

L-95-207
Attachment 3

ATTACHMENT 3

PROPOSED LICENSE AMENDMENT:

**EMERGENCY DIESEL GENERATORS;
CHANGE TO TESTING REQUIREMENTS PER GL 93-05 AND 94-01**

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ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With one of two startup transformers or an associated circuit inoperable, demonstrate the OPERABILITY of the other startup transformer and its associated circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Notify the NRC within 24 hours of declaring the transformer inoperable. ~~If any of the required 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, unless the diesel generator is already operating.~~ If the inoperable startup transformer is the associated startup transformer and became inoperable while the unit is in MODE 1, reduce THERMAL POWER to $< 30\%$ RATED THERMAL POWER within 24 hours, or restore the inoperable startup transformer and associated circuits to OPERABLE status within the next 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. If THERMAL POWER is reduced to $< 30\%$ RATED THERMAL POWER within 24 hours or if the inoperable startup transformer is associated with the opposite unit restore the startup transformer and its associated circuits to OPERABLE status within 30 days of the loss of OPERABILITY, or be in at least HOT STANDBY within the next 12 hours and in COLD SHUTDOWN within the following 30 hours. If the inoperable startup transformer is the associated startup transformer and became inoperable while the unit was in MODE 2, 3, or 4 restore the startup transformer and its associated circuits to OPERABLE status within 24 hours or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours. This ACTION applies to both units simultaneously.
- b. With one of the required diesel generators inoperable, demonstrate the OPERABILITY of the above required startup transformers and their associated circuits 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 preventative maintenance or testing, demonstrate the OPERABILITY of the remaining required diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours*.~~ Restore the inoperable 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.
- c. With one startup transformer and one of the required diesel generators inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a on the remaining

INSERT A

~~*Unless the diesel generator inoperability was due to preplanned preventative maintenance, or testing, this test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY.~~

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

startup transformer and associated circuits within one hour and at least once per 8 hours thereafter; ~~and if the diesel generator became inoperable due to any cause other than preplanned preventative maintenance or testing, demonstrate the OPERABILITY of the remaining required diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours*~~, unless the diesel generators are already operating; restore one of the inoperable sources to OPERABLE status in accordance with Action Statements a and b, as appropriate.

Notify the NRC within 4 hours of declaring both a start-up transformer and diesel generator inoperable. Restore the other A.C. power source (startup transformer 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.

d.. With one diesel generator inoperable, in addition to ACTION b. or c. above, verify that:

1. All required systems, subsystems, trains, components, and devices (except safety injection pumps) that depend on the remaining required OPERABLE diesel generators as a source of emergency power are also OPERABLE.

If this condition is not satisfied within 2 hours, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

2. At least two Safety Injection pumps are OPERABLE and capable of being powered from their associated OPERABLE diesel generators.

If this condition is not satisfied within 2 hours, be in at least HOT STANDBY within the next 12 hours and in HOT SHUTDOWN within the following 6 hours. This ACTION applies to both units simultaneously.

- e. With two of the above required startup transformers or their associated circuits inoperable notify the NRC within 4 hours; ~~and demonstrate the OPERABILITY of the required diesel generators separately by performing the requirements of Specification 4.8.1.1.2a.4 within 8 hours, unless the diesel generators are already operating, and at least once per 24 hours thereafter;~~ restore at least one of the inoperable startup transformers to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours** and in COLD

~~*Unless the diesel generator inoperability was due to preplanned preventative maintenance, or testing, this test is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY.~~

~~**If the opposite unit is shutdown first, this time can be extended to 42 hours.~~

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE*:

a. ~~In accordance with the frequency specified in Table 4.8-1 with diesel generator surveillances performed nonconcurrently by:~~

INSERT D

- 1) Verifying the fuel volume in the day and skid-mounted fuel tanks (Unit 4-day tank only),
- 2) Verifying the fuel volume in the fuel storage tank,
- 3) Verifying the lubricating oil inventory in storage,
- 4) Verifying the diesel starts and accelerates to reach a generator voltage and frequency of 4160 ± 420 volts and 60 ± 1.2 Hz. Once per 184 days, these conditions shall be reached within 15 seconds after the start signal from normal conditions. For all other starts, warmup procedures, such as idling and gradual acceleration as recommended by the manufacturer may be used. The diesel generator shall be started for this test by using one of the following signals:
 - a) Manual, or
 - b) Simulated loss-of-offsite power by itself, or
 - c) Simulated loss-of-offsite power in conjunction with an ESF Actuation test signal, or
 - d) An ESF Actuation test signal by itself.
- 5) Verifying the generator is synchronized, loaded** to 2300 - 2500 kW (Unit 3), 2650-2850 kW (Unit 4)***, operates at this loaded condition for at least 60 minutes and for Unit 3 until automatic transfer of fuel from the day tank to the skid mounted tank is demonstrated, and the cooling system is demonstrated OPERABLE.
- 6) Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

*All diesel generator starts for the purpose of these surveillances may be proceeded by a prelube period as recommended by the manufacturer.

**May include gradual loading as recommended by the manufacturer so that the mechanical stress and wear on the diesel engine is minimized.

***Momentary transients outside these load bands do not invalidate this test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

(NOT USED)

~~4.8.1.1.3 Reports - All diesel generator failures, valid or nonvalid, shall be reported to the Commission in a Special Report pursuant to Specification 6.9.2 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 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.~~

TABLE 4.8-1
(Not Used)
DIESEL GENERATOR TEST SCHEDULE

NUMBER OF FAILURES IN
LAST 20 VALID TESTS*

≤ 1
 $\geq 2^{**}$

NUMBER OF FAILURES IN
LAST 100 VALID TESTS*

≤ 4
 ≥ 5

TEST FREQUENCY

Once per 31 days
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 purpose of determining the required test frequency, the previous test failure count may be reduced to zero if 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 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 the routine Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5; and four tests 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 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

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 requirements of Specifications

4.8.1.1.1.a, 4.8.1.1.2 (except for Specification 4.8.1.1.2a.5), and 4.8.1.1.3.

and

ELECTRICAL POWER SYSTEMS

BASES (Continued)

With one startup transformer and one of the three required EDG's inoperable, the unit with the inoperable transformer must reduce THERMAL POWER to less than or equal to 30% RATED THERMAL POWER within 24 hours, based on the loss of its associated startup transformer, whereas operation of the unit with the OPERABLE transformer is controlled by the limits for inoperability of the EDG. The notification of a loss of startup transformer(s) to the NRC is not a 10 CFR 50.72/50.73 requirement and as such will be made for information purposes only to the NRC Operations Center via commercial lines.

With an EDG out of service, an ACTION statement and a Surveillance Requirement are provided to demonstrate the required startup transformers and their associated circuits are OPERABLE. When one diesel generator is inoperable, there is also an additional ACTION requirement to verify that required system(s), subsystem(s), train(s), component(s), and device(s) that depend on the remaining required OPERABLE diesel generators as a source of emergency power to meet all applicable LCO's, are OPERABLE. This requirement is intended to provide assurance that a loss-of-offsite power event will not result in a complete loss of safety function of critical systems during the period one of the diesel generators is inoperable. This requirement allows continued operation to be governed by the time limits of the ACTION statement associated with the inoperable diesel generator. The loss of a diesel generator does not result in the associated system(s), subsystem(s), train(s), component(s), or device(s) being considered inoperable provided: (1) its corresponding normal power source is OPERABLE; and (2) its redundant system(s), subsystem(s), train(s), component(s), and device(s) that depend on the remaining required OPERABLE diesel generators as a source of emergency power to meet all applicable LCO's, are OPERABLE.

~~A footnote is added to ensure the remaining required EDG's are tested for OPERABILITY if one of the required EDG's becomes inoperable due to reasons other than preplanned preventative maintenance. This statement will ensure that tests are performed to verify common mode failures do not exist.~~

When in Modes 1, 2, 3 or 4, a unit depends on one EDG and its associated train of busses from the opposite unit in order to satisfy the single active failure criterion for safety injection (SI) pumps and other shared equipment required during a loss-of-coolant accident with a loss-of-offsite power. Therefore, one EDG from the opposite unit is required to be OPERABLE along with the two EDG's associated with the applicable unit.

Insert E

INSERT A

If the diesel generator became inoperable due to any cause other than an inoperable support system, an independently testable component, or planned maintenance or testing, demonstrate the OPERABILITY of the remaining required diesel generators by performing Surveillance Requirement 4.8.1.1.2a.4 within 24 hours, unless the absence of any potential common mode failure for the remaining diesel generators is determined. If testing of remaining required diesel generators is required, this testing must be performed regardless of when the inoperable diesel generator is restored to OPERABILITY.

INSERT B

If testing of remaining required diesel generators is required, this testing must be performed regardless of when the inoperable diesel generator is restored to OPERABILITY.

INSERT C

and if the diesel generator became inoperable due to any cause other than an inoperable support system, an independently testable component, or planned maintenance or testing, demonstrate the OPERABILITY of the remaining required diesel generators by performing Surveillance Requirement 4.8.1.1.2a.4 within 8 hours, unless it can be confirmed that the cause of the inoperable diesel generator does not exist on the remaining required diesel generators,

INSERT D

At least once per 31 days on a STAGGERED TEST BASIS by:

INSERT E

All diesel generator inoperabilities must be investigated for common-cause failures regardless of how long the diesel generator inoperability persists. When one diesel generator is inoperable, TS 3.8.1.1 ACTION statements b and c provide an allowance to avoid unnecessary testing of other required diesel generators. If it can be determined that the cause of the inoperable diesel generator does not exist on the remaining required diesel generators, then SR 4.8.1.1.2a.4 does not have to be performed. Twenty-four (24) hours (or eight (8) hours if both a startup transformer and diesel generator are inoperable) is reasonable to confirm that the remaining required diesel generators are not affected by the same problem as the inoperable diesel generator. If it cannot otherwise be determined that the cause of the initial inoperable diesel generator does not exist on the remaining required diesel generators, then satisfactory performance of SR 4.8.1.1.2a.4 suffices to provide assurance of continued OPERABILITY of the remaining required diesel generators. If the cause of the initial inoperability exists on one or more of the remaining required diesel generators, those diesel generators affected would also be declared inoperable upon discovery, and TS 3.8.1.1 ACTION statement f or TS 3.0.3, as appropriate, would apply.

