April 26, 1990

Docket Nos. 50-373
50-374

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Mr. Thomas J. Kovach
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OPUS West III
1400 OPUS Place
Downers Grove, IL 60515

Dear Mr. Kovach:

SUBJECT: CORRECTION TO AMENDMENT NO. 72 TO FACILITY OPERATING LICENSE NO. NPF-11 AND AMENDMENT NO. 56 TO FACILITY OPERATING LICENSE NO. NPF-18

Amendment No. 56 to Facility Operating License No. NPF-18 and amendment No. 72 to Facility Operating License No. NPF-11 were issued March 15, 1990. Several pages from these amendments had typographical and/or editorial differences between Unit 1 and Unit 2 as a result of these amendments, previous amendments and the original Technical Specifications. Enclosed are corrected copies of these pages to be incorporated into the LaSalle Units 1 and 2 Technical Specifications.

The SER provided with these amendments, stated that periodic engine inspection/teardown is not considered to be preplanned preventive maintenance. As stated earlier in the SER, preplanned preventive maintenance is considered to consist of activities that are conducted on a repetitive basis at scheduled intervals. An engine inspection/teardown can be a preplanned preventive maintenance item if it is a repetitive exercise established, for example, through a manufacturer's recommendation or utility experience. These are scheduled to enhance reliability and availability of the diesel generator by maintaining the equipment to prevent premature failure.

The last paragraph under Section 2.0, Evaluation, in the SER was rewritten to help eliminate ambiguities dealing with inspection/teardown or what constitutes a major component. Copies of the revised SER pages are enclosed.

Sincerely,

/s/

Robert M. Pulsifer, Project Manager
Project Directorate III - 2
Division of Reactor Projects - III
IV, V and Special Projects
Office of Nuclear Reactor Regulation

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Enclosures:
As stated

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

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3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

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 between the offsite transmission network and the onsite Class 1E distribution system, and

b. Separate and independent diesel generators* 0, 1A, 2A and 1B with:

   1. For diesel generator 0, 1A and 2A:

      a) A separate day fuel tank containing a minimum of 250 gallons of fuel.

      b) A separate fuel storage system containing a minimum of 31,000 gallons of fuel.

   2. For diesel generator 1B, a separate fuel storage tank and a day tank containing a combined minimum of 29,750 gallons of fuel.

   3. A separate fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With one offsite circuit 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 within 1 hour and at least once per 8 hours thereafter. If any of the diesel generators have not been successfully tested within the past 24 hours, demonstrate their OPERABILITY by performing Surveillance Requirement 4.8.1.1.2.a.4 for each such diesel generator, separately, within 24 hours. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With either the 0 or 1A diesel generator inoperable, demonstrate the OPERABILITY of the above required 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. If the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE

*See page 3/4 8-1(a).

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LIMITING CONDITION FOR OPERATION (Continued)

*For the purposes of completing technical specification surveillance requirements 4.8.1.1.2.d.1 and 4.8.1.1.2.f.1, as part of a pre-planned preventative maintenance program, on the 0 diesel generator the requirements of action statements b are modified to:

1. Eliminate the requirement for performing technical specification surveillance requirements 4.8.1.1.1.a on each operable A.C. source, immediately and once per 8 hours thereafter, when the 0 diesel generator is declared inoperable.

2. Allow an additional 96 hours in excess of the 72 hours allowed in action statement b for the 0 diesel generator to be inoperable.

Provided that the following conditions are met:

A. Unit 2 is in operational condition 4 or 5 or defueled prior to taking the 0 diesel generator out of service.

B. Surveillance requirements 4.8.1.1.1.a and 4.8.1.1.2.a.4 are successfully completed, for the offsite power sources and the 1A and 2A diesel generators, within 48 hours prior to removal of the 0 diesel generator from service.

C. No maintenance is performed on the offsite circuits or the 1A or 2A diesel generators, while the 0 diesel generator is inoperable.

D. Technical specification requirement 4.8.1.1.1.a is performed daily, while the 0 diesel generator is inoperable.

E. The control circuit for the unit cross-tie circuit breakers between buses 142Y and 242Y are temporarily modified to allow the breakers to be closed with a diesel generator feeding the bus, while the 0 diesel generator is inoperable.

The provisions of technical specification 3.0.4 are not applicable.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

diesel generators, separately, 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 SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

c. With one offsite circuit of the above required A.C. sources and diesel generator 0 or 1A 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 within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators, separately, by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours*. Restore at least one of the inoperable A.C. sources to OPERABLE status within 12 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore at least two offsite circuits and diesel generators 0 and 1A to OPERABLE status within 72 hours from the 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.

d. With diesel generator 1B of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the offsite A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators, separately, by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours*. Restore diesel generator 1B to OPERABLE status within 72 hours or declare the HPCS system inoperable and take the ACTION required by specification 3.5.1.

e. With both of the above required offsite circuits inoperable, demonstrate the OPERABILITY of the remaining A.C. sources, separately, by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours unless the diesel generators are already operating. Restore at least one offsite circuit 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

*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.

ACTION (Continued)

at least two offsite circuits to OPERABLE status within 72 hours from the 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 Requirement 4.8.1.1.2.a.4, performed under this ACTION statement for the OPERABLE diesel generators, satisfies the diesel generator test requirements of ACTION statement a.

f. With diesel generators 0 and 1A 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 within 1 hour and at least once per 8 hours thereafter, and Surveillance Requirement 4.8.1.1.2.a.4 for the 1B and 2A diesel generators, separately, within 8 hours*. Restore at least one of the inoperable diesel generators 0 or 1A 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 0 and 1A to OPERABLE status within 72 hours, from the 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.

g. With diesel generator 2A 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 within 1 hour and at least once per 8 hours thereafter. If the 2A diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the 1A diesel generator by performing Surveillance Requirement 4.8.1.1.2.a.4, within 24 hours*. Restore the inoperable diesel generator 2A to OPERABLE status within 72 hours or declare standby gas treatment system subsystem B, Unit 2 drywell and suppression chamber hydrogen recombiner system, and control room and auxiliary electric equipment room emergency filtration system train B inoperable, and take the ACTION required by specifications 3.6.5.3, 3.6.6.1, and 3.7.2. Continued performance of Surveillance Requirement 4.8.1.1.1.a is not required provided the above systems are declared inoperable and the action of their respective specifications is taken.

*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.

LIMITING CONDITIONS FOR OPERATION (Continued)

ACTION (Continued)

h. With one offsite circuit of the above required A.C. electrical power sources and diesel generator 1B inoperable, apply the requirements of ACTION a and d specified above.

i. With either diesel generators 0 or 1A inoperable and diesel generator 1B inoperable, apply the requirements of ACTION b and d specified above.

j. With one offsite circuit of the above required A.C. electrical power sources and diesel generator 2A inoperable, apply the requirements of ACTION a and g specified above.

k. With diesel generator 1B and diesel generator 2A inoperable, apply the requirements of ACTION d and g specified above.

l. With diesel generator 0 and diesel generator 2A inoperable, apply the requirements of ACTION b and g specified above.

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 manually transferring 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 900 rpm +5%, -2% in less than or equal to 13 seconds**. The generator voltage and frequency shall be 4160 ±150 volts and 60 +3.0, -1.2 Hz within 13 seconds** after the start signal.

5. Verifying the diesel generator is synchronized, and then loaded to 2400 kW to 2600 kW*** within 60 seconds**, and operates with this load for at least 60 minutes.

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*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 (13 second) and load (60 second) times 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, in order to minimize mechanical stress and wear on the diesel generator caused by fast starting and loading of the diesel generator.

***Transients, outside of this load band, do not invalidate the surveillance tests.

SURVEILLANCE REQUIREMENTS

6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

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 and from new fuel oil prior to addition to the storage tanks by verifying that a sample obtained in accordance with ASTM-D270-1975 has a water and sediment content of less than or equal to 0.05 volume percent and a kinematic viscosity @ 40°C of greater than or equal to 1.9 but less than or equal to 4.1 when tested in accordance with ASTM-D975-77, and an impurity level of less than 2 mg of insolubles per 100 ml when tested in accordance with ASTM-D2274-70.

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 diesel generator capability* to reject a load of greater than or equal to 1190 kW for diesel generator 0, greater than or equal to 638 kW for diesel generators 1A and 2A, and greater than or equal to 2381 kW for diesel generator 1B while maintaining engine speed less than or equal to 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 2600 kW without tripping. The generator voltage shall not exceed 5000 volts during and following the load rejection.

4. Simulating a loss of offsite power* by itself, and:

a) For Divisions 1 and 2 and for Unit 2 Division 2:

1) Verifying de-energization of the emergency busses and load shedding from the emergency busses.

*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.

2) Verifying the diesel generator starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 13 seconds, energizes the auto-connected loads and operates for greater than or equal to 5 minutes while its generator is so loaded. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ±150 volts and 60 ±1.2 Hz during this test.

b) For Division 3:

1) Verifying de-energization of the emergency bus.

2) Verifying the diesel generator starts on the auto-start signal, energizes the emergency bus with its loads within 13 seconds and operates for greater than or equal to 5 minutes while its generator is so loaded. After energization, the steady-state voltage and frequency of the emergency bus shall be maintained at 4160 ±150 volts and 60 ±1.2 Hz during this test.

5. Verifying that on an ECCS actuation test signal, without loss of offsite power, diesel generators 0, 1A, and 1B start* on the auto-start signal and operate on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 4160 +416, -150 volts and 60 +3.0, -1.2 Hz within 13 seconds after the auto-start signal; the steady-state generator voltage and frequency shall be maintained within these limits during this test.

6. Simulating a loss of offsite power in conjunction with an ECCS actuation test signal,* and:

a) For Divisions 1 and 2:

1) Verifying de-energization of the emergency busses and load shedding from the emergency busses.

*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.

2) Verifying the diesel generator starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 13 seconds, energizes the auto-connected emergency loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ±416 volts and 60 ±1.2 Hz during this test.

b) For Division 3:

1) Verifying de-energization of the emergency bus.

2) Verifying the diesel generator starts on the auto-start signal, energizes the emergency bus with its loads within 13 seconds and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency bus shall be maintained at 4160 ±416 volts and 60 ±1.2 Hz during this test.

7. Verifying that all diesel generator 0, 1A, and 1B automatic trips except the following are automatically bypassed on an ECCS actuation signal:

a) For Divisions 1 and 2 - engine overspeed, generator differential current, and emergency manual stop.

b) For Division 3 - engine overspeed, generator differential or overcurrent, and emergency manual stop.

8. 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 greater than or equal to 2860 kW and during the remaining 22 hours of this test, the diesel generator shall be loaded to 2400 kW to 2600 kW.*** The generator voltage and frequency shall be 4160 +420, -150 volts and 60 +3.0, -1.2 Hz within 13 seconds after the start signal; the steady state

*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.

***Transients, outside of this load band, do not invalidate the surveillance tests.

generator voltage and frequency shall be maintained within these limits during this test. Within 5 minutes after completing this 24 hour test, perform Surveillance Requirement 4.8.1.1.2.d.4.a).2) and b).2).**

9. Verifying* that the auto-connected loads to each diesel generator do not exceed the 2000 hour rating of 2860 kW.

10. 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) Be restored to its standby status.

11. Verifying that with diesel generator 0, 1A, and 1B operating* in a test mode and connected to its bus:

    a) For Divisions 1 and 2, that a simulated ECCS actuation signal overrides the test mode by returning the diesel generator to standby operation.

    b) For Division 3, that a simulated trip of the diesel generator overcurrent relay trips the SAT feed breaker to bus 143 and that the diesel generator continues to supply normal bus loads.

12. Verifying that the automatic load sequence timer is OPERABLE with the interval between each load block within ±10% of its design interval for diesel generators 0 and 1A.

13. Verifying that the following diesel generator lockout features prevent diesel generator operation only when required:

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*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.

**If Surveillance Requirements 4.8.1.1.2.d.4.a).2) and/or b).2) are not satisfactorily completed, it is not necessary to repeat the preceding 24 hour test. Instead, the diesel generator may be operated at 2600 kW for 1 hour or until operating temperature has stabilized.

SURVEILLANCE REQUIREMENTS (Continued)

a) Generator underfrequency.

b) Low lube oil pressure.

c) High jacket cooling temperature.

d) Generator reverse power.

e) Generator overcurrent.

f) Generator loss of field.

g) Engine cranking lockout.

e. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting diesel generators 0, 1A, and 1B simultaneously,* during shutdown, and verifying that all three diesel generators accelerate to 900 rpm +5, -2% in less than or equal to 13 seconds.

f. At least once per 10 years by:

1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite or equivalent solution, and

2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND, of the ASME Code in accordance with ASME Code Section 11, Article IWD-5000.

4.8.1.1.3 Reports - All diesel generator failures, valid or non-valid, shall be reported to the Commission pursuant to Specification 6.6.C within 30 days. 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.

*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 REQUIREMENTS (Continued)

TABLE 4.8.1.1.2-1

DIESEL GENERATOR TEST SCHEDULE

NUMBER OF FAILURES IN LAST 20 VALID TESTS*	NUMBER OF FAILURES IN LAST 100 VALID TESTS*	TEST FREQUENCY
≤ 1	≤ 4	At least once per 31 days
≥ 2 **	≥ 5	At least 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, Revision 1, August 1977, but determined on a per diesel generator basis. With the exception of the semi-annual fast start, no starting time requirements are required to meet the valid test requirements of Regulatory Guide 1.108.

For the purposes of determining the required test frequency, the previous test failure count may be reduced to zero if:

1) a complete diesel overhaul to like-new condition is completed (provided that the overhaul, including appropriate post-maintenance operation and testing, is specifically approved by the manufacturer), and

2) if acceptable reliability has been demonstrated. The reliability criterion shall include the successful completion of 14 consecutive tests in a single series structured as follows:

   a. ten of these tests shall be performed in accordance with the routine Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5, and

   b. four tests shall be performed in accordance with the 184-day testing requirement of Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5.

   If this criterion is not satisfied during the first series of tests, any alternate criterion to be used to reset the failure count to zero requires NRC approval.

**The associated test frequency shall be maintained until 7 consecutive failure free demands have been performed AND the number of failures in the last 20 valid demands has been reduced to one.

3/4.8.1 and 3/4.8.2 A.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. ACTION statements have been included in the specification to cover all situations where either one A.C. source or a combination of two A.C. sources are inoperable. ACTION statements c, e, and f are intended to be followed to completion once entered and should not be exited until both A.C. sources are restored. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least Division I or II of the onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of one of the two onsite A.C. sources. Division III supplies the high pressure core spray (HPCS) system only.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that (1) the facility can be maintained in the shutdown or refueling condition for extended time periods and (2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, with the exception noted in Appendix B to the FSAR, and Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977.

The diesel generators are equipped with a pre-lubrication system which maintains a continuous flow of oil to the diesel engine moving parts while the engine is shutdown. The purpose of this system is to increase long term diesel generator reliability by reducing the stress and wear caused by frequent dry starting of the diesel generator. The diesel generator pre-lube may be accomplished either through, normal operation of the installed pre-lubrication system, or by manual pre-lubrication of the diesel generator in accordance with manufacturers instructions. Performance of an idle start of the diesel generator is not considered to be a means of pre-lubrication.

A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

Analysis has shown that testing, which includes a semi-annual fast start of the diesel generators, is sufficient to demonstrate the capability of the onsite A.C. power systems to mitigate the consequences of the design basis event for the plant (i.e., large LOCA coincident with a loss of offsite power). All other engine starts, for the purpose of meeting the diesel generator surveillance requirements, may be preceded by a warm-up period of low speed operation (idle start), and gradual loading procedures, as recommended by the manufacturer, so that the mechanical stress and wear on the diesel generators is minimized. The load band of 2400 kW to 2600 kW is provided only to avoid routine overloading of the diesel generators. Momentary transients, outside the load band, due to changing bus loads do not invalidate the surveillance tests.

The surveillance requirements for demonstrating the OPERABILITY of the unit batteries are in accordance with the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Station and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage onfloat charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8.2.3.2-1 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8.2.3.2-1 is permitted for up to 7 days. During this 7 day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge

A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Primary containment electrical penetrations and penetration conductors are protected by either de-energizing circuits not required during reactor operation or demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers by periodic surveillance.

The surveillance requirements applicable to lower voltage circuit breakers and fuses provides assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturers brand of circuit breaker and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of molded case circuit breakers and/or fuses, it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker or fuses for surveillance purposes.

The bypassing of the motor operated valves thermal overload protection continuously or during accident conditions by integral bypass devices ensures that the thermal overload protection will not prevent safety related valves from performing their function. The Surveillance Requirements for demonstrating the bypassing of the thermal overload protection continuously and during accident conditions are in accordance with Regulatory Guide 1.106 "Thermal Overload Protection for Electric Motors on Motor Operated Valves", Revision 1, March 1977.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

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 between the offsite transmission network and the onsite Class 1E distribution system, and

b. Separate and independent diesel generators* 0, 1A, 2A and 2B with:

   1. For diesel generator 0, 1A and 2A:

      a) A separate day fuel tank containing a minimum of 250 gallons of fuel.

      b) A separate fuel storage system containing a minimum of 31,000 gallons of fuel.

   2. For diesel generator 2B, a separate fuel storage tank and a day tank containing a combined minimum of 29,750 gallons of fuel.

   3. A separate fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With one offsite circuit 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 within 1 hour and at least once per 8 hours thereafter. If any of the diesel generators have not been successfully tested within the past 24 hours, demonstrate their OPERABILITY by performing Surveillance Requirement 4.8.1.1.2.a.4 for each such diesel generator, separately, within 24 hours. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With either the 0 or 2A diesel generator inoperable, demonstrate the OPERABILITY of the above required 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. If the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE

*See page 3/4 8-1(a).

LIMITING CONDITION FOR OPERATION (Continued)

*For the purposes of completing technical specification surveillance requirements 4.8.1.1.2.d.1 and 4.8.1.1.2.f.1, as part of a pre-planned preventative maintenance program, on the 0 diesel generator the requirements of action statements b are modified to:

1. Eliminate the requirement for performing technical specification surveillance requirements 4.8.1.1.1.a on each operable A.C. source, immediately and once per 8 hours thereafter, when the 0 diesel generator is declared inoperable.

2. Allow an additional 96 hours in excess of the 72 hours allowed in action statement b for the 0 diesel generator to be inoperable.

Provided that the following conditions are met:

A. Unit 1 is in operational condition 4 or 5 or defueled prior to taking the 0 diesel generator out of service.

B. Surveillance requirements 4.8.1.1.1.a and 4.8.1.1.2.a.4 are successfully completed, for the offsite power sources and the 1A and 2A diesel generators, within 48 hours prior to removal of the 0 diesel generator from service.

C. No maintenance is performed on the offsite circuits or the 1A or 2A diesel generators, while the 0 diesel generator is inoperable.

D. Technical specification requirement 4.8.1.1.1.a is performed daily, while the 0 diesel generator is inoperable.

E. The control circuit for the unit cross-tie circuit breakers between buses 142Y and 242Y are temporarily modified to allow the breakers to be closed with a diesel generator feeding the bus, while the 0 diesel generator is inoperable.

The provisions of technical specification 3.0.4 are not applicable.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

diesel generators, separately, 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 SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

c. With one offsite circuit of the above required A.C. sources and diesel generator 0 or 2A 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 within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators, separately, by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours*. Restore at least one of the inoperable A.C. sources to OPERABLE status within 12 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore at least two offsite circuits and diesel generators 0 and 2A to OPERABLE status within 72 hours from the 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.

d. With diesel generator 2B of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the offsite A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generators, separately, by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours*. Restore diesel generator 2B to OPERABLE status within 72 hours or declare the HPCS system inoperable and take the ACTION required by specification 3.5.1.

e. With both of the above required offsite circuits inoperable, demonstrate the OPERABILITY of the remaining A.C. sources, separately, by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours unless the diesel generators are already operating. Restore at least one offsite circuit 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

*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.

ACTION (Continued)

at least two offsite circuits to OPERABLE status within 72 hours from the 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 Requirement 4.8.1.1.2.a.4, performed under this ACTION statement for the OPERABLE diesel generators, satisfies the diesel generator test requirements of ACTION statement a.

f. With diesel generators 0 and 2A 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 within 1 hour and at least once per 8 hours thereafter, and Surveillance Requirement 4.8.1.1.2.a.4 for the 2B and 1A diesel generators, separately, within 8 hours*. Restore at least one of the inoperable diesel generators 0 or 2A 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 0 and 2A to OPERABLE status within 72 hours, from the 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.

g. With diesel generator 1A 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 within 1 hour and at least once per 8 hours thereafter. If the 1A diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the 2A diesel generator by performing Surveillance Requirement 4.8.1.1.2.a.4, within 24 hours*. Restore the inoperable diesel generator 1A to OPERABLE status within 72 hours or declare standby gas treatment system subsystem A, Unit 1 drywell and suppression chamber hydrogen recombiner system, and control room and auxiliary electric equipment room emergency filtration system train A inoperable, and take the ACTION required by specifications 3.6.5.3, 3.6.6.1, and 3.7.2. Continued performance of Surveillance Requirement 4.8.1.1.1.a is not required provided the above systems are declared inoperable and the action of their respective specifications is taken.

*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.

LIMITING CONDITIONS FOR OPERATION (Continued)

ACTION (Continued)

h. With one offsite circuit of the above required A.C. electrical power sources and diesel generator 2B inoperable, apply the requirements of ACTION a and d specified above.

i. With either diesel generators 0 or 2A inoperable and diesel generator 2B inoperable, apply the requirements of ACTION b and d specified above.

j. With one offsite circuit of the above required A.C. electrical power sources and diesel generator 1A inoperable, apply the requirements of ACTION a and g specified above.

k. With diesel generator 2B and diesel generator 1A inoperable, apply the requirements of ACTION d and g specified above.

l. With diesel generator 0 and diesel generator 1A inoperable, apply the requirements of ACTION b and g specified above.

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 manually transferring 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 900 rpm +5%, -2% in less than or equal to 13 seconds**. The generator voltage and frequency shall be 4160 ±150 volts and 60 +3.0, -1.2 Hz within 13 seconds** after the start signal.

5. Verifying the diesel generator is synchronized, and then loaded to 2400 kW to 2600 kW*** within 60 seconds**, and operates with this load for at least 60 minutes.

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*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 (13 second) and load (60 second) times 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, in order to minimize mechanical stress and wear on the diesel generator caused by fast starting and loading of the diesel generator.

***Transients, outside of this load band, do not invalidate the surveillance tests.

6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

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 and from new fuel oil prior to addition to the storage tanks by verifying that a sample obtained in accordance with ASTM-D270-1975 has a water and sediment content of less than or equal to 0.05 volume percent and a kinematic viscosity @ 40°C of greater than or equal to 1.9 but less than or equal to 4.1 when tested in accordance with ASTM-D975-77, and an impurity level of less than 2 mg of insolubles per 100 ml when tested in accordance with ASTM-D2274-70.

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 diesel generator capability* to reject a load of greater than or equal to 1190 kW for diesel generator 0, greater than or equal to 638 kW for diesel generators 1A and 2A, and greater than or equal to 2381 kW for diesel generator 2B while maintaining engine speed less than or equal to 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 2600 kW without tripping. The generator voltage shall not exceed 5000 volts during and following the load rejection.

4. Simulating a loss of offsite power* by itself, and:

a) For Divisions 1 and 2 and for Unit 1 Division 2:

1) Verifying de-energization of the emergency busses and load shedding from the emergency busses.

*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.

2) Verifying the diesel generator starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 13 seconds, energizes the auto-connected loads and operates for greater than or equal to 5 minutes while its generator is so loaded. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ±150 volts and 60 ±1.2 Hz during this test.

b) For Division 3:

1) Verifying de-energization of the emergency bus.

2) Verifying the diesel generator starts on the auto-start signal, energizes the emergency bus with its loads within 13 seconds and operates for greater than or equal to 5 minutes while its generator is so loaded. After energization, the steady-state voltage and frequency of the emergency bus shall be maintained at 4160 ±150 volts and 60 ±1.2 Hz during this test.

5. Verifying that on an ECCS actuation test signal, without loss of offsite power, diesel generators 0, 2A, and 2B start* on the auto-start signal and operate on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 4160 +416, -150 volts and 60 +3.0, -1.2 Hz within 13 seconds after the auto-start signal; the steady-state generator voltage and frequency shall be maintained within these limits during this test.

6. Simulating a loss of offsite power in conjunction with an ECCS actuation test signal,* and:

a) For Divisions 1 and 2:

1) Verifying de-energization of the emergency busses and load shedding from the emergency busses.

*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.

2) Verifying the diesel generator starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 13 seconds, energizes the auto-connected emergency loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ±416 volts and 60 ±1.2 Hz during this test.

b) For Division 3:

1) Verifying de-energization of the emergency bus.

2) Verifying the diesel generator starts on the auto-start signal, energizes the emergency bus with its loads within 13 seconds and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency bus shall be maintained at 4160 ±416 volts and 60 ±1.2 Hz during this test.

7. Verifying that all diesel generator 0, 2A, and 2B automatic trips except the following are automatically bypassed on an ECCS actuation signal:

a) For Divisions 1 and 2 - engine overspeed, generator differential current, and emergency manual stop.

b) For Division 3 - engine overspeed, generator differential or overcurrent, and emergency manual stop.

8. 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 greater than or equal to 2860 kW and during the remaining 22 hours of this test, the diesel generator shall be loaded to 2400 kW to 2600 kW.*** The generator voltage and frequency shall be 4160 +420, -150 volts and 60 +3.0, -1.2 Hz within 13 seconds after the start signal; the steady-state

*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.

***Transients, outside of this load band, do not invalidate the surveillance tests.

generator voltage and frequency shall be maintained within these limits during this test. Within 5 minutes after completing this 24 hour test, perform Surveillance Requirement 4.8.1.1.2.d.4.a).2) and b).2).**

9. Verifying* that the auto-connected loads to each diesel generator do not exceed the 2000 hour rating of 2860 kW.

10. 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) Be restored to its standby status.

11. Verifying that with diesel generator 0, 2A, and 2B operating* in a test mode and connected to its bus:

    a) For Divisions 1 and 2, that a simulated ECCS actuation signal overrides the test mode by returning the diesel generator to standby operation.

    b) For Division 3, that a simulated trip of the diesel generator overcurrent relay trips the SAT feed breaker to bus 243 and that the diesel generator continues to supply normal bus loads.

12. Verifying that the automatic load sequence timer is OPERABLE with the interval between each load block within ±10% of its design interval for diesel generators 0 and 2A.

13. Verifying that the following diesel generator lockout features prevent diesel generator operation only when required:

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*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.

**If Surveillance Requirements 4.8.1.1.2.d.4.a).2) and/or b).2) are not satisfactorily completed, it is not necessary to repeat the preceding 24 hour test. Instead, the diesel generator may be operated at 2600 kW for 1 hour or until operating temperature has stabilized.

SURVEILLANCE REQUIREMENTS (Continued)

a) Generator underfrequency.

b) Low lube oil pressure.

c) High jacket cooling temperature.

d) Generator reverse power.

e) Generator overcurrent.

f) Generator loss of field.

g) Engine cranking lockout.

e. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting diesel generators 0, 2A, and 2B simultaneously,* during shutdown, and verifying that all three diesel generators accelerate to 900 rpm +5, -2% in less than or equal to 13 seconds.

f. At least once per 10 years by:

1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite or equivalent solution, and

2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND, of the ASME Code in accordance with ASME Code Section 11, Article IWD-5000.

4.8.1.1.3 Reports - All diesel generator failures, valid or non-valid, shall be reported to the Commission pursuant to Specification 6.6.C within 30 days. 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.

*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 REQUIREMENTS (Continued)

TABLE 4.8.1.1.2-1

DIESEL GENERATOR TEST SCHEDULE

NUMBER OF FAILURES IN LAST 20 VALID TESTS*	NUMBER OF FAILURES IN LAST 100 VALID TESTS*	TEST FREQUENCY
≤ 1	≤ 4	At least once per 31 days
≥ 2 **	≥ 5	At least 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, Revision 1, August 1977, but determined on a per diesel generator basis. With the exception of the semi-annual fast start, no starting time requirements are required to meet the valid test requirements of Regulatory Guide 1.108.

For the purposes of determining the required test frequency, the previous test failure count may be reduced to zero if:

1) a complete diesel overhaul to like-new condition is completed (provided that the overhaul, including appropriate post-maintenance operation and testing, is specifically approved by the manufacturer), and

2) if acceptable reliability has been demonstrated. The reliability criterion shall include the successful completion of 14 consecutive tests in a single series structured as follows:

   a. ten of these tests shall be performed in accordance with the routine Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5, and

   b. four tests shall be performed in accordance with the 184-day testing requirement of Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5.

   If this criterion is not satisfied during the first series of tests, any alternate criterion to be used to reset the failure count to zero requires NRC approval.

**The associated test frequency shall be maintained until 7 consecutive failure free demands have been performed AND the number of failures in the last 20 valid demands has been reduced to one.

3/4.8.1 and 3/4.8.2 A.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. ACTION statements have been included in the specification to cover all situations where either one A.C. source or a combination of two A.C. sources are inoperable. ACTION statements c, e, and f are intended to be followed to completion once entered and should not be exited until both A.C. sources are restored. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least Division I or II of the onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of one of the two onsite A.C. sources. Division III supplies the high pressure core spray (HPCS) system only.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that (1) the facility can be maintained in the shutdown or refueling condition for extended time periods and (2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, with the exception noted in Appendix B to the FSAR, and Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977.

The diesel generators are equipped with a pre-lubrication system which maintains a continuous flow of oil to the diesel engine moving parts while the engine is shutdown. The purpose of this system is to increase long term diesel generator reliability by reducing the stress and wear caused by frequent dry starting of the diesel generator. The diesel generator pre-lube may be accomplished either through, normal operation of the installed pre-lubrication system, or by manual pre-lubrication of the diesel generator in accordance with manufacturers instructions. Performance of an idle start of the diesel generator is not considered to be a means of pre-lubrication.

A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

Analysis has shown that testing, which includes a semi-annual fast start of the diesel generators, is sufficient to demonstrate the capability of the onsite A.C. power systems to mitigate the consequences of the design basis event for the plant (i.e., large LOCA coincident with a loss of offsite power). All other engine starts, for the purpose of meeting the diesel generator surveillance requirements, may be preceded by a warm-up period of low speed operation (idle start), and gradual loading procedures, as recommended by the manufacturer, so that the mechanical stress and wear on the diesel generators is minimized. The load band of 2400 kW to 2600 kW is provided only to avoid routine overloading of the diesel generators. Momentary transients, outside the load band, due to changing bus loads do not invalidate the surveillance tests.

The surveillance requirements for demonstrating the OPERABILITY of the unit batteries are in accordance with the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Station and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage onfloat charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8.2.3.2-1 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8.2.3.2-1 is permitted for up to 7 days. During this 7 day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge

A.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

3/4.8.3 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Primary containment electrical penetrations and penetration conductors are protected by either de-energizing circuits not required during reactor operation or demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers by periodic surveillance.

The surveillance requirements applicable to lower voltage circuit breakers and fuses provides assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturers brand of circuit breaker and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of molded case circuit breakers and/or fuses, it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker or fuses for surveillance purposes.

The bypassing of the motor operated valves thermal overload protection continuously or during accident conditions by integral bypass devices ensures that the thermal overload protection will not prevent safety related valves from performing their function. The Surveillance Requirements for demonstrating the bypassing of the thermal overload protection continuously and during accident conditions are in accordance with Regulatory Guide 1.106 "Thermal Overload Protection for Electric Motors on Motor Operated Valves", Revision 1, March 1977.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 72 TO FACILITY OPERATING LICENSE NO. NPF-11 AND

AMENDMENT NO. 56 TO FACILITY OPERATING LICENSE NO. NPF-18

COMMONWEALTH EDISON COMPANY

LASALLE COUNTY STATION, UNITS 1 AND 2

DOCKET NOS. 50-373 AND 50-374

1.0 Introduction

By letter dated July 28, 1987, supplemented March 16 and June 23, 1989, and further clarified July 3 and October 26, 1989 and February 26, 1990, Commonwealth Edison Company (the licensee) requested changes to the Technical Specifications (TS) covering emergency Diesel Generator (EDG) surveillance testing at LaSalle County Station, Units 1 and 2. The requested changes include: (1) clarification of TS footnotes which describe acceptable methodology for EDG testing, and (2) a reduction in the frequency of EDG testing required by TS ACTIONS. These changes were requested so LaSalle Units 1 and 2 TS would reflect current staff positions with respect to EDG testing as reflected in Generic Letter (GL) 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability."

2.0 Evaluation

GL 84-15 describes methods for EDG testing which, if implemented, would minimize the impact of testing on EDG reliability. These methods include engine prelube, modified or slow starts as applicable, and loading in accordance with vendor recommendations. Prior to licensing, a footnote was added to Section 4.8.1.1.2 of the LaSalle TS for the specific purpose of allowing this methodology to be applied to EDG surveillance testing. Subsequently, it was determined that the wording of the footnote was ambiguous, and that clarification was required. The licensee was requested to propose a change to the TS wherein the footnote would be changed to clarify its intent and applicability. In addition, it was suggested that the licensee consider deleting the TS requirement to test EDGs at a load "equal to or greater than 2600KW" and substitute a load range.

The licensee responded to the staff's request and suggestion in their July 3, 1989 letter. Attachment B to the licensee's letter is a copy of the applicable portions of the LaSalle TS which has been annotated to indicate where modified testing is applicable, and where a load range of 2400-2600KW has been substituted for "equal to or greater than 2600KW." In addition to the annotated TS, the licensee provides three, new, explanatory footnotes. These footnotes cover: (1) when engine prelube prior to testing is acceptable, 2) when

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fast starts and loading are and are not required, and 3) a statement that transients outside the above EDG load range during testing does not invalidate the test. The staff has reviewed the licensee's submittal and has concluded that the proposed TS changes, with new footnotes, accurately reflect the current staff's position regarding EDG testing methodology as documented in GL 84-15. The proposed TS changes relative to these footnotes as shown in Attachment B to the licensee's July 3, 1989 letter are, therefore, acceptable.

It should be noted that for purposes of this review, the staff interprets "prelube" to mean the deliberate act of pressurizing the entire diesel engine lubricating system for a specified period of time to ensure adequate lubrication to all moving parts prior to activating any engine starting mechanism. This is normally accomplished using a separate, motor driven pump.

In addition to the above footnotes, the licensee has proposed a range of 2400-2600KW for EDG surveillance testing. The staff has noted that current Standard Technical Specifications (STS) require EDGs to be loaded during test to "equal to or greater than (continuous duty rating)." In order to comply with TS requirements, the staff noted that operators routinely operated EDGs under surveillance test at "greater than (continuous duty rating)." This resulted in routine and continuous overloading of EDGs, a practice that is also detrimental to EDG reliability. The current staff position with respect to loading is that by utilizing a load range, operators will be able to meet TS requirements without routinely overloading the EDGs. A range of 200KW for an EDG rated at 2600KW is considered by the staff to be adequate in terms of demonstrating full load capability. The staff concludes that the licensee's proposed 2400-2600KW range for EDG testing at LaSalle is consistent with current staff position regarding increasing EDG reliability through changes in EDG testing methodology as reflected in GL 84-15 and is, therefore, acceptable.

By letter dated June 23, 1989, the licensee requested changes to the Action Statements in TS Section 3.8.1.1 to reduce the number of EDG tests required when the plant ac power systems (offsite, onsite, or combination) are degraded. Under current TS, the licensee is required to test all operable EDGs under any condition of inoperable offsite power, onsite power, or combination of both. Frequency of required testing varies from within 1 hour to within 8 hours for the initial test, and once per 8 hours thereafter until all ac power systems are restored to operable status. Under current TS, each EDG could be subjected to as many as 10 starts in a typical ACTION with a 72-hour time limit.

The licensee's proposal, as detailed in Attachment B to the October 26, 1989 letter, would delete ACTIONS a-f in the existing TS, and substitute new ACTIONS a-l. The major differences between existing and proposed TS are the elimination of EDG testing once per 8 hours in favor of one test for each operable EDG during any ACTION, and a change in the time to complete the first test from a minimum of 1 hour and a maximum of 8 hours to a minimum of 8 hours and a maximum of 24 hours. In addition, the proposed TS add clarifications that eliminate the requirement for EDG testing if: (1) the remaining operable

EDG(s) have been successfully tested within the past 24 hours, or 2) the inoperable EDG became inoperable due to preplanned preventive maintenance. Finally, the proposed TS include additional ACTION g-1.

The staff has determined that EDG operability under conditions involving degraded ac power systems can be adequately demonstrated by a single test of each operable EDG under any ACTION of up to 72 hours. Excessive EDG testing with its potential for EDG degradation as reflected in the current LaSalle TS can be eliminated. Therefore, the licensees's proposal to reduce EDG testing under degraded ac conditions to one per operable EDG under any ACTION is acceptable. (All LaSalle TS ACTIONS in Section 3.8.1.1 are 72 hours or less.) The staff has also determined that the time for completing EDG testing will vary with the severity of the ACTION, but in no case should the time constraints impede licensee actions to isolate and commence correction of the degraded ac power condition. Consequently, the licensee's proposal to set this time for EDG testing completion at 8 hours for the more serious ACTIONS and 24 hours for the less serious ACTIONS is acceptable.

In the staff's view, a successful test of an EDG within the past 24 hours satisfies the requirement to demonstrate operability under any ACTION, and the test need not be repeated. It is also the staff's view that inoperability of an EDG due to preplanned preventive maintenance has no potential for common mode failure, and testing of the remaining EDGs under these conditions is not required. Therefore, the staff finds the licensee's proposed clarifications regarding elimination of EDG testing as described above to be acceptable.

In the proposed TS, there are more ACTIONS than in the existing TS. This is due to the manner in which the ACTIONS are presented; i.e., some are combined in the existing TS, but are covered independently in the proposed TS. The number of variations of inoperable ac sources, however, is the same. Also, the requirements of the ACTION covering these variations is the same. The proposed TS format is easier to read, but does not add or delete any ACTIONS or alter any completion times, except as discussed above. The proposed TS format with additional ACTIONS is, therefore, acceptable. This new format necessitated editorial corrections to the footnote for Limiting Conditions for Operation (LCO) 3.8.1.1.b. The staff has reviewed these corrections and finds them acceptable.

Based on its review, the staff has concluded that the licensee's proposed changes to TS Section 3.8.1.1, are consistent with the objectives of GL 84-15 in terms of reducing EDG testing and are, therefore, acceptable.

The Bases of the affected specification sections have been modified by the licensee to include the appropriate diesel generator changes. Based on our review, we conclude that the changes to these Bases are acceptable.

It should be noted that for purposes of this review, preplanned preventive maintenance is considered by the staff to consist of activities which are intended to enhance EDG reliability/availability, and are conducted on a repetitive basis, or are scheduled in advance.

3.0 Environmental Consideration

These amendments involve changes to the use of the facility components located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendments involve no significant increase in the amounts and no significant changes in the types of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational exposure. The staff has previously determined that the amendments involve no significant hazards consideration, and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

4.0 Conclusion

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

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