



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

ARIZONA PUBLIC SERVICE COMPANY, ET AL.

DOCKET NO. STN 50-528

PALO VERDE NUCLEAR GENERATING STATION, UNIT NO. 1

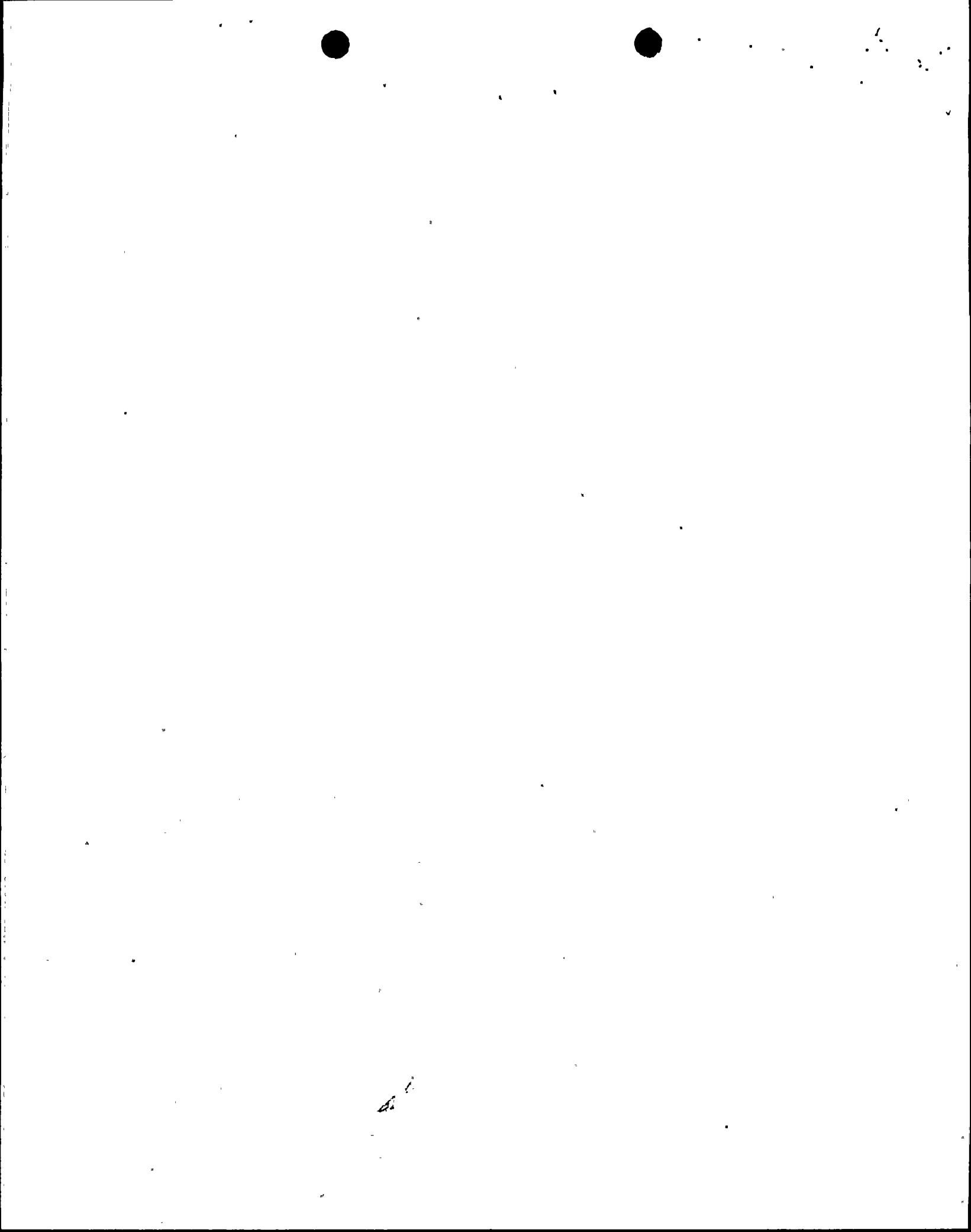
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 9  
License No. NPF-41

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment, dated May 14, 1986, by the Arizona Public Service Company (APS) on behalf of itself and the Salt River Project Agricultural Improvement and Power District, El Paso Electric Company, Southern California Edison Company, Public Service Company of New Mexico, Los Angeles Department of Water and Power, and Southern California Public Power Authority (licensees), complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of Act, and the regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure to this license amendment, and paragraph 2.C(2) of the Facility Operating License No. NPF-41 is hereby amended to read as follows:

8609120277 860903  
PDR ADOCK 05000528  
P PDR





(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 9, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in this license. APS shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



E. A. Licitra, Project Manager  
PWR Project Directorate No. 7  
Division of PWR Licensing-B

Enclosure:  
Change to the Technical  
Specifications

Date of Issuance: September 3, 1986

ENCLOSURE TO LICENSE AMENDMENT NO. 9FACILITY OPERATING LICENSE NO. NPF-41DOCKET NO. STN 50-528

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change. Also pages 3/4 8-3 through 3/4 8-4 have been renumbered so that page 3/4 8-3a has been deleted and there is no blank sheet on the back of page 3/4 8-4.

Amendment Pages

3/4 8-1  
3/4 8-2  
3/4 8-3  
3/4 8-4  
3/4 8-5  
3/4 8-6  
3/4 8-7  
3/4 8-8

## 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 physically independent circuits from the offsite transmission network to the switchyard and two physically independent circuits from the switchyard to the onsite Class 1E distribution system, and
- b. Two separate and independent diesel generators, each with:
  1. Separate day fuel tank with a minimum level of 2.75 feet (550 gallons of fuel), and
  2. A separate fuel storage system with a minimum level of 80% (71,500 gallons of fuel), and
  3. A separate fuel transfer pump.

APPLICABILITY: MODES 1, 2, 3 and 4.

#### ACTION:

- a. With one offsite circuit of 3.8.1.1.a inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If either EDG has not been successfully tested within the past 24 hours, demonstrate its OPERABILITY by performing Surveillance Requirement 4.8.1.1.2.a.4 separately for each such EDG, unless it is already operating, within 24 hours. Restore the offsite circuit 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 emergency diesel generator of 3.8.1.1.b inoperable, demonstrate the OPERABILITY of the A.C. offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter; and if the EDG became inoperable due to any cause other than preplanned preventative maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE EDG by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours\*; restore the diesel generator 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.

\*This test is required to be completed regardless of when the inoperable EDG is restored to OPERABILITY.

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

---

#### ACTION (Continued)

- c. With one offsite circuit and one diesel generator inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; and if the EDG became inoperable due to any cause other than preplanned preventative maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE EDG by performing Surveillance Requirement 4.8.1.1.2.a.4, unless it is already operating, within 8 hours\*; restore 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 the other A.C. power source (offsite circuit or diesel generator) to OPERABLE status in accordance with the provisions of Section 3.8.1.1 Action Statement "a" or "b", as appropriate with the time requirement of that Action Statement based on the time of initial loss of the remaining inoperable A.C. power source. A successful test of diesel OPERABILITY per Surveillance Requirement 4.8.1.1.2.a.4 performed under this Action Statement for an OPERABLE diesel or a restored to OPERABLE diesel satisfies the EDG test requirement of Action Statement "a" or "b".
- d. With two of the required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by sequentially performing Surveillance Requirement 4.8.1.1.2.a.4 on both diesels within 8 hours, unless the diesel generators are already operating; restore one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. Following restoration of one offsite source, follow Action Statement "a" with the time requirement of that Action Statement based on the time of initial loss of the remaining inoperable offsite A.C. circuit. A successful test(s) of diesel OPERABILITY per Surveillance Requirement 4.8.1.1.2.a.4 performed under this Action Statement for the OPERABLE diesels satisfies the EDG test requirement of Action Statement "a".
- e. 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 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. Following restoration of one diesel generator unit, follow Action Statement "b" with the time requirement of that Action Statement based on the time of initial loss of the remaining inoperable diesel generator. A successful test of diesel OPERABILITY per Surveillance Requirement 4.8.1.1.2.a.4 performed under this Action Statement for a restored to OPERABLE diesel satisfies the EDG test requirement of Action Statement "b".

---

\*This test is required to be completed regardless of when the inoperable EDG is restored to OPERABILITY.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS

---

4.8.1.1.1 Each of the above required physically 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 alignment indicating power availability
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by manually transferring the onsite Class 1E power supply from the normal circuit to the alternate circuit.

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 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 generator can start\*\* and accelerate to generator voltage and frequency at  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz in less than or equal to 10 seconds. Subsequently, the generator shall be manually synchronized to its appropriate bus and gradually loaded\*\* to an indicated 5200-5400 kW\*\*\* and operates for at least 60 minutes. The diesel generator shall be started for this test\*\*\*\* using one of the following signals on a STAGGERED TEST BASIS:
    - 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 ESF actuation test signal by itself.
  5. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

---

\*\*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

\*\*\*This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring of the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

\*\*\*\*Until the first refueling outage, the diesel generator shall be test started only manually.

## ELECTRICAL POWER SYSTEM

### SURVEILLANCE REQUIREMENTS (Continued)

#### 4.8.1.1.2 (Continued)

- b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank obtained in accordance with ASTM-D4176-82, is within the acceptable limits specified in Table 1 of ASTM D975-81 when checked for viscosity, water and sediment.
- c. At least once per 184 days the diesel generator shall be started\*\* and accelerated to generator voltage and frequency at  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz in less than or equal to 10 seconds. The generator voltage and frequency shall be  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz within 10 seconds after the start signal. The generator shall be manually synchronized to its appropriate emergency bus, loaded to an indicated 5200-5400\*\*\* kW in less than or equal to 60 seconds, and operate for at least 60 minutes.

This test, if it is performed so it coincides with the testing required by Surveillance Requirement 4.8.1.1.2.a.4, may also serve to concurrently meet those requirements as well.

- 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 single largest load of greater than or equal to 839 kW (Train B AFW pump) for emergency diesel generator B or 696 kW for emergency diesel generator A (Train A HPSI pump) while maintaining voltage at  $4160 \pm 420$  volts and frequency at  $60 \pm 1.2$  Hz.
  3. Verifying that the automatic load sequencers are OPERABLE with the interval between each load block within  $\pm 1$  second of its design interval.
  4. Simulating a loss of offsite power by itself, and:
    - a) Verifying deenergization of the emergency busses and load shedding from the emergency busses.
    - b) Verifying the diesel starts\*\* on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected shutdown loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is

\*\*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

\*\*\*This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring of the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.



## ELECTRICAL POWER SYSTEM

### SURVEILLANCE REQUIREMENTS (Continued)

---

#### 4.8.1.1.2 (Continued)

loaded with the shutdown loads. After energization of these loads, the steady state voltage and frequency shall be maintained at  $4160 \pm 420$  volts and  $60 + 1.2/-0.3$  Hz.

5. Verifying that on an ESF actuation test signal (without loss of power) the diesel generator starts\* on the auto-start signal and operates on standby for greater than or equal to 5 minutes.
6. Simulating a loss-of-offsite power in conjunction with an ESF actuation test signal, and
  - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
  - b) Verifying the diesel starts\* on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected emergency (accident) loads through the load sequencer, and operates for greater than or equal to 5 minutes and maintains the steady-state voltage and frequency at  $4160 \pm 420$  volts and  $60 + 1.2/-0.3$  Hz.
  - c) Verifying that all automatic diesel generator trips, except engine overspeed, generator differential, and low lube oil pressure, are automatically bypassed upon loss of voltage on the emergency bus, upon a safety injection actuation signal or upon AFAS.
7. Verifying the diesel generator operates\* for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to an indicated 5800-6000 kW\*\* and during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated 5200-5400 kW\*\*. Within 5 minutes after completing this 24-hour test, perform Surveillance Requirement 4.8.1.1.2.d.6.b).\*\*\*

---

\*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading recommendations.

\*\*This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring of the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

\*\*\*If Specification 4.4.1.1.2.d.6.b) is not satisfactorily completed, it is not necessary to repeat the preceding 24-hour test. Instead, the diesel generator may be operated at 5200-5400 kW\*\* for 1 hour or until operating temperature has stabilized.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

---

8. Verifying that the auto-connected loads to each diesel generator do not exceed the continuous rating of 5500 kW.
  9. Verifying the diesel generator's capability to:
    - a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,
    - b) Transfer its loads to the offsite power source, and
    - c) Proceed through its shutdown sequence.
  10. Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:
    - a) turning gear engaged
    - b) emergency stop
- e. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting\*\* both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to generator voltage and frequency at  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz in less than or equal to 10 seconds.

4.8.1.1.3 Reports - All diesel generator failures, valid or nonvalid, shall be reported to the Commission within 30 days in a Special Report pursuant to Specification 6.9.2. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests (on a per nuclear unit basis) is greater than or equal to 7, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

---

\*\*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelude and warmup procedures, and as applicable regarding loading recommendations.

TABLE 4.8-1

DIESEL GENERATOR TEST SCHEDULE

<u>Number of Failures In Last 20 Valid Tests*</u>	<u>Number of Failures in Last 100 Valid Tests*</u>	<u>Test Frequency</u>
<u>≤1</u>	<u>≤4</u>	Once per 31 days
<u>≥2**</u>	<u>≥5</u>	Once per 7 days

\*Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, but determined on a per diesel generator basis.

For the purposes of determining the required test frequency, the previous test failure count may be reduced to zero if a complete diesel overhaul to like-new conditions is completed, provided that the overhaul including appropriate post-maintenance operation and testing, is specifically approved by the manufacturer and if acceptable reliability has been demonstrated. The reliability criterion shall be the successful completion of 14 consecutive tests in a single series. Ten of these tests shall be in accordance with Surveillance Requirement 4.8.1.1.2.a.4; four tests, in accordance with Surveillance Requirement 4.8.1.1.2.c. If this criterion is not satisfied during the first series of tests, any alternate criterion to be used to transvalue the failure count to zero requires NRC approval.

\*\*The associated test frequency shall be maintained until seven consecutive failure free demands have been performed and the number of failures in the last 20 valid demands has been reduced to one.

## ELECTRICAL POWER SYSTEMS

### A.C. SOURCES

#### SHUTDOWN

### LIMITING CONDITION FOR OPERATION

---

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

- a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and
- b. One diesel generator with:
  1. Day tank with a minimum level of 2.75 feet (550 gallons of fuel),
  2. A fuel storage system with a minimum level of 80% (71,500 gallons of fuel), and
  3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

#### ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel, or crane operation with loads over the fuel storage pool. In addition, when in MODE 5 with the reactor coolant loops not filled, or in MODE 6 with the water level less than 23 feet above the reactor vessel flange, immediately initiate corrective action to restore the required sources to OPERABLE status as soon as possible.

### SURVEILLANCE REQUIREMENTS

---

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1, 4.8.1.1.2, and 4.8.1.1.3.