

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two required DGs inoperable.	E.1 Restore one required DG to OPERABLE status.	2 hours. <u>OR</u> 24 hours if Division 3 DG is inoperable
F. Required Action and Associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3. <u>AND</u> F.2 Be in MODE 4.	12 hours  36 hours
G. Three or more required AC sources inoperable.	G.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 offsite circuit.	7 days
SR 3.8.1.2    -----NOTES----- 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading.  2. 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. -----  Verify each required DG starts from standby conditions and achieves steady state:  a. Voltage $\geq$ 3910 V and $\leq$ 4400 V and frequency $\geq$ 58.8 Hz and $\leq$ 61.2 Hz for DG-1 and DG-2; and  b. Voltage $\geq$ 3910 V and $\leq$ 4400 V and frequency $\geq$ 58.8 Hz and $\leq$ 61.2 Hz for DG-3.	31 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3</p> <p style="text-align: center;">-----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. The endurance test of SR 3.8.1.14 may be performed in lieu of the load-run test in SR 3.8.1.3 provided the requirements, except the upper load limits, of SR 3.8.1.3 are met.</li> </ol> <p>-----</p> <p>Verify each required DG is synchronized and loaded and operates for <math>\geq 60</math> minutes at a load <math>\geq 4000</math> kW and <math>\leq 4400</math> kW for DG-1 and DG-2, and <math>\geq 2340</math> kW and <math>\leq 2600</math> kW for DG-3.</p>	<p>31 days</p>
<p>SR 3.8.1.4</p> <p>Verify each required day tank contains <math>\geq 1400</math> gal of fuel oil.</p>	<p>31 days</p>
<p>SR 3.8.1.5</p> <p>Check for and remove accumulated water from each required day tank.</p>	<p>31 days</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.6      Verify each required fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.</p>	<p>92 days</p>
<p>SR 3.8.1.7      -----NOTE----- All DG starts may be preceded by an engine prelube period. -----</p> <p>Verify each required DG starts from standby condition and achieves:</p> <p>a.    For DG-1 and DG-2 in <math>\leq 15</math> seconds, voltage <math>\geq 3910</math> V and frequency <math>\geq 58.8</math> Hz, and after steady state conditions are reached, maintains voltage <math>\geq 3910</math> V and <math>\leq 4400</math> V and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz; and</p> <p>b.    For DG-3, in <math>\leq 15</math> seconds, voltage <math>\geq 3910</math> V and frequency <math>\geq 58.8</math> Hz, and after steady state conditions are reached, maintains voltage <math>\geq 3910</math> V and <math>\leq 4400</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      -----NOTE----- The automatic transfer function of this Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. -----</p> <p>Verify automatic and manual transfer of the power supply to safety related buses from the startup offsite circuit to the backup offsite circuit.</p>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.9 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Credit may be taken for unplanned events that satisfy this SR.</li> <li>2. If performed with the DG synchronized with offsite power, it shall be performed at a power factor as close to the power factor of the single largest post-accident load as practicable.</li> </ol> <p>-----</p> <p>Verify each required DG rejects a load greater than or equal to its associated single largest post-accident load, and following load rejection, the frequency is <math>\leq 66.75</math> Hz.</p>	<p>24 months</p>
<p>SR 3.8.1.10 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Credit may be taken for unplanned events that satisfy this SR.</li> <li>2. If performed with the DG synchronized with offsite power, it shall be performed at the accident load power factor, or at a power factor as close to the accident load power factor as practicable with the field excitation current <math>\geq 90\%</math> of the continuous rating.</li> </ol> <p>-----</p> <p>Verify each required DG does not trip and voltage is maintained <math>\leq 4784</math> V during and following a load rejection of a load <math>\geq 4400</math> kW for DG-1 and DG-2 and <math>\geq 2600</math> kW for DG-3.</p>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

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. However, 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 for Divisions 1 and 2; 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 15</math> seconds for DG-1 and DG-2, and in <math>\leq 18</math> seconds for DG-3,</li> <li>2. energizes auto-connected shutdown loads,</li> <li>3. maintains steady state voltage <math>\geq 3910</math> V and <math>\leq 4400</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>24 months</p>

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SURVEILLANCE REQUIREMENTS

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. However, 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 required DG auto-starts from standby condition and:</p> <ol style="list-style-type: none"> <li>a. For DG-1 and DG-2, in <math>\leq 15</math> seconds achieves voltage <math>\geq 3910</math> V, and after steady state conditions are reached, maintains voltage <math>\geq 3910</math> V and <math>\leq 4400</math> V and, for DG-3, in <math>\leq 15</math> seconds achieves voltage <math>\geq 3910</math> V, and after steady state conditions are reached, maintains voltage <math>\geq 3910</math> V and <math>\leq 4400</math> V;</li> <li>b. In <math>\leq 15</math> seconds, achieves frequency <math>\geq 58.8</math> Hz and after steady state conditions are achieved, 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 auto-connected to the offsite power system.</li> </ol>	<p>24 months</p>

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.13 -----NOTE-----            Credit may be taken for unplanned events            that satisfy this SR.            -----</p> <p>Verify each required DG's automatic trips            are bypassed on an actual or simulated ECCS            initiation signal except:</p> <ul style="list-style-type: none"> <li>a. Engine overspeed;</li> <li>b. Generator differential current; and</li> <li>c. Incomplete starting sequence.</li> </ul>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.14 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Momentary transients outside the load, excitation current, and power factor ranges do not invalidate this test.</li> <li>2. Credit may be taken for unplanned events that satisfy this SR.</li> <li>3. If performed with the DG synchronized with offsite power, it shall be performed at the accident load power factor, or at a power factor as close to the accident load power factor as practicable with the field excitation current <math>\geq 90\%</math> of the continuous rating.</li> </ol> <p>-----</p> <p>Verify each required DG 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 4650</math> kW for DG-1 and DG-2, and <math>\geq 2850</math> kW for DG-3; and</li> <li>b. For the remaining hours of the test loaded <math>\geq 4400</math> kW for DG-1 and DG-2, and <math>\geq 2600</math> kW for DG-3.</li> </ol>	<p>24 months</p>

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.15 -----NOTES-----</p> <p>1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated <math>\geq</math> 1 hour loaded <math>\geq</math> 4000 kW for DG-1 and DG-2, and <math>\geq</math> 2340 kW for DG-3.</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 required DG starts and achieves:</p> <p>a. For DG-1 and DG-2, in <math>\leq</math> 15 seconds, voltage <math>\geq</math> 3910 V and frequency <math>\geq</math> 58.8 Hz, and after steady state conditions are reached, maintains voltage <math>\geq</math> 3910 V and <math>\leq</math> 4400 V and frequency <math>\geq</math> 58.8 Hz and <math>\leq</math> 61.2 Hz; and</p> <p>b. For DG-3, in <math>\leq</math> 15 seconds, voltage <math>\geq</math> 3910 V and frequency <math>\geq</math> 58.8 Hz, and after steady state conditions are reached, maintains voltage <math>\geq</math> 3910 V and <math>\leq</math> 4400 V and frequency <math>\geq</math> 58.8 Hz and <math>\leq</math> 61.2 Hz.</p>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.16 -----NOTE-----  This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR.  -----  Verify each required DG:  a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power;  b. Transfers loads to offsite power source; and  c. Returns to ready-to-load operation.</p>	<p>24 months</p>
<p>SR 3.8.1.17 -----NOTE-----  Credit may be taken for unplanned events that satisfy this SR.  -----  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:  a. Returning DG to ready-to-load operation; and  b. Automatically energizing the emergency load from offsite power.</p>	<p>24 months</p>

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.18 -----NOTE-----  This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR.  -----  Verify interval between each sequenced load block is within <math>\pm 10\%</math> of design interval for each time delay relay.</p>	<p>24 months</p>
<p>SR 3.8.1.19 -----NOTES-----  1. All DG starts may be preceded by an engine prelube period.  2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR.  -----  Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal:  a. De-energization of emergency buses;  b. Load shedding from emergency buses for DG-1 and DG-2; and  c. DG auto-starts from standby condition and:  1. energizes permanently connected loads in <math>\leq 15</math> seconds,  2. energizes auto-connected emergency loads,  3. maintains steady state voltage <math>\geq 3910</math> V and <math>\leq 4400</math> V.</p>	<p>24 months</p> <p>(continued)</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.19 (continued)</p> <p>4. maintains steady state frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz, and</p> <p>5. supplies permanently connected and auto-connected emergency loads for <math>\geq 5</math> minutes.</p>	
<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, DG-1 and DG-2 achieves, in <math>\leq 15</math> seconds, voltage <math>\geq 3910</math> V and frequency <math>\geq 58.8</math> Hz, and DG-3 achieves, in <math>\leq 15</math> seconds, voltage <math>\geq 3910</math> V and frequency <math>\geq 58.8</math> Hz.</p>	<p>10 years</p>