

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

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.

- f. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1a. within 1 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, indicated power availability, and
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring (manually and automatically) the 6.9 kV safeguards bus power supply from the preferred offsite source to the alternate offsite source.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8-1 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 441 rpm in less than or equal to 10 seconds.*

* All planned diesel engine starts for the purpose of this surveillance may be preceded by a pre-lube period in accordance with vendor recommendations.

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SURVEILLANCE REQUIREMENTS (Continued)

The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz within 10 seconds after the start signal**. The diesel generator shall be started for this test by using one of the following signals:

- a) Manual, or
 - ~~b) Start-up transformer secondary winding undervoltage, or~~
 - ~~c) Simulated loss of preferred offsite power by itself, or~~
 - b ~~d~~) Simulated safeguards bus undervoltage, or
 - c ~~e~~) Safety Injection Actuation test signal in conjunction with loss of preferred offsite power, or
 - d ~~f~~) Safety Injection Actuation test signal by itself.
- 5) Verifying the generator is synchronized, loaded to between 6,300 and 7,000 kW** and operates at this load condition for at least 60 minutes, and
- 6) Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
- 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 tank;
- c. At least once per 31 days by checking for and removing accumulated water from the fuel oil storage tanks;
- d. By sampling new fuel oil in accordance with ASTM-D4057-1981 prior to addition to storage tanks and:
- 1) By verifying in accordance with the tests specified in ASTM-D975-1981 prior to addition to the storage tanks that the sample has:

*Diesel generator loading for the purpose of this surveillance may be accomplished in accordance with vendor recommendations; i.e., >110 seconds.

**During performance of surveillance activities as a requirement for ACTION statements, the air-roll test shall not be performed.

#This band is meant as guidance to avoid routine overloading of diesel generator. Momentary load excursions outside this band due to changing bus loads shall not invalidate the test.

Page
(as amended)

Group Description

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- 3 Removal of duplicate diesel generator start signal.
Correction:
Deletes start-up transformer secondary winding undervoltage as a diesel generator start signal since this signal and the loss of preferred offsite power signal are initiated by the same undervoltage relay. See description below for the deletion of the loss of preferred offsite power source diesel start signal (TS-90-020).
FSAR Change Request Number: TS-89-099
Related SER Section: 8.3.1; SSER22 8.3.1
SER/SSER Impact: No

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- 2 Revises diesel generator start logic to prevent start on loss of preferred offsite power with alternate offsite power available and supplying power to Class 1E buses.
Revision:
On a loss of the preferred power source, if the alternate power source is available and powers the Class 1E buses, the diesel generator will now not start. This design modification prevents unnecessary starts of the diesel generators when they are not needed. The relay logic was changed by removing 27AX-2/ST2, which started the diesel generators on a loss of preferred offsite power, and removing the start signal from 27-2X/1EA1 and replacing it with a new time delay relay, 272X-1/1EA1. The new time delay relay has a delay of 1.0 sec. to allow time for the alternate offsite power source breaker to close and power the bus. If the alternate offsite power source does not energize the bus, then the diesel generator starts and powers the Class 1E buses. This design modification does not affect the start of a diesel generator on a safety injection signal. A safety injection signal still immediately starts the diesel generator. The time delay selected for the new relay remains within the allowance made for relay operation for starting the diesel generator and powering loads used in the accident analysis in Chapter Chapter 15 of the FSAR.
FSAR Change Request Number: TS-90-020
Related SER Section: 8.3.1; SSER22 8.3.1
SER/SSER Impact: Yes
SSER 22 Section 8.3.1 states that the diesel generator will start on undervoltage on the loss of the preferred offsite source.