



James Scarola  
Vice President  
Harris Nuclear Plant

SERIAL: HNP-00-183  
10CFR50.90

DEC 14 2000

United States Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT  
DOCKET NO. 50-400/LICENSE NO. NPF-63  
REQUEST FOR LICENSE AMENDMENT  
REVISION TO TECHNICAL SPECIFICATION 3/4.8.1 – A.C. SOURCES-OPERATING

Dear Sir or Madam:

In accordance with the Code of Federal Regulations, Title 10, Part 50.90, Carolina Power & Light Company (CP&L) requests a revision to the Technical Specifications (TS) for the Harris Nuclear Plant (HNP). The proposed amendment revises the TS concerning the Emergency Diesel Generator (EDG) found in TS 3/4.8.1.

Specifically, HNP proposes to revise Surveillance Requirement (SR) 4.8.1.1.2.f.7, the 24-hour EDG endurance run test, by removing the restriction to perform the test during shutdown conditions. The purpose of the proposed change is to provide HNP with greater flexibility in optimizing outage schedules and the use of resources while still protecting the health and safety of the public and station personnel. Approval of this proposed amendment has the potential for reducing outage critical path time, resulting in significant cost savings.

Enclosure 1 provides a description of the proposed changes and the bases for the changes. Enclosure 2 details, in accordance with 10 CFR 50.91(a), the basis for the CP&L's determination that the proposed changes do not involve a significant hazards consideration. Enclosure 3 provides an environmental evaluation which demonstrates that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental assessment is required for approval of this amendment request. Enclosure 4 provides page change instructions for incorporating the proposed revisions. Enclosure 5 provides the proposed Technical Specification pages.

In accordance with 10 CFR 50.91(b), CP&L is providing the State of North Carolina with a copy of the proposed license amendment.

CP&L requests that the proposed amendment be issued by July 20, 2001 to support Refueling Outage 10 which is scheduled to commence on September 22, 2001. CP&L further requests that the proposed amendment be issued such that implementation will occur within 60 days of issuance to allow time for orderly incorporation into copies of the Technical Specifications.

P.O. Box 165  
New Hill, NC 27562

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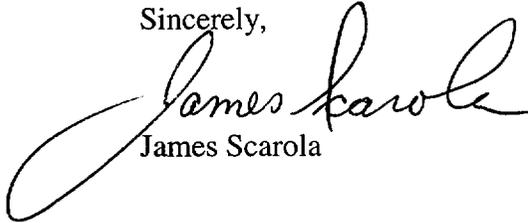
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Document Control Desk  
HNP-00-183/ Page 2

This HNP amendment request, to remove the restriction of performing the EDG 24-hour run only during shutdown, is similar to that proposed by other nuclear plants who have requested similar amendments (Perry Nuclear Power Plant, Catawba Nuclear Station Units 1 and 2, McGuire Nuclear Station Units 1 and 2, and Salem Generating Station Nos. 1 and 2).

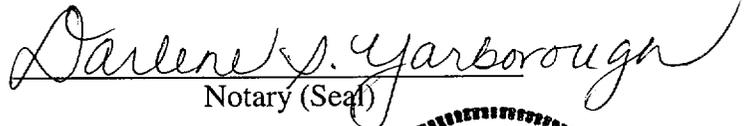
Please refer any questions regarding this submittal to Mr. E. McCartney at (919) 362-2661.

Sincerely,

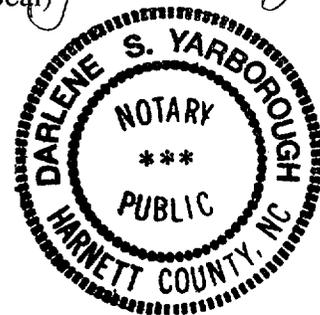
  
James Scarola

ONW/onw

James Scarola, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief, and the sources of his information are employees, contractors, and agents of Carolina Power & Light Company.

  
Notary (Seal)

My commission expires: 2-21-2005



Enclosures:

1. Basis for Change Request
2. 10 CFR 50.92 Evaluation
3. Environmental Considerations
4. Page Change Instructions
5. Technical Specification Pages

c: Mr. J. B. Brady, NRC Sr. Resident Inspector  
Mr. Mel Fry, Director, N.C. DENR  
Mr. Rich Laufer, NRC Project Manager  
Mr. L. A. Reyes, NRC Regional Administrator

SHEARON HARRIS NUCLEAR POWER PLANT  
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BASIS FOR CHANGE REQUEST

BACKGROUND

The Harris Nuclear Plant (HNP) electrical distribution design consists of onsite and offsite power distribution systems which are capable of supplying AC power to plant electrical loads during normal operation, shutdown operation, and accident conditions. HNP is connected to the Carolina Power & Light Company (CP&L) transmission grid by seven 230 kV transmission lines. These seven lines, radiating in different directions from the plant, connect to strong and diverse parts of the CP&L system. For the greater part of their lengths, these lines are on separate rights-of-way. The probability of transmission grid availability to supply offsite power to HNP is extremely high. During normal operation, the plant electrical power distribution system receives power from the main generator through two unit auxiliary transformers (UATs). During startups or shutdowns when the main generator is not available, power is provided through two startup transformers (SATs) connected to the electrical grid through the 230 kV switchyard. One SAT and UAT are designed to service together one of the two non-safety related 6.9 kV switchgear buses. Each non-safety bus has a connection to one safety bus through two 6.9 kV tie breakers. This path from a non-safety bus to the safety bus provides the offsite power source (preferred source) feed to the onsite power system.

The onsite power system has two independent divisions, each consisting of a safety bus, a diesel generator (standby power source) and other sub-levels of electrical power distribution all deriving their power ultimately from the safety bus. The diesel generator on each division serves as the emergency power source for the onsite power system. The emergency diesel generator (EDG) is connected to the safety bus through a circuit breaker that can be opened and closed automatically as well as manually through control logic. Each diesel generator is automatically started, and can supply sufficient power for operation of the Engineered Safety Features (ESF) equipment, upon receipt of the following auto start signals:

- Safety injection actuation signal (SIAS) with off-site power available
- Loss of offsite power (LOOP) signal
- LOOP signal following the SIAS
- Simultaneous LOOP and SIAS

Each EDG is provided with an independent automatic load sequencer, which initiates the loading of the diesel generators during any of the modes of operation.

PROPOSED CHANGE

Current Technical Specification

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

f. At least once per 18 months during shutdown by:

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 6800-7000 kW\*\*\* and, during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated 6200-6400 kW\*\*\*.

\*\* 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 or momentary variations due to changing bus loads shall not invalidate the test.

### Proposed Change

The requested change would remove the restriction on performing the 24-hour endurance run test of the EDG every 18 months only during shutdown. The proposed change would delete the words "during shutdown" from 4.8.1.1.2.f, and add the words "during shutdown" to the applicable surveillance requirements under Surveillance Requirement (SR) 4.8.1.1.2.f (specifically 2, 3, 4, 5, 6, 9, 11, 12, 13, and 14), excluding 4.8.1.1.2.f.7.

### BASIS FOR THE PROPOSED CHANGE

The current HNP Technical Specification (TS) SR 4.8.1.1.2.f.7 requires that the operability of each EDG be determined every 18 months by operating each EDG for 24 hours in parallel with the offsite power system during shutdown. The purpose of the proposed change to remove the restriction of performing this SR only during shutdown is to provide HNP with greater flexibility in optimizing outage schedules and the use of resources while still protecting the health and safety of the public and station personnel. Performing this surveillance online will:

- Provide greater flexibility to schedule other critical outage-related work
- Reduce the complexity of activities during refueling outages
- Allow the surveillance to be scheduled during periods when there are fewer activities occurring

Approval of this proposed amendment has the potential for reducing outage critical path time, resulting in significant cost savings.

HNP currently tests the EDGs paralleled to offsite power on a monthly basis (per SR 4.8.1.1.2.a.5), with the reactor critical, at full load for a duration of at least one hour. This monthly test results in an average of 3 hours of engine operation in parallel with offsite power per month. Performance of the 24-hour run while at power will only add a small increment of time with the unit operating that the EDG is parallel tested. The intent of the 24-hour run, which is to demonstrate the ultimate load carrying capability and endurance of the EDG, is met whether the test is conducted with the unit operating or shut down. The automatic response of the electrical distribution system to electrical disturbances and/or accidents, including EDG performance, is the same regardless of test duration.

The ability of each EDG to survive load rejection without tripping is currently verified every 18 months in accordance with SR 4.8.1.1.2.f.11. This surveillance demonstrates the ability of the EDG to withstand a complete loss of load, without compromising its ability to be ready to accept a new loading sequence and carry out its design safety function.

SR 4.8.1.1.2.f.12 requires that when the EDG is operating in a test mode (connected to its bus), a simulated SI signal overrides the test mode by (1) returning the diesel generator to standby operation, and (2) automatically energizing the emergency loads with offsite power. This

surveillance demonstrates the ability of the EDG to be disconnected from the grid, if in a test mode, on an emergency signal and to be ready to accept a new loading sequence and carry out its design safety function.

The HNP design of the EDG circuitry includes a direct trip of the EDG output breaker when an EDG is in the test mode and a LOOP is detected by the LOOP relay, and a direct trip of the bus cross tie breaker on detection of a LOOP. This design provides the most direct indicator of a LOOP. The LOOP relay will perform the following additional safety functions when an EDG is in test mode:

- Ensure the EDG is disconnected from the safety bus immediately on detection of a LOOP concurrent with the EDG in test mode, and
- Ensure the cross tie between the non-safety bus and safety bus is opened immediately on detection of a LOOP.

Completion of these safety functions will ensure that safety bus undervoltage occurs and EDG load shedding and load sequencing is initiated. Undervoltage protection of the 6.9 kV vital buses is required by TS 3/4.3.2 Functional Units 9.a and 9.b, and is required to be operable in Modes 1, 2, 3, and 4. Operator action is used as a backup to the LOOP detection logic to trip the diesel generator output breaker manually if the LOOP detection logic were to fail. The HNP design has been evaluated by the NRC in support of HNP Amendment No. 72 dated May 8, 1997.

The diesel generator and its associated control system are designed to automatically initiate the required actions even during EDG testing. If a LOOP signal is received during EDG testing, the following actions occur:

- The non-safety bus and ESF bus tie breaker and the EDG output breaker will trip.
- The EDG remains running, and the governor control transfers to "isochronous" mode from "droop" mode.
- The EDG protective trips (other than engine overspeed, generator differential relay action, generator bus fault, and loss of generator potential transformer circuit) are bypassed.
- Load shed of all breakers from the ESF buses except the 6.9 kV breakers feeding the 480 VAC power center transformers.
- Close the EDG output breaker.
- Connect ESF sequenced loads.

Further, if an SIAS signal is received during EDG testing, the following actions will occur:

- Trip the EDG breaker to the ESF bus.
- The EDG protective trips (other than engine overspeed, generator differential relay action, generator bus fault, and loss of generator potential transformer circuit) are bypassed.
- Transfer the governor to "isochronous" mode from "droop" mode.
- The offsite breaker remains connected to the bus per design, that is, load breakers if closed remain closed; otherwise, loads are sequenced to the bus.

It is recognized that the disturbance of the offsite power grid may result in the loss of the EDG. However, during testing, only one EDG is operated in parallel with offsite power. Because only one EDG will be operated in parallel with the offsite power grid, only one EDG could be affected by any potential disturbance. The HNP switchyard currently has seven connections with the CP&L transmission network; each of these transmission lines is physically independent. The switchyard has one connection with each of the two Startup Auxiliary Transformers (SAT) and each SAT can be fed directly from an associated offsite transmission line. The SATs are the preferred power source for the Class 1E ESF buses. The Technical Specifications are satisfied as long as there are at least two transmission lines in service and two circuits through the SATs to the Class 1E buses.

Normal risk management practices would ensure that this surveillance would not be scheduled during periods when the potential for grid or bus disturbances exists (e.g., during severe weather

conditions or maintenance activities affecting the bus). Specific administrative controls for DG operations during potential unstable offsite grid conditions are contained in the plant-specific operating procedures for the EDGs. In addition, specific administrative controls for the scheduling of maintenance and testing activities affecting plant equipment have been established. These controls include the establishment of specific train work weeks. Cross-train work or testing must be specifically reviewed and approved by site management. Controls are in place to avoid high-risk combinations of equipment being taken out of service at the same time.

The HNP Probabilistic Safety Analysis (PSA) model results are not affected by performance of the EDG 24 hour run in any particular mode of operation. The PSA treats the EDG as available during the conduct of the test. The design of the EDG will allow it to function as designed and supply emergency loads in the event it were called to do so while a 24-hour run is being conducted. Based on there being no change to the EDG availability from a PSA standpoint, the proposed change is acceptable from a risk perspective based on no increase to plant risk being identified.

This justification to remove the restriction of performing the EDG 24-hour run only during shutdown is similar to that proposed by other nuclear plants who have requested similar amendments (Perry Nuclear Power Plant, Catawba Nuclear Station Units 1 and 2, McGuire Nuclear Station Units 1 and 2, and Salem Generating Station Nos. 1 and 2).

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10 CFR 50.92 EVALUATION

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. Carolina Power & Light Company has reviewed this proposed license amendment request and determined that its adoption would not involve a significant hazards consideration. The bases for this determination are as follows:

PROPOSED CHANGE

Harris Nuclear Plant (HNP) proposes revising Technical Specification (TS) 3/4.8.1 as specified below:

Current Technical Specification

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

- f. At least once per 18 months during shutdown by:
  - 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 6800-7000 kW\*\*\* and, during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated 6200-6400 kW\*\*\*.

\*\* This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelude 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 or momentary variations due to changing bus loads shall not invalidate the test.

Proposed Change

The requested change would remove the restriction on performing the 24-hour endurance run test of the EDG every 18 months only during shutdown. The proposed change would delete the words "during shutdown" from 4.8.1.1.2.f, and add the words "during shutdown" to the applicable surveillance requirements under SR 4.8.1.1.2.f (specifically 2, 3, 4, 5, 6, 9, 11, 12, 13, and 14), excluding 4.8.1.1.2.f.7.

## BASIS

This change does not involve a significant hazards consideration for the following reasons:

1. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The EDGs and their associated emergency buses are not accident initiating equipment; therefore, there will be no impact on accident probabilities due to this proposed amendment. The EDGs mitigate the consequences of previously evaluated accidents involving a loss of offsite power. The proposed amendment continues to assure the EDGs perform their function when called upon. The design of the equipment is not being modified. The proposed amendment does not impact the operational characteristics of the EDGs, the interfaces between the EDGs and other plant systems, or the function or reliability of the EDGs. The EDGs remain capable of performing their accident mitigation function. The HNP Probabilistic Safety Analysis (PSA) model results are not affected by the proposed change.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed amendment does not alter the design, configuration, or method of operation of the plant. No physical changes are being proposed, nor any changes to the method of operation of the EDGs or supporting systems. The proposed amendment, in effect, allows a small increase in the duration that the EDGs are operated parallel to the grid for test purposes. No new system interactions are created, and the proposed change does not introduce a new failure mode.

Therefore the proposed change does not create the possibility of a new or different kind of accident.

3. The proposed amendment does not involve a significant reduction in the margin of safety.

The proposed change does not affect the Limiting Conditions for Operation or their Bases that are used to establish any margin of safety. The ability of the EDGs to separate from the offsite power source has been designed and tested per Technical Specification requirements. The proposed change does not involve a change to the plant design or operation and does not affect the availability of any of the required power sources, nor the capability of the EDGs to perform their intended safety function.

Therefore, the proposed change does not involve a significant reduction in the margin of safety.

## CONCLUSION

The foregoing analysis demonstrates that the proposed amendment to HNP TS does not involve a significant increase in the probability or consequences of a previously evaluated accident, does not create the possibility of a new or different kind of accident, and does not involve a significant reduction in a margin of safety.

Based upon the preceding analysis, CP&L concludes that the proposed amendment does not involve a significant hazards consideration.

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ENVIRONMENTAL CONSIDERATIONS

10 CFR 51.22(c)(9) provides criterion for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (3) result in a significant increase in individual or cumulative occupational radiation exposure. Carolina Power & Light Company has reviewed this request and determined that the proposed amendment meets 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 needs to be prepared in connection with the issuance of the amendment. The basis for this determination follows:

PROPOSED CHANGE

Harris Nuclear Plant (HNP) proposes revising Technical Specification (TS) 3/4.8.1 as specified below:

Current Technical Specification

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

f. At least once per 18 months during shutdown by:

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 6800-7000 kW\*\*\* and, during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated 6200-6400 kW\*\*\*.

\*\* 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 or momentary variations due to changing bus loads shall not invalidate the test.

Proposed Change

The requested change would remove the restriction on performing the 24-hour endurance run test of the EDG every 18 months only during shutdown. The proposed change would delete the words "during shutdown" from 4.8.1.1.2.f, and add the words "during shutdown" to the applicable surveillance requirements under SR 4.8.1.1.2.f (specifically 2, 3, 4, 5, 6, 9, 11, 12, 13,

and 14), excluding 4.8.1.1.2.f.7.

### BASIS

The change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in Enclosure 2, the proposed amendment does not involve a significant hazards consideration.
2. The proposed amendment does not result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed change does not involve any new equipment or require existing systems to perform a different type of function than they are currently designed to perform. The change does not introduce any new effluents or increase the quantities of existing effluents. Therefore the proposed amendment does not result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

3. The proposed amendment does not result in a significant increase in individual or cumulative occupational radiation exposure.

The proposed change does not result in any physical plant changes or new surveillances which would require additional personnel entry into radiation controlled areas. Therefore, the proposed amendment does not result in a significant increase in either individual or cumulative occupational radiation exposure.

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PAGE CHANGE INSTRUCTIONS

| <u>Removed Page</u> | <u>Inserted Page</u> |
|---------------------|----------------------|
| 3/4 8-6             | 3/4 8-6              |
| 3/4 8-7             | 3/4 8-7              |
| 3/4 8-8             | 3/4 8-8              |
| 3/4 8-9             | 3/4 8-9              |

ENCLOSURE 5 TO SERIAL: HNP-00-183

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TECHNICAL SPECIFICATION PAGES

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

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4.8.1.1.2 (Continued)

The generator shall be manually synchronized to its appropriate emergency bus, loaded to an indicated 6200-6400\*\*\*kW, 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 rotating basis:

1. Simulated loss of offsite power by itself, and
2. A Safety Injection test signal by itself.

This test, if it is performed so that 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.

f. At least once per 18 months by:

1. DELETED
2. During shutdown, verifying that, on rejection of a load of greater than or equal to 1078 kW, the voltage and frequency are maintained with  $6900 \pm 690$  volts and  $60 \pm 6.75$  Hz, with frequency stabilizing to  $60 \pm 1.2$  Hz within 10 seconds without any safety-related load tripping out or operating in a degraded condition.
3. During shutdown, verifying that the load sequencing timer is OPERABLE with the interval between each load block within 10% of its design interval.
4. During shutdown, simulating a loss of offsite power by itself, and:

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

## ELECTRICAL POWER SYSTEMS

### A.C. SOURCES

#### OPERATING

#### SURVEILLANCE REQUIREMENTS (Continued)

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##### 4.8.1.1.2 (Continued)

- a) Verifying de-energization of the emergency buses and load shedding from the emergency buses.
  - b) Verifying the diesel starts\*\* on the auto-start signal, energizing the emergency buses with permanently connected loads in less than or equal to 10 seconds, energizing the auto-connected shutdown loads through the load sequencer, and operating for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization of these loads, the steady-state voltage and frequency shall be maintained at  $6900 \pm 690$  volts and  $60 \pm 1.2$  Hz.
5. During shutdown, verifying that on a safety injection test.. | signal (without loss of power) the diesel generator starts\*\* | on the auto-start signal and operates on standby for greater than or equal to 5 minutes.
  6. During shutdown, simulating a loss of offsite power in | conjunction with a safety injection test signal, and |
    - a) Verifying de-energization of the emergency buses and load shedding from the emergency buses.
    - b) Verifying the diesel starts\*\* on the auto-start signal, energizing the emergency buses with permanently connected loads in less than or equal to 10 seconds, energizing the auto-connected emergency (accident) loads through the sequencing timers, and operating for greater than or equal to 5 minutes and maintaining the steady-state voltage and frequency at  $6900 \pm 690$  volts and  $60 \pm 1.2$  Hz.
    - c) DELETED

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

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

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4.8.1.1.2 (Continued)

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 6800-7000 kW\*\*\* and, during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated 6200-6400 kW\*\*\*.
8. DELETED
9. During shutdown, verifying the diesel generator's capability | to:
  - a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power.
  - b) Transfer its loads to the offsite power source, and
  - c) Proceed through its shutdown sequence.
10. DELETED
11. During shutdown, verifying the generator capability to | reject a load of between 6200 and 6400 kW without tripping. The generator voltage shall not exceed 110% of the generator voltage at the start of the test during and following the load rejection:
12. During shutdown, verifying that, with the diesel generator | operating in a test mode and 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 energizing the emergency loads with offsite power.

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\*\*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 or momentary variations due to changing bus loads shall not invalidate the test.

## ELECTRICAL POWER SYSTEMS

### A.C. SOURCES

#### OPERATING

#### SURVEILLANCE REQUIREMENTS (Continued)

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##### 4.8.1.1.2 (Continued)

13. During shutdown, verifying that all diesel generator trips, except engine overspeed, loss of generator potential transformer circuits, generator differential, and emergency bus differential are automatically bypassed on a simulated or actual loss of offsite power signal in conjunction with a safety injection signal.
  14. During shutdown, verifying that within 5 minutes of shutting down the EDG, after the EDG has operated for at least 2 hours at an indicated load of 6200-6400 kw, the EDG starts and accelerates to  $6900 \pm 690$  volts and  $60 \pm 1.2$  hz in 10 seconds or less.
- g. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting\*\* both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to at least 450 rpm in less than or equal to 10 seconds.
- h. At least once per 10 years by:
- 1) Draining each main fuel oil storage tank, removing the accumulated sediment, and cleaning the tank using a sodium hypochlorite solution or other appropriate cleaning solution, and
  - 2) Performing a pressure test, of those isolable portions of the diesel fuel oil piping system designed to Section III, subsection ND of the ASME Code, at a test pressure equal to 110% of the system design pressure.

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

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

The generator shall be manually synchronized to its appropriate emergency bus, loaded to an indicated 6200-6400\*\*\*kW, 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 rotating basis:

delete  
①

1. Simulated loss of offsite power by itself, and
2. A Safety Injection test signal by itself.

This test, if it is performed so that 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.

f. At least once per 18 months during shutdown by:

delete

Delete  
①

1. ~~DELETED~~ During Shutdown Add
2. Verifying that, on rejection of a load of greater than or equal to 1078 kW, the voltage and frequency are maintained with  $6900 \pm 690$  volts and  $60 \pm 6.75$  Hz, with frequency stabilizing to  $60 \pm 1.2$  Hz within 10 seconds without any safety-related load tripping out or operating in a degraded condition. During Shutdown Add
3. Verifying that the load sequencing timer is OPERABLE with the interval between each load block within 10% of its design interval. During Shutdown Add
4. Simulating a loss of offsite power by itself, and:

Delete  
①

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

Delete  
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ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

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4.8.1.1.2 (Continued)

- a) Verifying de-energization of the emergency buses and load shedding from the emergency buses.
  - b) Verifying the diesel starts\*\* on the auto-start signal, energizing the emergency buses with permanently connected loads in less than or equal to 10 seconds, energizing the auto-connected shutdown loads through the load sequencer, and operating for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization of these loads, the steady-state voltage and frequency shall be maintained at  $6900 \pm 690$  volts and  $60 \pm 1.2$  Hz.
5. ~~Verifying that on a safety injection test signal (without loss of power) the diesel generator starts\*\* on the auto-start signal and operates on standby for greater than or equal to 5 minutes.~~  
**During Shutdown, Add**
6. ~~Simulating a loss of offsite power in conjunction with a safety injection test signal, and~~  
**During Shutdown, Add**
- a) Verifying de-energization of the emergency buses and load shedding from the emergency buses.
  - b) Verifying the diesel starts\*\* on the auto-start signal, energizing the emergency buses with permanently connected loads in less than or equal to 10 seconds, energizing the auto-connected emergency (accident) loads through the sequencing timers, and operating for greater than or equal to 5 minutes and maintaining the steady-state voltage and frequency at  $6900 \pm 690$  volts and  $60 \pm 1.2$  Hz.
  - c) DELETED

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

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ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

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 6800-7000 kW\*\*\* and, during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated 6200-6400 kW\*\*\*.

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8. ~~DELETED~~ During Shutdown, Add

9. Verifying the diesel generator's capability to:

- a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,
- b) Transfer its loads to the offsite power source, and
- c) Proceed through its shutdown sequence.

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10. ~~DELETED~~ During Shutdown, Add

11. Verifying the generator capability to reject a load of between 6200 and 6400 kW without tripping. The generator voltage shall not exceed 110% of the generator voltage at the start of the test during and following the load rejection:

During Shutdown, Add

12. Verifying that, with the diesel generator operating in a test mode and 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 energizing the emergency loads with offsite power.

\*\*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 or momentary variations due to changing bus loads shall not invalidate the test.

Delete

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

SURVEILLANCE REQUIREMENTS (Continued)

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4.8.1.1.2 (Continued)

13. ~~Verifying that all diesel generator trips, except engine overspeed, loss of generator potential transformer circuits, generator differential, and emergency bus differential are automatically bypassed on a simulated or actual loss of offsite power signal in conjunction with a safety injection signal.~~ **During shutdown, -Add**
14. ~~Verifying that within 5 minutes of shutting down the EDG, after the EDG has operated for at least 2 hours at an indicated load of 6200-6400 kw, the EDG starts and accelerates to  $6900 \pm 690$  volts and  $60 \pm 1.2$  hz in 10 seconds or less.~~ **During shutdown, -Add**
- g. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting\*\* both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to at least 450 rpm in less than or equal to 10 seconds.
- h. At least once per 10 years by:
- 1) Draining each main fuel oil storage tank, removing the accumulated sediment, and cleaning the tank using a sodium hypochlorite solution or other appropriate cleaning solution, and
  - 2) Performing a pressure test, of those isolable portions of the diesel fuel oil piping system designed to Section III, subsection ND of the ASME Code, at a test pressure equal to 110% of the system design pressure.

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