

**3.7 AUXILIARY ELECTRICAL SUPPLY**

**APPLICABILITY:** Applies to the availability of electrical power for the operation of the plant auxiliaries.

**OBJECTIVE:** To define those conditions of electrical power availability necessary (1) to provide for safe reactor operation, (2) to provide for the continuing availability of engineered safeguards, and (3) to ensure that the station can be maintained in the shutdown or refueling condition for extended time periods.

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**SPECIFICATION:** I. In Modes 1, 2, 3 and 4 the following specifications shall apply:

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A. As a minimum the following shall be OPERABLE:

1. One Southern California Edison Company and one San Diego Gas & Electric Company high voltage transmission line to the switchyard and two transmission circuits from the switchyard, one immediate and one delayed access, to the onsite safety-related distribution system. This configuration constitutes the two required offsite circuits.

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2. Two separate and independent diesel generators each with:

- a. A separate day tank containing a minimum of 290 gallons of fuel,
- b. A separate fuel storage system containing a minimum of 37,500 gallons of fuel, and
- c. A separate fuel transfer pump.

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3. AC Distribution

- a. 4160 Volt Bus 1C and 2C,
- b. 480 Volt Bus No. 1, Bus No. 2 and Bus No. 3, and
- c. Vital Bus 1, 2, 3, 3A, 4, 5 and 6.

4. DC Bus No. 1 and DC Bus No. 2 (including at least one full capacity charger and battery supply per bus).

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5. The two Safety Injection System Load Sequencers.\*

\* The automatic load function may be blocked in Mode 3 at a pressure  $\leq$  1900 psig.

B. Action

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| 1. With one of the required offsite circuits inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Periodic Testing Requirements A and B.1.a of Technical Specification 4.4 within one hour and at least once per eight (8) hours thereafter; restore an additional offsite circuit to OPERABLE status within 72 hours or be in COLD SHUTDOWN within the next 36 hours.  | 84<br>11/14/84<br><br>34<br>4/1/77                       |
| 2. If one diesel generator is declared inoperable, demonstrate the OPERABILITY of the two offsite transmission circuits and the remaining diesel generator by performing Periodic Testing Requirements A and B.1.a of Technical Specification 4.4 within one hour and at least once per eight (8) hours thereafter; restore the inoperable diesel generator to service within 72 hours or be in COLD SHUTDOWN within the next 36 hours.  | 84<br>11/14/84<br><br>34<br>4/1/77                       |
| 3. With one offsite circuit and one diesel generator of the above required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Periodic Testing Requirements A and B.1.a of Technical Specification 4.4 within one hour and at least once per eight (8) hours thereafter; restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in COLD SHUTDOWN within the next 36 hours. Have at least two offsite circuits and two diesel generators OPERABLE within 72 hours from the time of initial loss or be in COLD SHUTDOWN within the next 36 hours.                            | 84<br>11/14/84<br><br>34<br>4/1/77                       |
| 4. With two required offsite circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Periodic Testing Requirement B.1.a of Technical Specification 4.4 within one hour and at least once per eight (8) hours thereafter, unless the diesel generators are already operating; restore at least one of the inoperable sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 4 hours. With only one of the required offsite circuits restored, restore the remaining offsite circuit to OPERABLE status within 72 hours from the time of initial loss or be in COLD SHUTDOWN within the next 36 hours. | 84<br>11/14/84<br><br>34<br>4/1/77<br><br>84<br>11/14/84 |

5. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite circuits by performing Periodic Testing Requirement A of Technical Specification 4.4 within one hour and at least once per two (2) hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in COLD SHUTDOWN within the next 36 hours. Restore both diesel generators to OPERABLE status within 72 hours from time of initial loss or be in COLD SHUTDOWN within the next 36 hours.
6. With less than the above complement of AC buses OPERABLE, restore the inoperable bus within 8 hours or be in COLD SHUTDOWN within the next 36 hours.
7. With one required DC bus inoperable, restore the inoperable bus to OPERABLE status within 2 hours or be in COLD SHUTDOWN within the next 36 hours.
8. With a required DC bus battery and both of its chargers inoperable, restore the inoperable battery and one of its chargers to operable status within 2 hours or be in cold shutdown within the next 36 hours.
9. With one Safety Injection Load Sequencer inoperable, restore the inoperable sequencer to OPERABLE status within 72 hours or be in COLD SHUTDOWN within the next 36 hours.

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II. Additionally, in Modes 1, 2 and 3 the following specifications shall apply:

A. As a minimum, the following shall be OPERABLE:

1. The MOV850C Uninterruptable Power Supply (UPS).

B. Action

1. With the MOV850C UPS inoperable, restore the UPS to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

III. In Modes 5 and 6 the following specifications shall apply:

A. As a minimum, the following shall be OPERABLE:

1. One Southern California Edison Company or San Diego Gas and Electric Company high voltage transmission line to the switchyard and one transmission circuit from the switchyard, immediate or delayed access, to the onsite safety-related distribution system.
2. One diesel generator (capable of automatic start) with:
  - a. A day tank containing a minimum 290 gallons of fuel,
  - b. A fuel storage system containing a minimum of 37,500 gallons of fuel, and
  - c. A fuel transfer pump.
3. The electrical Buses associated with the operable power sources as follows:
  - a. One 4,160 Volt AC Bus
  - b. One 480 Volt AC Bus
  - c. AC Vital Buses 1, 2 and 4, and
  - d. One DC Bus (including at least one full capacity charger and battery supply per Bus).

B. Action:

1. With less than the minimum required AC and DC electrical sources specified in III.A above, suspend all operations involving core alterations or positive reactivity changes.

Basis:

The station is connected electrically to the Southern California Edison Company and San Diego Gas & Electric Company system via either of two physically independent high voltage transmission routes composed of four Southern California Edison Company high voltage lines and of a minimum of three San Diego Gas & Electric Company high voltage lines.

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Of the four Southern California Edison Company lines, any one can serve as a source of power to the station auxiliaries at any time. Similarly, any of the three San Diego Gas & Electric Company lines can serve as a source of power to the station auxiliaries at any time. By specifying one transmission line from each of the two physically independent high voltage transmission routes, redundancy of sources of auxiliary power for an orderly shutdown is provided.

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Similarly, either transformer A or B, along with transformer C, provide redundancy of 4160 volt power to the auxiliary equipment, and in particular to the safety injection trains. Correct operation of the safety injection system is assured by the operability of the load sequencers and the UPS for MOV 850C. In addition, each 4160 volt bus has an onsite diesel generator as backup.

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Two diesel generators are provided primarily to give redundancy for maintenance, to preclude the necessity for reactor shutdown if one diesel requires maintenance, and to provide protection against a failure of one of the diesel generator systems. This also eliminates the necessity for depending on one diesel generator to operate for extended periods without shutdown if it were required for post-accident conditions.

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The requirement for one source of offsite power and one diesel generator to be OPERABLE during COLD SHUTDOWN or REFUELING conditions will provide diverse and redundant electrical power sources in order that the station can be maintained in the COLD SHUTDOWN or REFUELING condition for extended time periods. Additionally, this requirement will assure that operations involving core alterations or positive reactivity changes can be conducted safely.

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ENCLOSURE II

I. Action statements 1 through 5 of Technical Specification 3.7.I.B will be changed to read as follows:

B. Action

1. With one of the required offsite circuits inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirement A of Technical Specification 4.4 within one hour and at least once per eight (8) hours thereafter and Surveillance Requirement B.1.a within 24 hours; restore an additional offsite circuit to OPERABLE status within 72 hours or be in COLD SHUTDOWN within the next 36 hours.
2. If one diesel generator is declared inoperable, demonstrate the OPERABILITY of the two offsite transmission circuits and the remaining diesel generator by performing Surveillance Requirement A of Technical Specification 4.4 within one hour and at least once per eight (8) hours thereafter and Surveillance Requirement B.1.a within 24 hours; restore the inoperable diesel generator to service within 7 days\* or be in COLD SHUTDOWN within the next 36 hours.
3. With one offsite circuit and one diesel generator of the above required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirement A of Technical Specification 4.4 within one hour and at least once per eight (8) hours thereafter and Surveillance Requirement B.1.a within 8 hours; restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in COLD SHUTDOWN within the next 36 hours. Have at least two offsite circuits OPERABLE within 72 hours from the time of initial loss or be in COLD SHUTDOWN within the next 36 hours. Restore the inoperable diesel generator to service within 7 days\* from the time of initial loss or be in COLD SHUTDOWN within the next 36 hours.
4. With two required offsite circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Surveillance Requirement B.1.a of Technical Specification 4.4 within 8 hours, unless the diesel generators are already

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\* The aggregate of the combined out of service times for the two diesel generators (exclusive of plant operation in Modes 5 and 6) during any consecutive 365 day period shall not exceed 800 hours without notification to the NRC. A diesel generator shall be considered to be out of service (inoperable) from the time of initial loss until it satisfies Surveillance Requirement B.1.a of Technical Specification 4.4.

operating; restore at least one of the inoperable sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 4 hours. With only one of the required offsite circuits restored, restore the remaining offsite circuit to OPERABLE status within 72 hours from the time of initial loss or be in COLD SHUTDOWN within the next 36 hours.

5. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite circuits by performing Surveillance Requirement A of Technical Specification 4.4 within one hour and at least once per two (2) hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in COLD SHUTDOWN within the next 36 hours. Restore both diesel generators to OPERABLE status within 7 days\* from the time of initial loss or be in COLD SHUTDOWN within the next 36 hours.

II. The "Basis" to Technical Specification 3.7 will be changed to read as follows:

Basis: The station is connected electrically to the Southern California Edison Company and San Diego Gas & Electric Company system via either of two physically independent high voltage transmission routes composed of four Southern California Edison Company high voltage lines and four San Diego Gas & Electric Company high voltage lines.

Of the four Southern California Edison Company lines, any one can serve as a source of power to the station auxiliaries at any time. Similarly, any of the four San Diego Gas & Electric Company lines can serve as a source of power to the station auxiliaries at any time. By specifying one transmission line from each of the two physically independent high voltage transmission routes, redundancy of sources of auxiliary power for an orderly shutdown is provided.

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\* The aggregate of the combined out of service times for the two diesel generators (exclusive of plant operation in Modes 5 and 6) during any consecutive 365 day period shall not exceed 800 hours without notification to the NRC. A diesel generator shall be considered to be out of service (inoperable) from the time of initial loss until it satisfies Surveillance Requirement B.1.a of Technical Specification 4.4.

Similarly, either transformer A or B, along with transformer C, provides redundancy of 4160 volt power to the auxiliary equipment, and in particular to the safety injection trains. Correct operation of the safety injection system is assured by the operability of the load sequencers and the UPS for MOV 850C. In addition, each 4160 volt bus has an onsite diesel generator as backup.

In MODES 1, 2, 3 and 4, two diesel generators provide the necessary redundancy to protect against a failure of one of the diesel generator systems or in case one diesel generator system is taken out for maintenance, without requiring a reactor shutdown. This also eliminates the necessity for depending on one diesel generator to operate for extended periods without shutdown if it were required for post-accident conditions. In accordance with Reference (1), placing an individual as well as a cumulative annual time limit on diesel generator inoperability insures that all scheduled and unscheduled diesel related repair and maintenance in Modes 1, 2, 3 and 4 are performed with due consideration given to optimum diesel generator availability and redundancy.

In MODES 5 and 6, the requirement for one source of offsite power and one diesel generator to be OPERABLE will provide diverse and redundant electrical power sources in order that the station can be maintained in the COLD SHUTDOWN or REFUELING condition for extended time periods. Additionally, this requirement will assure that operations involving core alterations or positive reactivity changes can be conducted safely.

Reference: (1) NRC's Generic Letter 84-15, dated July 2, 1984, Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability

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