

II. Markup of Proposed Changes

See attached markup of proposed changes to Technical Specifications.

ELECTRICAL POWER SYSTEMS

A.C SOURCES

OPERATING

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 during shutdown by transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:*

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
 - 1) Verifying the fuel level in the day fuel tank;
 - 2) Verifying the fuel level in the fuel storage tank;
 - 3) Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day tank;
 - 4) Verifying the lubricating oil inventory in storage;
 - 5) Verifying the diesel starts from standby conditions and accelerates to at least 514 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:
 - a) Manual, or
 - b) Simulated loss-of-offsite power by itself, or

attains a generator voltage and frequency of

*All planned starts for the purpose of these surveillances may be preceded by an engine prelube period.

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

SURVEILLANCE REQUIREMENTS

4.8.1.1.2 (Continued)

- 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 energizing the emergency loads with offsite power;
 - 11) Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross-connection lines;
 - 12) Verifying that the emergency power sequence timer is OPERABLE with the interval between each load block within $\pm 10\%$ of its design interval;
 - 13) Verifying that the following diesel generator lockout features prevent diesel generator starting:
 - a) Barring device engaged, or
 - b) Differential lockout relay.
 - 14) Simulating a Tower Actuation (TA) signal while the diesel generator is loaded with the permanently connected loads and auto-connected emergency (accident) loads, and verifying that the service water pump automatically trips, and that the cooling tower pump and fan(s) automatically start. After energization the steady state voltage and frequency of the emergency buses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz; and
 - 15) While diesel generator 1A is loaded with the permanently connected loads and auto-connected emergency (accident) loads, manually connect the 1500 hp startup feedwater pump to 4160-volt bus E5. After energization the steady-state voltage and frequency of the emergency bus shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz.
- 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 514 rpm~~ in less than or equal to 10 seconds; and

60 ± 1.2 Hz

III. Retype of Proposed Changes

See attached retype of proposed changes to Technical Specifications. The attached retype reflects the currently issued version of Technical Specifications. Pending Technical Specification changes or Technical Specification changes issued subsequent to this submittal are not reflected in the enclosed retype. The enclosed retype should be checked for continuity with Technical Specifications prior to issuance.

Revision bars are provided in the right hand margin to designate a change in the text.

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

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 during shutdown by transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:*

- a. In accordance with the frequency specified in Table 4.8-1 on a STAGGERED TEST BASIS by:
 - 1) Verifying the fuel level in the day fuel tank;
 - 2) Verifying the fuel level in the fuel storage tank;
 - 3) Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day tank;
 - 4) Verifying the lubricating oil inventory in storage;
 - 5) Verifying the diesel starts from standby conditions and attains a generator voltage and frequency of 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:
 - a) Manual, or
 - b) Simulated loss-of-offsite power by itself, or

*All planned starts for the purpose of these surveillances may be preceded by an engine prelube period.

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

OPERATING

SURVEILLANCE REQUIREMENTS

4.8.1.1.2 (Continued)

- 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 energizing the emergency loads with offsite power;
 - 11) Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross-connection lines;
 - 12) Verifying that the emergency power sequence timer is OPERABLE with the interval between each load block within $\pm 10\%$ of its design interval;
 - 13) Verifying that the following diesel generator lockout features prevent diesel generator starting:
 - a) Barring device engaged, or
 - b) Differential lockout relay.
 - 14) Simulating a Tower Actuation (TA) signal while the diesel generator is loaded with the permanently connected loads and auto-connected emergency (accident) loads, and verifying that the service water pump automatically trips, and that the cooling tower pump and fan(s) automatically start. After energization the steady state voltage and frequency of the emergency buses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz; and
 - 15) While diesel generator 1A is loaded with the permanently connected loads and auto-connected emergency (accident) loads, manually connect the 1500 hp startup feedwater pump to 4160-volt bus E5. After energization the steady-state voltage and frequency of the emergency bus shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz.
- 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 60 ± 1.2 Hz in less than or equal to 10 seconds; and

IV. Safety Evaluation of License Amendment Request 93-11 Proposed Changes

Surveillance Requirement 4.8.1.1.2a.5 states in part:

Verifying the diesel starts from standby conditions and accelerates to at least 514 rpm less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 +/- 4% Vrms and 60 +/- 1.2 Hz within 10 seconds after the start signal.

Engine speed is related to generator frequency by the equation

$$n = \frac{120 \times f}{p}$$

where n = engine speed in revolutions/minute (rpm),
 f = generator frequency in cycles/second (Hz) and,
 p = number of generator poles.

The EDGs at Seabrook Station have 14 poles. Since the number of poles is fixed, engine speed is proportional to generator frequency. Thus, the requirement to verify both parameters, i.e. frequency and speed, is redundant.

Currently, Surveillance Requirement 4.8.1.1.2a.5) requires verification that engine speed is at least 514 rpm and generator frequency is 60 +/-1.2 Hz (58.8 to 61.2 Hz) within 10 seconds of an engine start. An engine speed of 514 rpm corresponds to a generator frequency of 60 Hz, thus within the Surveillance Requirement there are conflicting requirements. One requirement being a minimum frequency of 58.8 Hz, and the other requirement being a minimum engine speed corresponding to a frequency of 60 Hz. North Atlantic believes that the requirement to verify an engine speed of 514 rpm is in error and that the correct value should be 504 rpm which corresponds to a generator frequency of 58.8 Hz. However, to be consistent with NUREG 1431, Standard Technical Specifications Westinghouse Plants, and since engine speed and generator frequency are synonymous, North Atlantic is proposing to delete the engine speed requirement and only require verification of generator frequency.

The requirement to verify generator frequency is consistent with the testing methodology described in Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants". Regulatory Guide 1.108 has been withdrawn by the NRC with the stipulation that the withdrawal does not alter any prior or existing licensing commitments based on its use. In the Bases for Technical Specification 3/4.8.1, North Atlantic stated that the Surveillance Requirements for demonstrating the OPERABILITY of the EDGs were in accordance with Revision 1 to Regulatory Guide 1.108.

The intent of the requirement, to verify that the EDGs are at rated speed, is to demonstrate the capability to attain the frequency required for re-energization of the emergency electrical busses and operation of safety related equipment as assumed in the safety analyses. The EDG Surveillance Requirements will continue to verify that the EDGs attain the required frequency within the specified time. Demonstrating that the EDGs attain the required frequency within the specified time assures that the assumptions in the Bases for the Technical Specifications remain valid and the response to an accident remains unchanged.

North Atlantic believes that the requirement to verify that generator frequency is 60 ± 1.2 Hz is adequate to assure that the EDGs are capable of fulfilling their intended safety function, that the deletion of the requirement to verify engine speed does not detract from this capability, and that there is no significant safety impact associated with the proposed License Amendment Request.

V. Determination of Significant Hazards for License Amendment Request 93-09 Proposed Changes

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

The accident of concern is a Loss of Coolant Accident (LOCA). The function of the EDGs during a LOCA is to provide electrical power to safety related equipment since the LOCA is assumed to occur concurrent with a Loss of Offsite Power (LOP).

Deleting the requirement to verify that the EDGs accelerate to at least 514 rpm will not reduce the adequacy of the Surveillance Requirement since it will still be demonstrated that the EDGs attain a frequency of 60 +/- 1.2 Hz within 10 seconds. Thus there will be no reduction in the adequacy of the test which demonstrates the capability of the EDGs to start during an accident and attain a frequency acceptable for operation of safety related equipment.

The proposed License Amendment Request does not change the function or operation of any plant equipment or affect the response of that equipment if it is called upon to operate. The response of the diesel generators and the electrical system as described in UFSAR Section 15.2.6 will be unchanged as a result of the proposed changes. Therefore, the diesel generators will continue to function as designed with no adverse affect from the proposed change and there will be no significant increase in the probability of an accident previously evaluated.

The proposed revision of the test sequence does not alter the operation of the diesel generators or the associated response circuitry. The proposed test sequence continues to verify that the diesel generators will respond to a LOP/SI and re-energize the emergency busses. Since the plant response to an accident will not change there is no change in the potential for an increase in the release of radiation to the public. As there is no change in the potential for an increase in the release of radiation to the public it follows that the consequences of an accident, as measured in terms of dose, will not increase significantly due to the proposed revision to the diesel generator testing methodology.

- (2) The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed revision of the diesel generator testing methodology does not affect the operation of any plant equipment or introduce any new failure mechanisms. The proposed revision does not affect the test results and the diesel generators are still verified to be operable and their response to an LOP/SI will be unchanged. Therefore the previous accident analyses are unchanged and bound all expected plant transients. There are no new accident scenarios created. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

- (3) The proposed changes do not result in a significant reduction in the margin of safety.

The Bases of Technical Specification 3/4.8, Electrical Power Systems, state that the operability of the AC and DC power systems and the associated distribution systems ensure that sufficient power will be

available to supply the safety related equipment required for safe shutdown of the plant and mitigation of accident conditions. The Bases also state that the surveillance requirements for determining operability of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.108 Revision 1. Regulatory Guide 1.108 has been withdrawn by the NRC with the stipulation that the withdrawal does not alter any prior or existing licensing commitments based on its use. In the Bases for Technical Specification 3/4.8.1, North Atlantic stated that the Surveillance Requirements for demonstrating the OPERABILITY of the EDGs were in accordance with Revision 1 to Regulatory Guide 1.108. The proposed changes to the Surveillance Requirements for the diesel generators will continue to verify that the diesel generators are operable. The proposed testing meets the intent of Revision 1 to Regulatory Guide 1.108. Therefore, the assumptions in the Bases of Technical Specifications are not affected by the proposed change and the margin of safety is not significantly reduced.

VI. Proposed Schedule for License Amendment Issuance and Effectiveness

North Atlantic requests NRC review of License Amendment Request 93-11 and issuance of a license amendment having immediate effectiveness by December 15, 1993.

VII. Environmental Impact Assessment

North Atlantic has reviewed the proposed license amendment against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, nor increase the types and amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, North Atlantic concludes that the proposed change meets the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an Environmental Impact Statement.