

## ELECTRICAL POWER SYSTEMS

### AC SOURCES - OPERATING

#### LIMITING CONDITION FOR OPERATION (Continued)

##### 3.8.1.1 ACTION (Continued):

- of the above-required offsite circuits to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours. With only one offsite circuit restored to OPERABLE status, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. A successful test(s) of diesel generator OPERABILITY per Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5, performed under this ACTION statement for the OPERABLE diesel generators, satisfies the diesel generator test requirements of ACTION statement a.
- g. With diesel generators 1A and 1B of the above-required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter and Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 for diesel generator 1C within 8 hours.\* Restore at least one of the inoperable diesel generators 1A and 1B to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore both diesel generators 1A and 1B to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- h. With one offsite circuit of the above-required AC electrical power sources inoperable and diesel generator 1C inoperable, apply the requirements of ACTION statements a and d specified above.
- i. With either diesel generator 1A or 1B inoperable and diesel generator 1C inoperable, apply the requirements of ACTION statements b, d and e specified above.
- j. With the fuel oil contained in the storage tank(s) not meeting Surveillance Requirement 4.8.1.1.2.d.2 or 4.8.1.1.2.d.3, restore the fuel oil to within the specified limit(s) within 7 days or declare the associated diesel generator(s) inoperable.

\*This test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY. The provisions of Specification 3.0.2 are not applicable.

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for continuity.

## ELECTRICAL POWER SYSTEMS

### AC SOURCES - OPERATING

#### 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 from the normal circuit to the alternate circuit.

4.8.1.1.2 Each of the above required diesel generators shall be demonstrated OPERABLE:\*

- a. In accordance with the frequency specified in Table 4.8.1.1.2-1 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 starts and transfers fuel from the storage system to the day fuel tank.
  4. Verifying the diesel starts from ambient condition and accelerates to at least  $900 \pm 18$  rpm in less than or equal to 12 seconds.\*\* The generator voltage and frequency shall be  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz within 12 seconds\*\* after the start signal. The diesel generator shall be started for this test by using one of the following signals:
    - a) Manual.
    - b) Simulated loss of offsite power by itself.
    - c) Simulated loss of offsite power in conjunction with an ESF actuation test signal.
    - d) An ECCS actuation test signal by itself.

\* All planned diesel generator starts performed for the purpose of meeting these surveillance requirements may be preceded by an engine prelube period as recommended by the manufacturer.

\*\* Surveillance testing to verify the diesel generator start and load times (less than or equal to 12 seconds and less than or equal to 90 seconds respectively) from ambient conditions shall be performed at least once per 184 days. All other engine starts performed for the purpose of meeting these surveillance requirements may be conducted in accordance with warmup and loading procedures as recommended by the manufacturer. This is in order to minimize mechanical stress and wear on the diesel generator caused by fast starting and loading of the diesel generator.

## ELECTRICAL POWER SYSTEMS

### AC SOURCES - OPERATING

#### SURVEILLANCE REQUIREMENTS (Continued)

##### 4.8.1.1.2 (Continued)

5. Verifying the diesel generator is synchronized, loaded to greater than or equal to 3869 kW for diesel generator 1A, 3875 kW for diesel generator 1B and 2200 kW for diesel generator 1C in less than or equal to 90\*\* seconds, and operates with this load for at least 60 minutes.
6. Verifying the diesel generator is aligned to provide standby power to the associated emergency buses.
7. Verifying the pressure in all diesel generator air start receivers to be greater than or equal to 200 psig.
- b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day fuel tanks.
- c. At least once per 92 days by removing accumulated water from the fuel storage tanks.

d. At least once per 92 days and from new fuel oil prior to addition to the storage tanks, by obtaining a sample in accordance with ASTM-D270-1975, and by verifying that the sample meets the following minimum requirements and is tested within the specified time limits:

1. As soon as sample is taken from new fuel or prior to addition to the storage tank, as applicable, verify in accordance with the tests specified in ASTM-D975-77 that the sample has:
  - a) A water and sediment content of less than or equal to 0.05 volume percent.
  - b) A kinematic viscosity at 40°C of greater than or equal to 3.9 centistokes, but less than or equal to 4.1 centistokes.
  - c) An API gravity @ 60°F of greater than or equal to 30 degrees but less than or equal to 40 degrees.
2. Within one week after obtaining the sample, verify an impurity level of less than 2 mg of insolubles per 100 ml when tested in accordance with ASTM-D2274-70.

\*\*Surveillance testing to verify the diesel generator start and load times (less than or equal to 12 seconds and less than or equal to 90 seconds respectively) from ambient conditions shall be performed at least once per 184 days. All other engine starts performed for the purpose of meeting these surveillance requirements may be conducted in accordance with warmup and loading procedures as recommended by the manufacturer. This is in order to minimize mechanical stress and wear on the diesel generator caused by fast starting and loading of the diesel generator.



ELECTRICAL POWER SYSTEMS

AC SOURCES - OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

3. ~~Within two weeks after obtaining the sample, verify that the other properties specified in Table 1 of ASTM-D975-77 and Regulatory Guide 1.137, Position 2.e, are met when tested in accordance with ASTM-D975-77.~~

e. 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 diesel generator capability to reject a load of greater than or equal to 1120 kW for diesel generators 1A and 1B, and greater than or equal to 1995 kW for diesel generator 1C while maintaining engine speed < nominal plus 75% of the difference between nominal speed and the overspeed trip setpoint or 15% above nominal whichever is less.
3. Verifying the diesel generator capability to reject a load of 3869 kW\* for diesel generators 1A, 3875 kW\* for diesel generator 1B and 2200 kW\* for diesel generator 1C without tripping. The generator voltage shall not exceed 5000 volts for diesel generator 1A and 1B and 5824 volts for diesel generator 1C during and following the load rejection.
4. Simulating a loss of offsite power by itself, and:
  - a) For Divisions I and II:
    - 1) Verifying deenergization of the emergency buses and load shedding from the emergency buses.
    - 2) Verifying the diesel generator starts on the auto-start signal, energizes the emergency buses with permanently connected loads within 12 seconds, energizes the auto-connected loads required for safe shutdown through the load sequence (individual timers), and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady state voltage and frequency of the emergency buses shall be maintained at  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz during this test.

#For any start of a diesel, the diesel must be operated with a load in accordance with the manufacturer's recommendations.

\*Momentary transients due to changing bus loads shall not invalidate the test.

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d. By sampling fuel oil and verifying that the sample meets the following minimum requirements and is tested within the specified time limits:

1. By obtaining a sample from new fuel oil in accordance with ASTM-D270-1975 and verifying prior to addition of the fuel to the storage tanks that the sample has:
  - a) A water and sediment content of less than or equal to 0.05 volume percent when tested in accordance with the tests specified in ASTM-D975-89; or a clear and bright appearance when tested in accordance with ASTM-D4176-82.
  - b) A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes but less than or equal to 4.1 centistokes when tested in accordance with the tests specified in ASTM-975-89.
  - c) An API gravity at 60°F of greater than or equal to 30 degrees but less than or equal to 40 degrees; or an absolute specific gravity at 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89.
2. By obtaining a sample from new fuel oil in accordance with ASTM-D270-1975 and verifying within 31 days after obtaining the sample that the other properties specified in Table 1 of ASTM-D975-89 are met when tested in accordance with the tests specified in ASTM-D975-89.
3. By obtaining a sample of fuel oil from the storage tanks in accordance with ASTM-D2276-88 at least once per 31 days and verifying within one week after obtaining the sample that total particulate contamination is less than 10 mg/liter when tested in accordance with ASTM-D2276-88.