

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources – Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

- a. The qualified circuit between the offsite transmission network and the onsite emergency AC Electrical Power Distribution System; and
- b. Two diesel generators (DGs) capable of supplying the onsite emergency power distribution subsystem(s)

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. The qualified offsite circuit inoperable.</p>	<p>A.1 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.</p>	<p>12 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s).</p>
	<p><u>AND</u></p> <p>A.2 Restore offsite circuit to OPERABLE status.</p>	<p>24 hours</p> <p><u>AND</u></p> <p>8 days from discovery of failure to meet LCO</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One DG inoperable.	B.1 Perform SR 3.8.1.1 for the offsite circuit.	1 hour <u>AND</u> Once per 12 hours thereafter
	<u>AND</u> B.2 Declare required feature(s) supported by the inoperable DG inoperable when its required redundant feature(s) is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	B.3.1 Perform SR 3.8.1.2 for OPERABLE DG	24 hours
	<u>OR</u>	
	B.3.2.1 Determine OPERABLE DG is not inoperable due to common cause failure.	24 hours
	<u>AND</u>	
B.3.2.2 Perform SR 3.8.1.2 for OPERABLE DG.	96 hours	
<u>AND</u>	(continued)	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.4 Restore DG to OPERABLE status.	7 days <u>AND</u> 8 days from discovery of failure to meet LCO
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours  36 hours
D. Two or more AC sources inoperable.	<p>-----NOTE----- Entry into this Required Action may be delayed for no greater than 2 hours during performance of Required Action B.3.1 and Required Action B.3.2.2. -----</p> <p>D.1 Enter LCO 3.0.3.</p>	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for the 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 467</math> V and <math>\leq 493</math> V, and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz.</p>	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3 -----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> <li>5. During periods when a diesel generator is being operated for testing purposes, its protective trips need not be bypassed after the diesel generator has properly assumed the load on its bus.</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 2350</math> kW and <math>\leq 2500</math> kW.</p>	<p>31 days</p>
<p>SR 3.8.1.4 Verify each day tank contains <math>\geq 140</math> gallons of fuel oil.</p>	<p>31 days</p>
<p>SR 3.8.1.5 Check for and remove accumulated water from each day tank.</p>	<p>31 days</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.6    Verify the fuel oil transfer system operates to automatically transfer fuel oil from storage tank to the day tank.</p>	<p>31 days</p>
<p>SR 3.8.1.7    -----NOTES-----  All DG starts may be preceded by an engine prelube period.  -----  Verify each DG starts from standby condition and achieves in <math>\leq 10</math> seconds, voltage <math>\geq 467</math> V and frequency <math>\geq 58.8</math> Hz, and after steady state conditions are reached, maintains voltage <math>\geq 467</math> V and <math>\leq 493</math> V and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz.</p>	<p>184 days</p>
<p>SR 3.8.1.8    -----NOTES-----  1.    This Surveillance shall not be performed in MODE 1 or 2.  2.    If performed with the DG synchronized with offsite power, it shall be performed at a power factor <math>\leq 0.9</math>.  -----  Verify each DG rejects a load greater than or equal to its associated single largest post-accident load and does not trip on overspeed.</p>	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.9 .....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, 3, or 4.</li> <li>3. During periods when a diesel generator is being operated for testing purposes, its protective trips need not be bypassed after the diesel generator has properly assumed the load on its bus.</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;</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 10</math> seconds,</li> <li>2. energizes auto-connected shutdown loads through automatic load sequencer,</li> <li>3. maintains steady state voltage <math>\geq 467</math> V and <math>\leq 493</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>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.10 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. All DG starts may be preceded by prelube period.</li> <li>2. This Surveillance shall not be performed in MODE 1 or 2.</li> <li>3. During periods when a diesel generator is being operated for testing purposes, its protective trips need not be bypassed after the diesel generator has properly assumed the load on its bus.</li> </ol> <p>-----</p> <p>Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each DG auto-starts from standby condition and:</p> <ol style="list-style-type: none"> <li>a. In <math>\leq 10</math> seconds after auto-start achieves voltage <math>\geq 467</math> V, and after steady state conditions are reached, maintains voltage <math>\geq 467</math> V and <math>\leq 493</math> V;</li> <li>b. In <math>\leq 10</math> seconds after auto-start achieves frequency <math>\geq 58.8</math> Hz, and after steady state conditions are reached, maintains 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 energized through the automatic load sequencer from the offsite power system.</li> </ol>	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.11 Verify each DG's automatic trips are bypassed except engine overspeed.	18 months
SR 3.8.1.12 -----NOTES----- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. 3. During periods when a diesel generator is being operated for testing purposes, its protective trips need not be bypassed after the diesel generator has properly assumed the load on its bus. ----- Verify each DG operating at a power factor $\leq 0.9$ operates for $\geq 24$ hours: a. For $\geq 1.75$ hours loaded $\geq 2650$ kW and $\leq 2750$ kW; and b. For the remaining hours of the test loaded $\geq 2400$ kW and $\leq 2500$ kW.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.13 -----NOTES-----</p> <p>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 2400</math> kW and <math>\leq 2500</math> kW.</p> <p>        Momentary transients outside of load range do not invalidate this test.</p> <p>2. All DG starts may be preceded by an engine prelube period.</p> <p>-----</p> <p>Verify each DG starts and achieves, in <math>\leq 10</math> seconds, voltage <math>\geq 467</math> V, and frequency <math>\geq 58.8</math> Hz, and after steady state conditions are reached, maintains voltage <math>\geq 467</math> V and <math>\leq 493</math> V and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz.</p>	<p>18 months</p>
<p>SR 3.8.1.14 -----NOTE-----</p> <p>This Surveillance shall not be performed in MODE 1, 2, 3, or 4.</p> <p>-----</p> <p>Verify actuation of each sequenced load block is within <math>\pm 0.5</math> seconds of design setpoint for each emergency load sequencer.</p>	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.15 -----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, 3, or 4.</li> <li>3. During periods when a diesel generator is being operated for testing purposes, its protective trips need not be bypassed after the diesel generator has properly assumed the load on its bus.</li> </ol> <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation 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 10</math> seconds,</li> <li>2. energizes auto-connected emergency loads through load sequencer,</li> <li>3. achieves steady state voltage <math>\geq 467</math> V and <math>\leq 493</math> V,</li> <li>4. achieves steady state frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz, and</li> </ol> </li> </ol>	<p>18 months</p> <p>(continued)</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.15 (continued)</p> <p>5. supplies permanently connected and auto connected emergency loads for <math>\geq 5</math> minutes.</p>	
<p>SR 3.8.1.16 -----NOTE-----</p> <p>1. This Surveillance shall not be performed in MODE 1 or 2.</p> <p>2. SR 3.8.1.16 is not required to be met if 4.160 kV bus 2 and 480 V Emergency Bus 1 power supply is from the start up transformer.</p> <p>-----</p> <p>Verify automatic transfer capability of the 4.160 kV bus 2 and the 480 V Emergency bus 1 loads from the Unit auxiliary transformer to the start up transformer.</p>	<p>18 months</p>
<p>SR 3.8.1.17 -----NOTE-----</p> <p>All DG starts may be preceded by an engine prelude period.</p> <p>-----</p> <p>Verify when started simultaneously from standby condition, each DG achieves, in <math>\leq 10</math> seconds, voltage <math>\geq 467</math> V and frequency <math>\geq 58.8</math> Hz, and after steady state conditions are reached, maintains voltage <math>\geq 467</math> V and <math>\leq 493</math> V and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz.</p>	<p>10 years</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources – Shutdown

- 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 AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems – Shutdown"; and
  - b. One diesel generator (DG) capable of supplying one train of the onsite AC electrical power distribution subsystem(s) required by LCO 3.8.10.

APPLICABILITY: MODES 5 and 6 and  
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. The required offsite circuit inoperable.</p>	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. -----</p> <p>A.1 Declare affected required feature(s) with no offsite power available inoperable.</p> <p><u>OR</u></p>	<p>Immediately</p> <p>(continued)</p>

ACTIONS		
CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.1 Suspend CORE ALTERATIONS.  AND	Immediately
	A.2.2 Suspend movement of irradiated fuel assemblies.  AND	Immediately
	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.  AND	Immediately
	A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. The required DG inoperable.	B.1 Suspend CORE ALTERATIONS.  AND	Immediately
	B.2 Suspend movement of irradiated fuel assemblies.  AND	Immediately
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND B.4 Initiate action to restore required DG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.2.1 -----NOTE----- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.8, SR 3.8.1.9, SR 3.8.1.11 through SR 3.8.1.15. ----- For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources—Operating," except SR 3.8.1.16, and SR 3.8.1.17, are applicable.	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil and Starting Air

LC0 3.8.3 The common stored diesel fuel oil and starting air subsystem for each diesel generator (DG) shall be within limits.

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 DG fuel oil level < 19,000 gal and > 14,145 gal in the Unit 2 DG fuel oil storage tank.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with DG Fuel oil level < 34,000 gal and > 29,145 gal in the combination of the Unit 1 IC turbine fuel oil storage tanks and the Unit 2 DG fuel oil storage tank.	B.1 Restore fuel oil level to within limits.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more DGs with new fuel oil properties not within limits.	C.1 Restore stored fuel oil properties to within limits.	30 days
D. One or more DGs with starting air receiver pressure < 210 psig and ≥ 100 psig.	D.1 Restore starting air receiver pressure to ≥ 210 psig.	48 hours
E. Required Action and associated Completion Time not met.  <u>OR</u>  Common stored DGs diesel fuel oil or starting air subsystem for each DG not within limits for reasons other than Condition A, B, C, or D.	E.1 Declare associated DG(s) inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	<p>Verify <math>\geq</math> 19,000 gallons of diesel fuel oil available to the DGs from the Unit 2 DG fuel oil storage tank</p> <p><u>AND</u></p> <p><math>\geq</math> 34,000 gallons available to the DGs from the combination of the Unit 1 IC turbine fuel oil storage tanks and the Unit 2 DG fuel oil storage tank.</p>	7 days
SR 3.8.3.2	<p>Verify fuel oil properties of stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.</p>	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.3	<p>Verify each DG air start receiver pressure is <math>\geq</math> 210 psig.</p>	31 days
SR 3.8.3.4	<p>Check for and remove accumulated water from each fuel oil storage tank.</p>	31 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources – Operating

LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One DC electrical power subsystem inoperable.	A.1 Restore DC electrical power subsystem to OPERABLE status.	2 hours
B. Required Action and Associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is $\geq 125.7$ V on float charge.	7 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.4.2    Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	18 months
SR 3.8.4.3    Remove visible terminal corrosion, verify battery cell to cell and terminal connections are clean and tight, and are coated with anti-corrosion material.	18 months
SR 3.8.4.4    Verify each battery charger supplies $\geq 300$ amps at $\geq 125$ V for $\geq 4$ hours.	18 months
SR 3.8.4.5    .....NOTES..... 1.    The performance discharge test in SR 3.8.4.6 may be performed in lieu of the service test in SR 3.8.4.5 once per 75 months.  2.    This Surveillance shall not be performed in MODE 1, 2, 3, or 4. .....  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.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.6</p> <p>-----NOTE-----            This Surveillance shall not be performed in            MODE 1, 2, 3, or 4.            -----</p> <p>Verify battery capacity is <math>\geq 80\%</math> for the            "A" Battery and 91% for the "B" battery of            the manufacturer's rating when subjected to            a performance discharge test.</p>	<p>60 months</p> <p><u>AND</u></p> <p>18 months when            battery shows            degradation or            has reached 85%            for battery "A"            and 95% for            battery "B" of            expected life.</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources – Shutdown

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

APPLICABILITY: MODES 5 and 6, and  
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more required DC electrical power subsystems inoperable.</p>	<p>A.1.1 Declare affected required feature(s) inoperable.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>A.2.1 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	<p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<p style="text-align: center;"><u>AND</u></p> 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 -----NOTE----- The following SRs are not required to be performed: SR 3.8.4.4, SR 3.8.4.5, and SR 3.8.4.6. ----- For DC sources required to be OPERABLE, the following SRs are applicable: SR 3.8.4.1    SR 3.8.4.3    SR 3.8.4.5 SR 3.8.4.2    SR 3.8.4.4    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 Train A and Train B batteries shall be within the limits of Table 3.8.6-1 and average electrolyte temperature of representative cells shall be within limit.

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 Category A or B limits.	A.1 Verify pilot cell 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> Once per 7 days thereafter
	<u>AND</u>	
	A.3 Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.	31 days

(continued)

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; 67°F.</p> <p><u>OR</u></p> <p>One or more batteries with one or more battery cell parameters not within Category C values.</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>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.2    Verify battery cell parameters meet Table 3.8.6-1 Category B limits.</p>	<p>92 days</p> <p><u>AND</u></p> <p>Once within 24 hours after a battery discharge &lt; 110 V</p> <p><u>AND</u></p> <p>Once within 24 hours after a battery overcharge &gt; 150 V</p>
<p>SR 3.8.6.3    Verify average electrolyte temperature of representative cells is <math>\approx 67^{\circ}\text{F}</math>.</p>	<p>92 days</p>

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

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark <sup>(a)</sup>	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark <sup>(a)</sup>	Above top of plates, and not overflowing
Float Voltage	$\geq 2.13$ V	$\geq 2.13$ V	> 2.07 V
Specific Gravity <sup>(b)(c)</sup>	$\geq 1.200$	$\geq 1.195$ <u>AND</u> Average of all connected cells > 1.205	Not more than 0.020 below average of all connected cells <u>AND</u> Average of all connected cells $\geq 1.195$

- (a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.
- (b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging current is < 2 amps while on float charge.
- (c) A battery charging current of < 2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 AC Instrument Bus Sources – Operating

LCO 3.8.7 The following AC Instrument Bus Power Sources shall be OPERABLE:

- a. Inverters A and B, and
- b. Constant Voltage Transformers (CVT) 1 and 2.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One AC Instrument Bus power source inoperable.	<p>A.1 .....NOTE.....                      Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any instrument bus de-energized.                      .....                      Restore AC Instrument Bus Power Source to OPERABLE status.</p>	24 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	Verify correct inverter voltage, frequency, and alignment to required AC instrument buses.	7 days
SR 3.8.7.2	Verify voltage availability and correct CVT alignment to required AC instrument buses.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 AC Instrument Bus Sources – Shutdown

LCO 3.8.8 AC instrument bus source shall be OPERABLE to support the onsite AC instrument bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems – Shutdown."

APPLICABILITY: MODES 5 and 6, and  
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more AC instrument bus sources 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.	Immediately
	<u>AND</u>	
		(continued)



3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems – Operating

LCO 3.8.9 Train A and Train B AC, DC, and AC instrument bus electrical power distribution subsystems shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One AC electrical power distribution subsystem inoperable.	A.1 Restore AC electrical power distribution subsystem to OPERABLE status.	8 hours <u>AND</u> 16 hours from discovery of failure to meet LCO
B. One AC instrument bus subsystem inoperable.	B.1 Restore AC instrument bus subsystem to OPERABLE status.	2 hours <u>AND</u> 16 hours from discovery of failure to meet LCO
C. One DC electrical power distribution subsystem inoperable.	C.1 Restore DC electrical power distribution subsystem to OPERABLE status.	2 hours <u>AND</u> 16 hours from discovery of failure to meet LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. Trip elements inoperable for both of the molded case circuit breakers associated with the AFW Header Discharge to S/G "A" valve, V2-16A.</p>	<p>D.1      -----NOTE----- Enter applicable Conditions and Required Actions for Systems made inoperable by inoperable valves. -----  Open one of the circuit breaker(s) with the inoperable trip element.</p>	<p>2 hours</p>
<p>E. Trip elements inoperable for both of the molded case circuit breakers associated with the Service Water System Turbine Building Supply Valve (emergency supply) V6-16C.</p>	<p>E.1      -----NOTE----- Enter applicable Conditions and Required Actions for Systems made inoperable by inoperable valves. -----  Open one of the circuit breaker(s) with the inoperable trip element.</p>	<p>2 hours</p>
<p>F. Required Action and associated Completion Time not met.</p>	<p>F.1      Be in MODE 3.  <u>AND</u>  F.2      Be in MODE 5.</p>	<p>6 hours    36 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Two trains with inoperable distribution subsystems that result in a loss of safety function.	G.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.9.1 .....NOTE..... Actual voltage measurement is not required for the AC vital buses supplied from the constant voltage transformers. ..... Verify correct breaker alignments and voltage to AC, DC, and AC instrument bus electrical power distribution subsystems.	7 days
SR 3.8.9.2 Verify capability of the two molded case circuit breakers for AFW Header Discharge Valve to S/G "A", V2-16A to trip on overcurrent.	18 months
SR 3.8.9.3 Verify capability of the two molded case circuit breakers for Service Water System Turbine Building Supply Valve (emergency supply), V6-16C to trip on overcurrent.	18 months

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems – Shutdown

LCO 3.8.10 The necessary portion of AC, DC, and AC instrument bus electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6, and  
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC instrument 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 movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.3 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	<p style="text-align: center;"><u>AND</u></p> A.2.4 Initiate actions to restore required AC, DC, and AC instrument bus electrical power distribution subsystems to OPERABLE status.	Immediately
	<p style="text-align: center;"><u>AND</u></p> A.2.5 Declare associated required residual heat removal subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.10.1 -----NOTE----- Actual voltage measurement is not required for the AC vital buses supplied from constant voltage transformers. ----- Verify correct breaker alignments and voltage to required AC, DC, and AC instrument bus electrical power distribution subsystems.	7 days