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

b. Two separate and independent diesel generators, each with:

1. Two separate engine-mounted fuel tanks containing a minimum volume of 200 gallons of fuel each,

2. A separate fuel storage system containing a minimum volume of 40,000 gallons of fuel, and

3. A separate fuel transfer pump.

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

ACTION:

Delete

a. With either an offsite circuit other than the conditions delineated in Action 3.8.1.1f. or diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1a. and 4.8.1.1.2a.4. within 1 hour and at least once per 8 hours thereafter; restore at least two offsite circuits and two diesel generators 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.

Add

a. With one offsite circuit of 3.8.1.1.a 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 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 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 COLD SHUTDOWN within the following 30 hours.

Delete

b. With one offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1a. and 4.8.1.1.2a.4. within 1 hour and at least once per 8 hours thereafter; restore at least 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 at least two offsite circuits and two diesel generators to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Add

b. With one 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.

Delete

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

1. All required systems, subsystems, trains, components and devices that depend on the remaining OPERABLE diesel generator as a source of emergency power are also OPERABLE, and

2. When a MODE 1, 2, or 3, the steam driven auxiliary feed pump is OPERABLE.

Add

This operability requirement can be met with one Unit 2 startup transformer (2A or 2B) inoperable, provided that a Unit 1 startup transformer (1A or 1B) connected to the same A or B offsite power circuit is administratively available to both units and not required for use on Unit 1.

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

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ELECTRICAL POWER SYSTEMS

ACTION (Continued)

Delete — If these conditions are 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.

Delete — d. With two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Surveillance Requirement 4.8.1.1.2a.4. within 1 hour and at least once per 8 hours thereafter, unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Delete — e. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1a. within 1 hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Delete — f. With one Unit 2 startup transformer (2A or 2B) inoperable and with a Unit 1 startup transformer (1A or 1B) connected to the same A or B offsite power circuit and administratively available to both units, then should Unit 1 require the use of the startup transformer administratively available to both units, Unit 2 shall demonstrate the operability of the remaining A.C. sources by performing Surveillance Requirements 4.8.1.1.1a. and 4.8.1.1.2a.4. within 1 hour and at least once per 8 hours thereafter; restore the inoperable startup transformer to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and

b. Demonstrated OPERABLE at least once per 18 months by transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit.

Add — 4.8.1.1.1.a

c. With one offsite circuit and one diesel generator inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement ~~4.8.1.1.1a.~~ 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 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.

Add — 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.

Add — 4.8.1.1.1.a

e. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement ~~4.8.1.1.1a.~~ 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.

Add —

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

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 on a STAGGERED TEST.BASIS by:

1. Verifying the fuel level in the engine-mounted fuel 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 engine-mounted tank,

4. ~~Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal.~~ The diesel generator shall be started for this test by using one of the following signals:

Delete

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 generator is synchronized, loaded to greater than or equal to 3685 kW in less than or equal to 60 seconds, and operates with a load greater than or equal to 3685 kW for at least an additional 60 minutes, and~~

Delete

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

b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the engine-mounted fuel tanks.

c. At least once per 92 days and from new fuel prior to addition to the storage tanks, by obtaining a sample of fuel oil in accordance with ASTM-D270-1975, and by verifying that the sample meets the following minimum requirements and is tested within the specified time limits:

1. As soon as sample is taken or prior to adding new fuel to the storage tank verify in accordance with the test specified in ASTM-D975-77 that the sample has:

Add → Verifying the diesel generator can start** and ~~gradually~~ then accelerate to synchronous speed (~~900 rpm~~ 900 ± 15 rpm) with generator voltage and frequency at 4160 ± 420 volts and 60 ± 1.2 Hz.

Add → verifying the generator is synchronized, gradually loaded** to an indicated ~~3685-3685~~ 3385-3485 kW*** and operates for at least 60 minutes. Subsequently,

Add →

**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.

SURVEILLANCE REQUIREMENTS (Continued)

a) A water and sediment content of less or equal to 0.05 volume percent.

b) A kinematic viscosity @ 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes.

c) A specific gravity as specified by the manufacturer @ 60/60°F of greater than or equal to 0.8 but less than or equal to 0.99 or an API gravity @ 60°F of greater than or equal to 11 degrees but less than or equal to 47 degrees.

2. Within 1 week after obtaining the sample, verify an impurity level of less than 2 mg of insolubles per 100 ml when tested in accordance with ASTM-D2274-70.

3. Within 2 weeks of obtaining the sample verify that the other properties specified in Table 1 of ASTM-D975-77 and Regulatory Guide 1.137 Position 2.a are met when tested in accordance with ASTM-D975-77.

Delete

d. At least once per 12 months by verifying that the automatic load sequence timers are OPERABLE with the interval between each load block within ± 1 second of its design interval.

e. 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 load of greater than or equal to 453 kW while maintaining voltage at 4160 ± 420 volts and frequency at 60 ± 1.2 Hz.

3. Verifying the generator capability to reject a load of 3685 kW without tripping. The generator voltage shall not exceed 4784 volts during and following the load rejection.

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 loaded with the shutdown loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz during this test.

Add

At least once per 184 days the diesel generator shall be started** and accelerated to at least ~~900 rpm~~ in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal.

3585 - 3985

The generator shall be manually synchronized to its appropriate emergency bus, loaded to an indicated ~~2500 - 3000~~*** kW in less than or equal to 60 seconds, and operate for at least 60 minutes. ~~The diesel generator shall be started for this test by using one of the following signals on a STAGGERED TEST BASIS:~~

~~a) Simulated loss of offsite power by itself.~~
~~b) Simulated loss of offsite power in conjunction with an ESF actuation test signal.~~
~~c) An ESF actuation test signal by itself.~~

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.

Add 5

Add

**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.

SURVEILLANCE REQUIREMENTS (Continued)

5. Verifying that on an ESF actuation test signal (without loss-of-offsite power) the diesel generator starts** on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The steady-state generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the generator voltage and frequency shall be maintained within these limits during this test.

6. Simulating a loss-of-offsite power in conjunction with an ESF actuation test signal, 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 emergency (accident) 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 ± 420 volts and 60 ± 1.2 Hz during this test.

   c) Verifying that all automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the emergency bus concurrent with a safety injection actuation signal.

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 greater than or equal to 3985 kW and during the remaining 22 hours of this test, the diesel generator shall be loaded to greater than or equal to 3685 kW. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal; the steady-state 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 4.8.1.1.2e.4.b).

delete

Add

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 target value of ~~3000~~ 3785 kW (between ~~3000~~ 3835-3735 ~~3000~~ 3835 kW)*** and during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated ~~2500-2600~~ 3385-3485 kW***. Within 5 minutes after completing this 24-hour test, perform Surveillance Requirement ~~4.8.1.1.2e.4.b)~~ 4.8.1.1.2.e.4.

**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.

A

SURVEILLANCE REQUIREMENTS (Continued)

8. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000-hour rating of ~~3985~~ 3935 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) Be restored to its standby status.

10. Verifying that with the diesel generator operating in a test mode (connected to its bus), a simulated safety injection signal overrides the test mode by (1) returning the diesel generator to standby operation and (2) automatically energizes the emergency loads with offsite power.

11. Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the engine-mounted tanks of each diesel via the installed cross connection lines.

12. Verifying that the automatic load sequence timers are OPERABLE with the interval between each load block within ± 1 second of its design interval.

Add

f. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting the diesel generators simultaneously, during shutdown, and verifying that the diesel generators accelerate to at least 900 rpm in less than or equal to 10 seconds.

g. 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 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 at a test pressure equal to 110% of the system design pressure.

Add

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

TABLE 4.8-1

DIESEL GENERATOR TEST SCHEDULE

Number of Failures In Last 100 Valid Tests.*	Test Frequency
≤ 1	At least once per 31 days
2	At least once per 14 days
3	At least once per 7 days
≥ 4	At least once per 3 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, where the last 100 tests are determined on a per nuclear unit basis. For the purposes of this test schedule, only valid tests conducted after the Operating License issuance date shall be included in the computation of the "last 100 valid tests". Entry into this test schedule shall be made at the 31 day test frequency.

Delete

Add ?

Number of Failures in Last 20 Valid Tests*	Number of Failures in Last 100 Valid Tests*	Test Frequency
≤1	≤4	Once per 31 days
≥2**	≥5	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.g.4** 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. Two engine-mounted fuel tanks each containing a minimum volume of 200 gallons of fuel,

2. A fuel storage system containing a minimum volume of 40,000 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, and within 8 hours, depressurize and vent the Reactor Coolant System through a greater than or equal to 3.58 square inch vent. 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 and 4.8.1.1.2 (except for requirement 4.8.1.1.2a.5), ~~and 4.8.1.1.3~~.

3/4.8.1, 3/4.8.2 and 3/4.8.3 A.C. SOURCES, D.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 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. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of 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 the other onsite A.C. source. The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one diesel generator is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator as a source of emergency power, are also OPERABLE, and that the steam-driven auxiliary feedwater pump is 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. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

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 Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, and 1.137, "Fuel Oil Systems for Standby Diesel Generators," Revision 1, October 1979, Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability" dated July 2, 1984, and NRC staff positions reflected in Amendment No. 48 to Facility Operating License NPF-7 for North Anna Unit 2, dated April 25, 1985.

NO SIGNIFICANT HAZARDS CONSIDERATIONS DETERMINATION

BACKGROUND

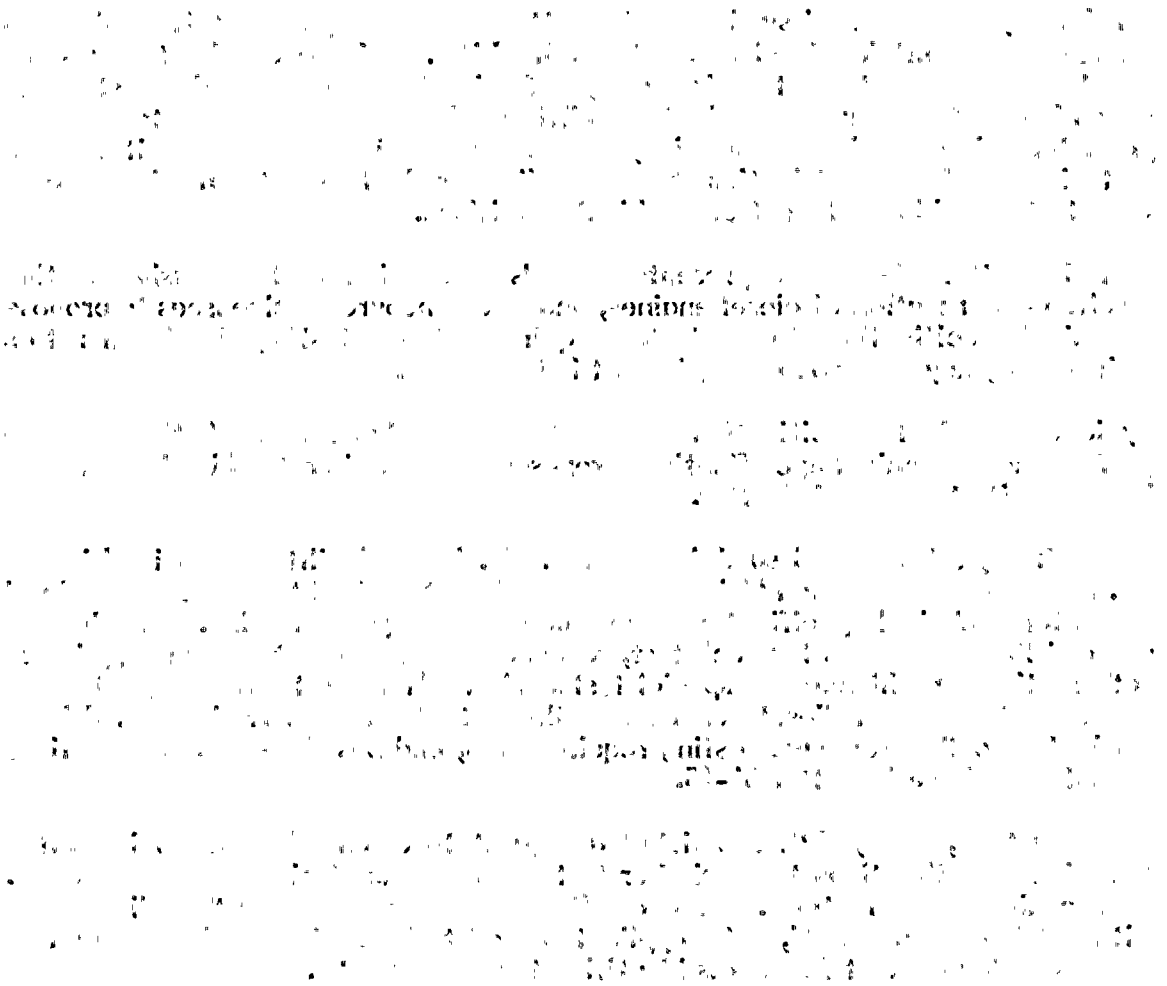
On July 2, 1984, NRC issued Generic Letter 84-15 (Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability). This Generic Letter presents NRC's conclusion that the frequency of diesel generator cold fast start surveillance tests from ambient conditions should be reduced to prevent premature diesel engine degradation, and encourages licensees to submit changes to their Technical Specifications to accomplish a reduction in the number of cold fast start surveillance tests from ambient conditions.

Generic Letter 84-15 also presented NRC's conclusion that excessive testing results in degradation of diesel engines, and NRC encouraged licensees to propose Technical Specifications to delete the requirements for testing diesel generators while emergency core cooling equipment is inoperable.

Typical Technical Specifications, as well as an elaboration of the example performance Technical Specifications proposed to maintain reliability levels, were included with the Generic Letter.

On April 25, 1985, NRC issued Amendment No. 48 to Facility Operating License No. NPF-7 for North Anna Unit 2. The amendment revised the emergency diesel generator Technical Specifications by reducing the required testing. The changes reduced the parameters for each test, reduced the number of tests, and applied to both routine surveillance and special tests. North Anna Unit 2 had requested the amendment based on diesel generator failures that had occurred and had been attributed to the excessive testing requirements, and based on recommendations identified in Generic Letter 84-15.

On August 27, 1985, FPL submitted a request to amend the St. Lucie Unit 2 Technical Specifications to be similar to the North Anna Unit 2, Amendment No. 48 Technical Specifications. As a result of NRC review and further discussions with NRC, the August 27, 1985 application had to be revised. This application addresses all comments/concerns identified thus far by NRC.



TECHNICAL SPECIFICATION CHANGES

3.8.1.1 LCO: a.

A footnote has been added to allow a Unit 1 startup transformer, when not being used on Unit 1, to satisfy the Operability requirements. This is consistent with the existing St. Lucie Unit 2 Technical Specification 3.1.1.1 ACTION: f. which is being deleted for conformance to the North Anna Unit 2 format.

3.8.1.1 ACTION: a.

This Action Statement has been changed to read exactly like North Anna Unit 2.

3.8.1.1 ACTION: b.

This Action Statement has been changed to read exactly like North Anna Unit 2.

3.8.1.1 ACTION: c.

This Action Statement has been changed to read exactly like North Anna Unit 2, and to correct a typo in the North Anna spec.

3.8.1.1 ACTION: d.

The Action Statement has been changed to read exactly like North Anna Unit 2.

3.8.1.1 ACTION: e.

This Action Statement has been changed to read exactly like North Anna Unit 2.

3.8.1.1 ACTION: f.

This Action Statement has been deleted for consistency with North Anna Unit 2. However, the footnote added to 3.8.1.1 LCO: a. in essence is the current ACTION: f.

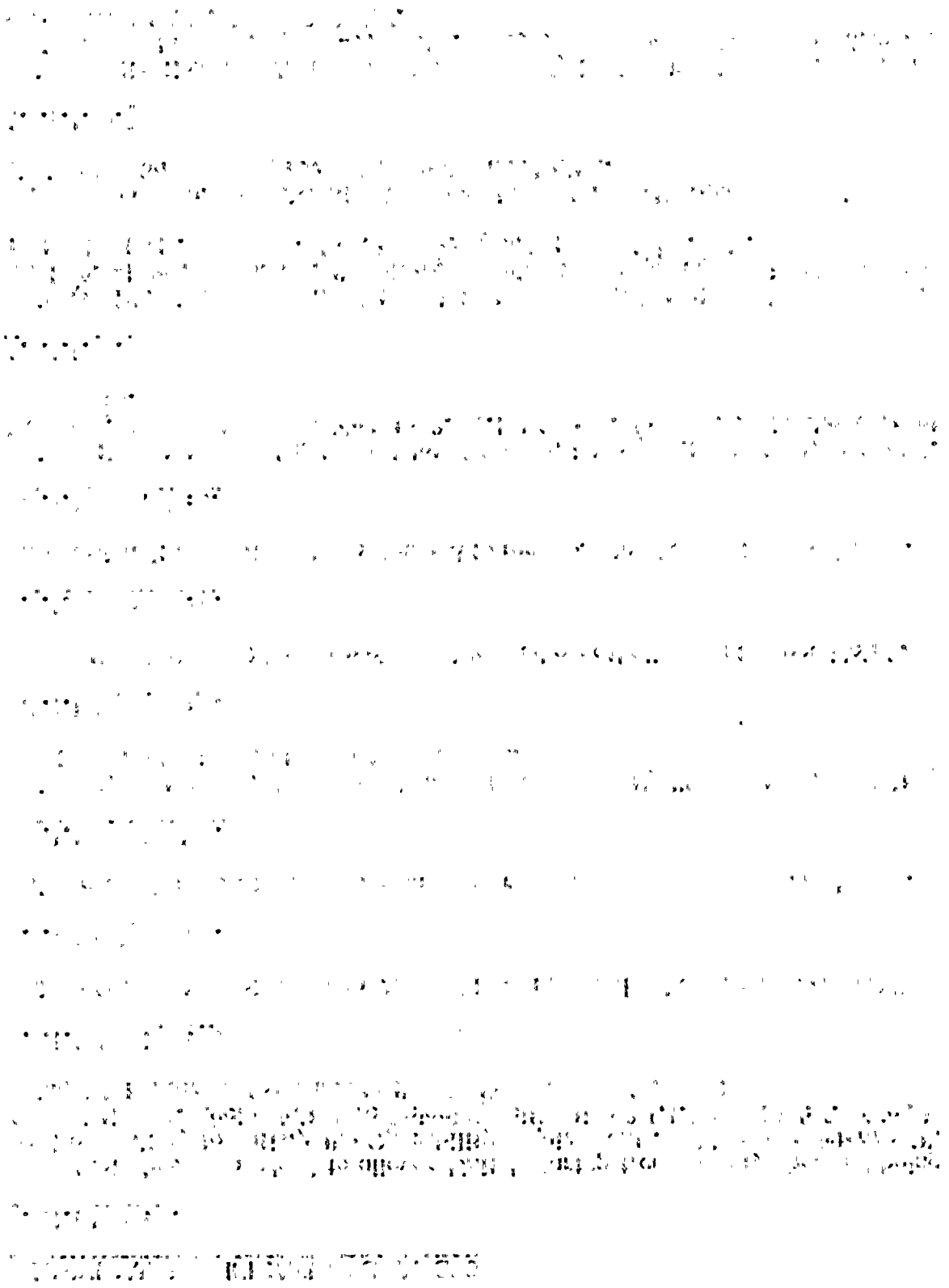
4.8.1.1.2a.4

This specification was changed to delete the fast cold start requirement on the Table 4.8-1 test frequency, therefore, reducing the frequency of diesel generator fast cold starts. The 900 ± 18 RPM corresponds to the 60 ± 1.2 Hz.

These changes are consistent with Generic Letter 84-15 recommendations and similar to what NRC approved for North Anna Unit 2.

4.8.1.1.2a.5

This specification was changed to allow gradually loading the diesel generator and to include a load band (3385-3485 kW). The 3385 kW value is greater than the worst case FSAR value of 3260 kW.



4.8.1.1.2d.

The present specification was moved to 4.8.1.1.2e.12. A new specification was added to reduce the diesel generator test frequency for fast cold starts and loading. Diesel generator starts from a simulated loss of offsite power, loss of offsite power in conjunction with an ESF actuation test signal and an ESF actuation test signal by itself are verified under Tech Spec 4.8.1.1.2a.4., and therefore not repeated here.

The 3385-3485 kW load band is discussed above.

4.8.1.1.2e.7

This specification was changed to read the same as North Anna Unit 2 with the appropriate St. Lucie Unit 2 specific numbers included.

4.8.1.1.2e.8

This specification change is to correct the 2000-hour rating value. The correct 2000-hour rating per the vendor technical manual is 3935 kW, and not 3985 as currently shown in the Technical Specifications.

This change is editorial only.

4.8.1.1.2e.12.

This specification was added and is the current specification 4.8.1.1.2d. except that the 12 month surveillance interval is changed to an 18 month interval.

The electropneumatic timing relays which required the 12 month surveillance interval have been replaced with Agastat DSC solid state devices which are more accurate and reliable and need only be verified on an 18 month interval per Standard Technical Specifications.

TABLE 4.8-1

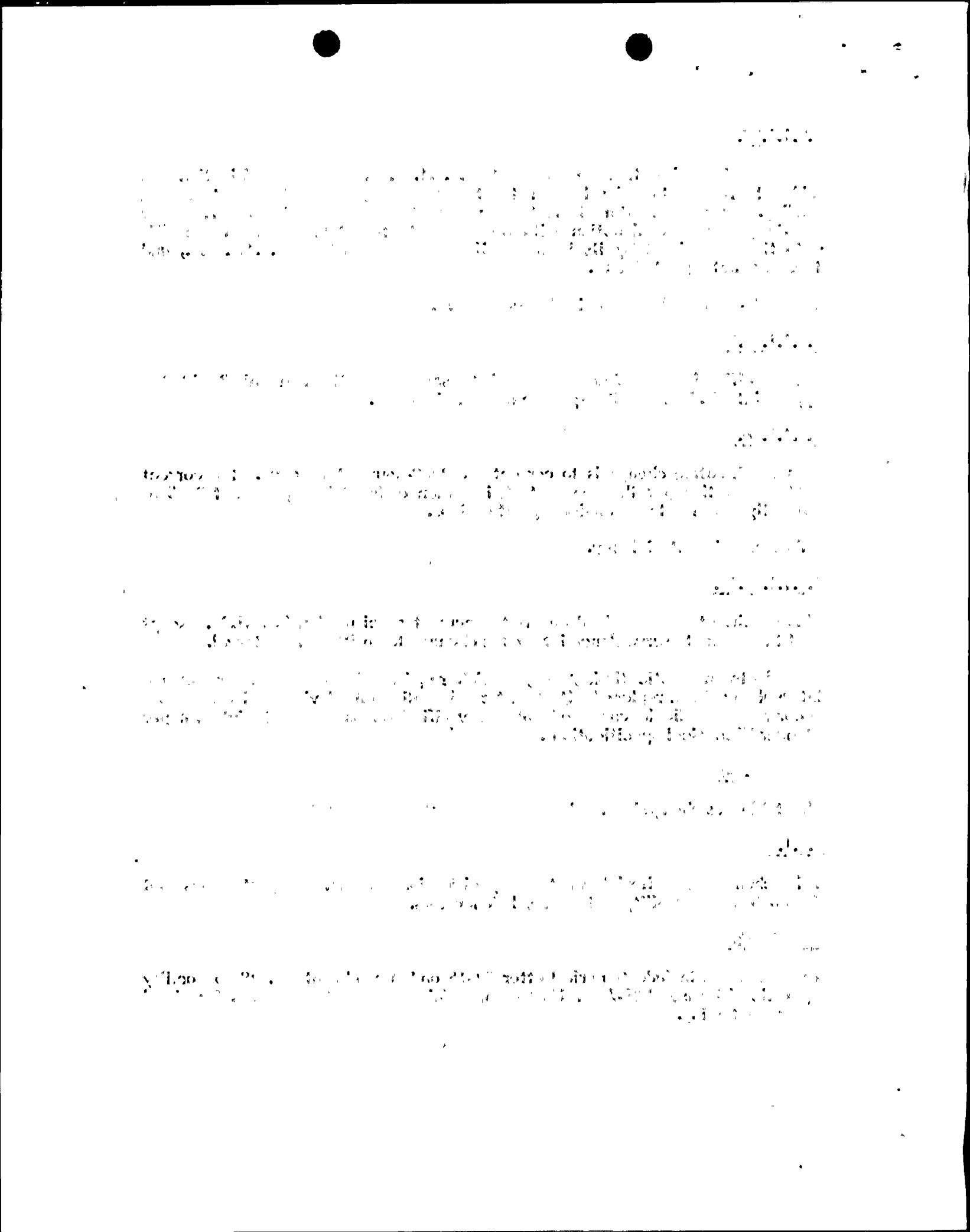
This table was changed to read the same as North Anna Unit 2.

4.8.1.2

This change is editorial in that Specification 4.8.1.1.3 Reports does not demonstrate Operability of the Diesel Generators.

BASES 3/4.8

These changes include Generic Letter 84-15 and Amendment No. 48 to Facility Operating License NPF-7 for North Anna Unit 2 as additional Bases for diesel generator testing.



CONCLUSIONS:

As indicated above, the changes are either editorial/administrative changes, changes similar to changes already approved by NRC, or changes based on NRC recommendations included in Generic Letter 84-15.

Examples (i), (vii) and (iii) to the extent that NRC has previously found such changes acceptable, of the staff procedure for determination of no significant hazards considerations apply to this amendment request.

For these reasons it has been determined that these changes involve no significant hazards considerations.

SAFETY EVALUATION

The proposed changes to the Technical Specifications do not involve an unreviewed safety question because:

1. a. The probability of the occurrence of an accident previously evaluated in the FSAR has not been affected since the diesel generators are not considered in determining the probabilities of accidents.

   b. The consequences of an accident previously evaluated in the FSAR have not been adversely affected. Reducing the test frequency and modifying the starting requirements to be consistent with the diesel manufacturer's recommendations are intended to enhance diesel reliability by minimizing severe test conditions which can lead to premature failures.

   c. The probability of a malfunction of equipment important to safety previously evaluated in the FSAR has been reduced since the severe test requirements have been reduced which will result in increased diesel engine reliability.

   d. The consequences of a malfunction of equipment important to safety have not changed since the new surveillance requirements will not affect the operation or operability of the diesels or any other safety related equipment.

2. a. The possibility of an accident of a different type than analysed in the FSAR has not been created since the change affects frequency starting and load practices during testing only and has no impact on actual accident analysis.

   b. The possibility of a malfunction of equipment important to safety of a different type than any analyzed in the FSAR has not been created for the reason given in 1.c.

3. a. The margin of safety as defined in the basis for any Technical Specification is not reduced by the proposed changes. The changes in the testing requirements do not affect the capacity of the diesels to perform their function. The purpose of the change is to increase diesel engine reliability.