

### 3/4.8 ELECTRICAL POWER SYSTEMS

#### 3/4.8.1 A.C. SOURCES

##### OPERATING

##### LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two independent circuits between the offsite transmission network and the onsite Class 1E distribution system, each consisting of;
  1. One OPERABLE 345 KV transmission line,
  2. One OPERABLE 345-13.8 KV startup transformer, and
  3. One OPERABLE 13.8 KV bus, and
- b. Two separate and independent diesel generators each with:
  1. A separate day fuel tank containing a minimum volume of 4000 gallons of fuel,
  2. A separate fuel storage system containing a minimum volume of 32,000 gallons of fuel, and
  3. A separate fuel transfer pump.

APPLICABILITY: MODES 1, 2, 3 and 4.

##### ACTION:

- a. With either an offsite circuit or diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement ~~4.8.1.1.1.a and 4.8.1.1.2.a.4~~ within one hour and at least once per 8 hours thereafter ~~restore~~ at least two offsite circuits and two diesel generators to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement ~~4.8.1.1.1.a and 4.8.1.1.2.a.4~~ within

and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours,  
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### ACTION (Continued)

one hour and at least once per 8 hours thereafter, restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two offsite circuits and two diesel generators to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

- c. With two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 within ~~one~~ 8 hours and at least once per 8 hours thereafter, unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- d. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

### SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

- a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments and indicated power availability, and
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring (manually and automatically) unit power supply to each of the 345 KV transmission lines.

and Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours;

BY PERFORMING

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### SURVEILLANCE REQUIREMENTS (Continued)

#### 4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS, if Surveillance Requirements 4.8.1.1.2.C has not been performed within the previous 31 days, by:

1. Verifying the fuel level in the day fuel tank.
2. Verifying the fuel level in the fuel storage tank.
3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
4. Verifying the diesel starts and accelerates up to 900 RPM, preceded by an engine prelube and/or appropriate other warmup procedures.
5. Verifying the generator can be synchronized, and
6. Verifying the diesel generator is aligned to provide standby power to the associated essential busses.
7. Verifying that the automatic load sequence timer is OPERABLE with each load sequence time within  $\pm 10\%$  of its required value.

- b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank is within the acceptable limits specified in Table 1 of ASTM D975-68 when checked for viscosity, water and sediment.

- c. At least once per 134 days on a STAGGERED TEST BASIS by:

1. Verifying the fuel level in the day fuel tank.
2. Verifying the fuel level in the fuel storage tank.
3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
4. Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in  $\leq 10$  seconds.
5. Verifying the generator is synchronized, loaded to  $\geq 1000$  kw, and operates for  $\geq 60$  minutes, and
6. Verifying the diesel generator is aligned to provide standby power to the associated essential busses.
7. Verifying that the automatic load sequence timer is OPERABLE with each load sequence time within  $\pm 10\%$  of its required value.

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### SURVEILLANCE REQUIREMENTS (Continued)

d.

At least once per 18 months during shutdown by:

1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service,
2. Verifying the generator capability to reject a load equal to the largest single emergency load supplied by the generator without tripping.
3. Simulating a loss of offsite power in conjunction with a safety injection actuation test signal, and:
  - (a) Verifying de-energization of the essential busses and load shedding from the essential busses,
  - b) Verifying the diesel starts from ambient condition on the auto-start signal, energizes the essential busses with permanently connected loads, energizes the auto-connected essential loads through the load sequencer and operates for  $\geq 5$  minutes while its generator is loaded with the essential loads.
  - c) Verifying that all diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the essential bus and/or an SFAS test signal.
4. Verifying the diesel generator operates for  $\geq 60$  minutes while loaded to  $\geq 2000$  kw.
5. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000 hour rating of 2838 kw.