentation,” MODE 5 requirements for Functions 1.a, 1.d, 2.a, and 2.d., of Table 3.3.1.1-1,  
  
LCO 3.3.1.2, “RPS and MSIV Trip Actuation,” Functions 1.a, 1.b, 3, and 4; and  
  
LCO 3.9.5, “Control Rod OPERABILITY – Refueling,”  
  
OR  
2. All other control rods in a five by five array centered on the control rod or control rod pair being withdrawn are disarmed, and  
  
LCO 3.1.1, “SHUTDOWN MARGIN (SDM),” MODE 5 requirements, except the single control rod or control rod pair to be withdrawn may be assumed to be the highest worth control rod or control rod pair.

APPLICABILITY:      MODE 4 with the reactor mode switch in the refuel position.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each requirement of the LCO.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met with the affected control rod(s) insertable.	<p>A.1 -----NOTES-----</p> <p>1. Required Actions to fully insert all insertable control rods include placing the reactor mode switch in the shutdown position.</p> <p>2. Only applicable if the requirement not met is a required LCO.</p> <p>-----</p> <p>Enter the applicable Condition of the affected LCO.</p>	Immediately
	<p><u>OR</u></p> <p>A.2.1 Initiate action to fully insert all insertable control rods.</p>	Immediately
	<p><u>AND</u></p> <p>A.2.2 Place the reactor mode switch in the shutdown position.</p>	1 hour
B. One or more of the above requirements not met with the affected control rod(s) not insertable.	<p>B.1 Suspend withdrawal of the control rod(s) and removal of associated CRD(s).</p>	Immediately
	<p><u>AND</u></p> <p>B.2.1 Initiate action to fully insert all control rods.</p>	Immediately
	<p><u>OR</u></p>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.4.1	Perform the applicable SRs for the required LCOs.	According to applicable SRs
SR 3.10.4.2	<p>-----NOTE----- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.c.1 requirements. -----</p> <p>Verify all control rods, other than the control rod or rod pair being withdrawn, in a five by five array centered on each control rod being withdrawn, are disarmed.</p>	24 hours
SR 3.10.4.3	Verify all control rods, other than the control rod or rod pair being withdrawn, are fully inserted.	24 hours
SR 3.10.4.4	<p>-----NOTE----- Not required to be met if SR 3.10.4.1 is satisfied for LCO 3.10.4.b.1 requirements. -----</p> <p>Verify a control rod withdrawal block is inserted.</p>	24 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.5 Control Rod Drive (CRD) Removal – Refueling

LCO 3.10.5 The requirements of Functions 1.a, 1.b, 1.d, and 12 of LCO 3.3.1.1, “SSLC Sensor Instrumentation”; Functions 1.a, 1.b, 3, and 4 of LCO 3.3.1.2, “RPS and MSIV Actuation”, LCO 3.3.8.1, “Electric Power Monitoring”; LCO 3.9.1, “Refueling Equipment Interlocks”; LCO 3.9.2, “Refueling Position Rod-Out Interlock”; LCO 3.9.4, “Control Rod Position Indication”; and LCO 3.9.5, “Control Rod OPERABILITY – Refueling,” may be suspended in MODE 5 to allow the removal of a single CRD or CRD pair associated with control rod(s) withdrawn from core cell(s) containing one or more fuel assemblies, provided the following requirements are met:

- a. All other control rods are fully inserted;
- b. All other control rods in a five by five array centered on the control rod being removed are disarmed;
- c. A control rod withdrawal block is inserted;
- d. LCO 3.1.1, “SHUTDOWN MARGIN (SDM),” MODE 5 requirements, except the single control rod (or pair) to be withdrawn may be assumed to be the highest worth control rod pair; and
- e. No other CORE ALTERATIONS are in progress.

APPLICABILITY: MODE 5 with LCO 3.9.5 not met.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 Suspend removal of the control rod(s) and associated CRD mechanism.	Immediately
	<u>AND</u> A.2.1 Initiate action to fully insert all control rods.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p><u>OR</u></p> <p>A.2.2 Initiate action to satisfy the requirements of this LCO.</p>	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.5.1	Verify all controls rods, other than the control rod(s) withdrawn for the removal of the associated CRD(s), are fully inserted.	24 hours
SR 3.10.5.2	Verify all control rods, other than the control rod(s) withdrawn for the removal of the associated CRD(s), in a five by five array centered on each control rod withdrawn for the removal of the associated CRD, are disarmed.	24 hours
SR 3.10.5.3	Verify a control rod withdrawal block is inserted.	24 hours
SR 3.10.5.4	Perform SR 3.1.1.1.	According to SR 3.1.1.1
SR 3.10.5.5	Verify no CORE ALTERATIONS, other than the single control rod or control rod pair being removed, are in progress.	24 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.6 Multiple Control Rod Withdrawal – Refueling

LCO 3.10.6 The requirements of LCO 3.9.3, “Control Rod Position”; LCO 3.9.4, “Control Rod Position Indication”; and LCO 3.9.5, “Control Rod OPERABILITY – Refueling,” may be suspended, and the “full in” position indicators may be bypassed for any number of control rods in MODE 5, to allow withdrawal of these control rods, removal of associated control rod drives (CRDs), or both, provided the following requirements are met:

- a. The four fuel assemblies are removed from the core cells associated with each control rod or CRD to be removed;
- b. All other control rods in core cells containing one or more fuel assemblies are fully inserted; and
- c. Fuel assemblies shall only be loaded in compliance with an approved spiral reload sequence.

APPLICABILITY: MODE 5 with LCO 3.9.3, LCO 3.9.4, or LCO 3.9.5 not met.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 Suspend withdrawal of control rods and removal of associated CRDs.	Immediately
	<u>AND</u>	
	A.2.1 Initiate action to fully insert all control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>OR</u>	
	A.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.10.6.1	Verify the four fuel assemblies are removed from core cells associated with each control rod or CRD removed.	24 hours
SR 3.10.6.2	Verify all other control rods in core cells containing one or more fuel assemblies are fully inserted.	24 hours
SR 3.10.6.3	<p>-----NOTE----- Only required to be met during fuel loading. -----</p> <p>Verify fuel assemblies being loaded are in compliance with an approved spiral reload sequence.</p>	24 hours

### 3.10 SPECIAL OPERATIONS

#### 3.10.7 Control Rod Testing – Operating

LCO 3.10.7 The requirements of LCO 3.1.6, “Rod Pattern Control,” may be suspended to allow performance of SDM demonstrations, control rod scram time testing, control rod friction testing, and the Startup Test Program, provided LCO 3.3.5.1, “Control Rod Block Instrumentation” for Function 1.b of Table 3.3.5.1-1 is met with the approved control rod sequence or conformance to the approved control rod sequence for the specified test is verified by a second licensed operator or other qualified member of the technical staff.

APPLICABILITY: MODES 1 and 2 with LCO 3.1.6 not met.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Suspend performance of the test and exception to LCO 3.1.6.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.10.7.1 -----NOTE----- Not required to be met if SR 3.10.7.2 is satisfied. -----</p> <p>Verify movement of control rods is in compliance with the approved control rod sequence for the specified test by a second licensed operator or other qualified member of the technical staff.</p>	During control rod movement



SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.7.2	<div>-----NOTE-----</div> <div>Not required to be met if SR 3.10.7.1 is satisfied.</div> <div>-----</div> <div>Perform the applicable SRs for LCO 3.3.5.1 Function 1.b.</div>	According to the applicable SRs

### 3.10 SPECIAL OPERATIONS

#### 3.10.8 SHUTDOWN MARGIN (SDM) Test – Refueling

- LCO 3.10.8      The reactor mode switch position specified in Table 1.1-1 for MODE 5 may be changed to include the startup/hot standby position, and operation considered not to be in MODE 2, to allow SDM testing, provided the following requirements are met:
- a.    LCO 3.3.1.1, “SSLC Sensor Instrumentation,” MODE 2 requirements for Function 2.a and 2.d of Table 3.3.1.1-1;
  - b.    1.    LCO 3.3.5.1, “Control Rod Block Instrumentation,” MODE 2 requirements for Function 1.b of Table 3.3.5.1-1,  
  
         OR  
  
         2.    Conformance to the approved control rod sequence for the SDM test is verified by a second licensed operator or other qualified member of the technical staff;
  - c.    Each withdrawn control rod shall be coupled to the associated CRD;
  - d.    All control rod withdrawals that are not in compliance with the Ganged Withdrawal Sequence Restrictions (GWSR) shall be made using either the NOTCH withdrawal mode or the STEP withdrawal mode; and
  - e.    No other CORE ALTERATIONS are in progress.

APPLICABILITY:      MODE 5 with the reactor mode switch in startup/hot standby position.

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met, for reasons other than Condition B.	A.1 Place the reactor mode switch in the shutdown or refuel position.	Immediately
B. One control rod not coupled to its associated CRD.	B.1 Declare the affected control rod inoperable.	Immediately

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.8.1	Perform the applicable SRs for LCO 3.3.1.1, Functions 2.a and 2.d.	According to the applicable SRs
SR 3.10.8.2	<p>-----NOTE----- Not required to be met if SR 3.10.8.3 satisfied. -----</p> <p>Perform the applicable SRs for LCO 3.3.5.1, Function 1.b.</p>	According to the applicable SRs
SR 3.10.8.3	<p>-----NOTE----- Not required to be met if SR 3.10.8.2 satisfied. -----</p> <p>Verify movement of control rods is in compliance with the approved control rod sequence for the SDM test by a second licensed operator or other qualified member of the technical staff.</p>	During control rod movement

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.8.4	Verify no other CORE ALTERATIONS are in progress.	12 hours
SR 3.10.8.5	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	<p>Prior to satisfying LCO 3.10.8.c requirement after work on control rod or CRD System that could affect coupling</p> <p><u>AND</u></p> <p>Once the first time the control rod is withdrawn to “full out” position after the associated orificed fuel support has been moved</p>

### 3.10 SPECIAL OPERATIONS

#### 3.10.9 Reactor Internal Pumps (RIPs) – Testing

LCO 3.10.9 The requirements of LCO 3.4.1, “Reactor Internal Pumps Operating,” may be suspended for  $\leq 24$  hours to allow:

- a. PHYSICS TESTS, provided THERMAL POWER is  $\leq 5\%$  RTP; and
- b. Performance of the Startup Test Program.

APPLICABILITY: MODES 1 and 2 with less than nine RIPs in operation.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO 3.4.1 not met for > 24 hours.	A.1 Insert all insertable control rods.	1 hour
B. Requirements of the LCO not met for reasons other than Condition A.	B.1 Place the reactor mode switch in the shutdown position.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.10.9.1 Verify LCO 3.4.1 requirements suspended for $\leq 24$ hours.	1 hour
SR 3.10.9.2 Verify THERMAL POWER is $\leq 5\%$ RTP during PHYSICS TESTS.	1 hour

### 3.10 SPECIAL OPERATIONS

#### 3.10.10 Training Startups

LCO 3.10.10 The low pressure core flooders (LPFL) OPERABILITY requirements specified in LCO 3.5.1, "ECCS – Operating," may be changed to allow one residual heat removal subsystem to be aligned in the shutdown cooling mode for training startups, provided the following requirements are met:

- a. REACTOR THERMAL POWER  $\leq$  1% RTP; and
- b. Average reactor coolant temperature is  $< 93^{\circ}\text{C}$ .

APPLICABILITY: MODE 2 with one LPFL subsystem suction valve closed.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 Place the reactor mode switch in the shutdown position.	Immediately

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.10.1	Verify REACTOR THERMAL POWER $\leq$ 1% RTP.	1 hour
SR 3.10.10.2	Verify average reactor coolant temperature is $< 93^{\circ}\text{C}$ .	1 hour

### 3.10 SPECIAL OPERATIONS

#### 3.10.11 Low Power PHYSICS TEST

- LCO 3.10.11      The reactor mode switch position specified in Table 1.1-1 for MODE 5 may be changed to include the startup/hot standby position, and operation considered not to be in MODE 2, to allow Low Power PHYSICS TEST, provided the following requirements are met:
- a.    1.    LCO 3.3.5.1, "Control Rod Block Instrumentation," MODE 2 requirements for Function 1.b of Table 3.3.5.1-1,
  - OR
  - 2.    Conformance to the approved control rod sequence for the Low Power PHYSICS TEST is verified by a second licensed operator or other qualified member of the technical staff;
  - b.    Each withdrawn control rod shall be coupled to the associated CRD;
  - c.    All control rod withdrawals that are not in compliance with the Ganged Withdrawal Sequence Restrictions (GWSR) shall be made using either the NOTCH withdrawal mode or the STEP withdrawal mode;
  - d.    No other CORE ALTERATIONS are in progress;
  - e.    REACTOR THERMAL POWER  $\leq$  1% RTP; and
  - f.    Average reactor coolant temperature  $\leq$  93°C (200°F)

APPLICABILITY:      MODE 5 with the reactor mode switch in startup/hot standby position.

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 Place the reactor mode switch in the shutdown or refuel position.	Immediately

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.10.11.1	<p>-----NOTE----- Not required to be met if SR 3.10.11.2 satisfied. -----</p> <p>Perform the applicable SRs for LCO 3.3.5.1, Function 1.b.</p>	According to the applicable SRs
SR 3.10.11.2	<p>-----NOTE----- Not required to be met if SR 3.10.11.1 satisfied. -----</p> <p>Verify movement of control rods is in compliance with the approved control rod sequence for the Low Power PHYSICS TEST by a second licensed operator or other qualified member of the technical staff.</p>	During control rod movement
SR 3.10.11.3	Verify no other CORE ALTERATIONS are in progress.	12 hours



SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.10.11.4	Verify each withdrawn control rod does not go to the withdrawn overtravel position.	<p>Prior to satisfying LCO 3.10.11.b requirement after work on control rod or CRD System that could affect coupling</p> <p><u>AND</u></p> <p>Once the first time the control rod is withdrawn to “full out” position after the associated orificed fuel support has been moved</p>
SR 3.10.11.5	Verify REACTOR THERMAL POWER $\leq$ 1% RTP.	1 hour
SR 3.10.11.6	Verify average reactor coolant temperature is $\leq$ 93°C.	1 hour

### 3.10 SPECIAL OPERATIONS

#### 3.10.12 Multiple Control Rod Drive Subassembly Removal – Refueling

LCO 3.10.12 The requirements of LCO 3.9.3, “Control Rod Position”; LCO 3.9.4, “Control Rod Position Indication”; and LCO 3.9.5, “Control Rod OPERABILITY – Refueling,” may be suspended, and the “full in” position indicators may be bypassed for any number of control rods in MODE 5, to allow removal of control rod drive subassemblies with the control rods maintained fully inserted by their applicable anti-rotation devices, provided the following requirements are met:

- a. No two adjacent (face or diagonal) control rod drives are to have their subassemblies removed concurrently unless one of the two adjacent control rods has its four fuel assemblies removed from its associated core cell, and
- b. All other control rods in core cells containing one or more fuel assemblies are fully inserted.

APPLICABILITY: MODE 5 with LCO 3.9.3, LCO 3.9.4, or LCO 3.9.5 not met.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the above requirements not met.	A.1 Suspend removal of associated CRD subassemblies.	Immediately
	<u>AND</u>	
	A.2.1 Initiate action to fully insert all control rods in core cells containing one or more fuel assemblies.	Immediately
	<u>OR</u>	
	A.2.2 Initiate action to satisfy the requirements of this LCO.	Immediately

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE		FREQUENCY
SR 3.10.12.1	Verify the applicable anti-rotation devices associated with each CRD subassembly removal are in the correct position to maintain the control rod fully inserted.	24 hours
SR 3.10.12.2	For each control rod with its associated CRD subassembly removed, verify from over the reactor vessel that the top of the control rod is visible at its fully inserted position.	24 hours
SR 3.10.12.3	Verify all other control rods in core cells containing one or more fuel assemblies are fully inserted.	24 hours