

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      -----NOTES----- 1.    Performance of SR 3.8.1.7 satisfies this SR.  2.    All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading.  3.    A modified DG start involving 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 DG starts from standby conditions and achieves:  a.    For DG 1A and DG 1B, steady state voltage $\geq 3740$ V and $\leq 4580$ V and frequency $\geq 58.8$ Hz and $\leq 61.2$ Hz.  b.    For DG 1C:  1.    Maximum of 5400 V, and 66.75 Hz, and  2.    Steady state voltage $\geq 3740$ V and $\leq 4580$ V and frequency $\geq 58.8$ Hz and $\leq 61.2$ Hz.	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> </ol> <p>-----</p> <p>Verify each DG operates for <math>\geq 60</math> minutes at a load <math>\geq 3000</math> kW and <math>\leq 3100</math> kW for DG 1A and DG 1B, and <math>\geq 2500</math> kW and <math>\leq 2600</math> kW for DG 1C.</p>	<p>31 days</p>
<p>SR 3.8.1.4 Verify each day tank contains <math>\geq 316.3</math> gal 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>
<p>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.</p>	<p>31 days</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.7 -----NOTE----- All DG starts may be preceded by an engine prelube period. -----</p> <p>Verify each DG starts from standby conditions and achieves:</p> <p>a. For DG 1A and DG 1B, steady state voltage <math>\geq 3740</math> V and <math>\leq 4580</math> V and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz, in <math>\leq 10</math> seconds.</p> <p>b. For DG 1C:</p> <ol style="list-style-type: none"> <li>1. Maximum of 5400 V, and 66.75 Hz, and</li> <li>2. Steady state voltage <math>\geq 3740</math> V and <math>\leq 4580</math> V and frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz, in <math>\leq 13</math> seconds.</li> </ol>	<p>184 days</p>
<p>SR 3.8.1.8 -----NOTE----- 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 manual transfer of unit power supply from the normal offsite circuit to required alternate offsite circuit.</p>	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>  SR 3.8.1.9 -----NOTES-----</p> <p>1. 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>2. If performed with DG synchronized with offsite power, it shall be performed at a power factor <math>\leq 0.9</math>.</p> <p>-----</p> <p>Verify each DG rejects a load greater than or equal to its associated single largest post accident load and following load rejection, the engine speed is maintained less than nominal plus 75% of the difference between nominal speed and the overspeed trip setpoint or 15% above nominal, whichever is lower.</p>	<p>18 months</p>
<p>  SR 3.8.1.10 -----NOTE-----</p> <p>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>-----</p> <p>Verify each DG operating at a power factor <math>\leq 0.9</math> does not trip and voltage is maintained <math>\leq 4784</math> V for DG 1A and DG 1B and <math>\leq 5400</math> V for DG 1C during and following a load rejection of a load <math>\geq 3030</math> kW and <math>\leq 3130</math> kW for DGs 1A and 1B and <math>\geq 2500</math> kW and <math>\leq 2600</math> kW for DG 1C.</p>	<p>18 months</p>

(continued)

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. 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 I and II; 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 for DG 1A and DG 1B and <math>\leq 13</math> seconds for DG 1C,</li> <li>2. energizes auto-connected shutdown loads.</li> <li>3. maintains steady state voltage <math>\geq 3740</math> V and <math>\leq 4580</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 3.8.1.12 -----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 DG auto-starts from standby condition and:</p> <ol style="list-style-type: none"> <li>a. For DG 1C during the auto-start maintains voltage <math>\leq 5400</math> V and frequency <math>\leq 66.75</math> Hz;</li> <li>b. In <math>\leq 10</math> seconds for DG 1A and DG 1B and <math>\leq 13</math> seconds for DG 1C after auto-start and during tests, achieves voltage <math>\geq 3740</math> V and <math>\leq 4580</math> V;</li> <li>c. In <math>\leq 10</math> seconds for DG 1A and DG 1B and <math>\leq 13</math> seconds for DG 1C after auto-start and during tests, achieves frequency <math>\geq 58.8</math> Hz and <math>\leq 61.2</math> Hz; and</li> <li>d. Operates for <math>\geq 5</math> minutes.</li> </ol>	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.13	<p style="text-align: center;">-----NOTE-----</p> <p>This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR.</p> <p style="text-align: center;">-----</p> <p>Verify each 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; and</li> <li>b. Generator differential current.</li> </ul>	18 months
SR 3.8.1.14	<p style="text-align: center;">-----NOTES-----</p> <ul style="list-style-type: none"> <li>1. Momentary transients outside the load and power factor ranges do not invalidate this test.</li> <li>2. Credit may be taken for unplanned events that satisfy this SR.</li> </ul> <p style="text-align: center;">-----</p> <p>Verify each DG operating at a power factor <math>\leq 0.9</math>, operates for <math>\geq 24</math> hours:</p> <ul style="list-style-type: none"> <li>a. For DG 1A and DG 1B loaded <math>\geq 3030</math> kW and <math>\leq 3130</math> kW; and</li> <li>b. For DG 1C: <ul style="list-style-type: none"> <li>1. For <math>\geq 2</math> hours loaded <math>\geq 2750</math> kW and <math>\leq 2850</math> kW, and</li> <li>2. For the remaining hours of the test loaded <math>\geq 2500</math> kW and <math>\leq 2600</math> kW.</li> </ul> </li> </ul>	18 months

(continued)



SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>  SR 3.8.1.17 -----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, 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> <ul style="list-style-type: none"> <li>a. Returning DG to ready-to-load operation; and</li> <li>b. Automatically energizing the emergency loads from offsite power.</li> </ul>	<p>18 months</p>
<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 sequence time is within <math>\pm 10\%</math> of design for each load sequencer timer.</p>	<p>18 months</p>

(continued)

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. 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 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 for Divisions I and II; 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 for DG 1A and DG 1B and <math>\leq 13</math> seconds for DG 1C.</li> <li>2. energizes auto-connected emergency loads.</li> <li>3. achieves steady state voltage <math>\geq 3740</math> V and <math>\leq 4580</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>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>  SR 3.8.1.20 -----NOTE-----            All DG starts may be preceded by an engine            prelube period.            -----</p> <p>Verify, when started simultaneously from            standby condition, each DG achieves, in            ≤ 10 seconds for DG 1A and DG 1B and            ≤ 13 seconds for DG 1C, voltage ≥ 3740 V            and ≤ 4580 V and frequency ≥ 58.8 Hz and            ≤ 61.2 Hz.</p>	<p>10 years</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY																		
<p>SR 3.8.2.1 -----NOTE-----                      The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, SR 3.8.1.18, and SR 3.8.1.19.                      -----                      For AC sources required to be OPERABLE, the following SRs are applicable:</p> <table border="0"> <tr> <td>SR 3.8.1.1</td> <td>SR 3.8.1.7</td> <td>SR 3.8.1.14</td> </tr> <tr> <td>SR 3.8.1.2</td> <td>SR 3.8.1.9</td> <td>SR 3.8.1.15</td> </tr> <tr> <td>SR 3.8.1.3</td> <td>SR 3.8.1.10</td> <td>SR 3.8.1.16</td> </tr> <tr> <td>SR 3.8.1.4</td> <td>SR 3.8.1.11</td> <td>SR 3.8.1.18</td> </tr> <tr> <td>SR 3.8.1.5</td> <td>SR 3.8.1.12</td> <td>SR 3.8.1.19</td> </tr> <tr> <td>SR 3.8.1.6</td> <td>SR 3.8.1.13</td> <td></td> </tr> </table>	SR 3.8.1.1	SR 3.8.1.7	SR 3.8.1.14	SR 3.8.1.2	SR 3.8.1.9	SR 3.8.1.15	SR 3.8.1.3	SR 3.8.1.10	SR 3.8.1.16	SR 3.8.1.4	SR 3.8.1.11	SR 3.8.1.18	SR 3.8.1.5	SR 3.8.1.12	SR 3.8.1.19	SR 3.8.1.6	SR 3.8.1.13		<p>In accordance with applicable SRs</p>
SR 3.8.1.1	SR 3.8.1.7	SR 3.8.1.14																	
SR 3.8.1.2	SR 3.8.1.9	SR 3.8.1.15																	
SR 3.8.1.3	SR 3.8.1.10	SR 3.8.1.16																	
SR 3.8.1.4	SR 3.8.1.11	SR 3.8.1.18																	
SR 3.8.1.5	SR 3.8.1.12	SR 3.8.1.19																	
SR 3.8.1.6	SR 3.8.1.13																		