

March 7, 2002

Mr. Ted C. Feigenbaum  
Executive Vice President and  
Chief Nuclear Officer  
North Atlantic Energy Service Corporation  
c/o Mr. James M. Peschel  
P.O. Box 300  
Seabrook, NH 03874

SUBJECT: SEABROOK STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE:  
CHANGES TO ELECTRICAL POWER SYSTEMS TECHNICAL  
SPECIFICATIONS (TAC NO. MB1292)

Dear Mr. Feigenbaum:

The Commission has issued the enclosed Amendment No. 80 to Facility Operating License No. NPF-86 for the Seabrook Station, Unit No 1, in response to your application dated February 28, 2001, as supplemented on July 31, 2001, and December 21, 2001. The amendment changes Seabrook Station Technical Specification 3/4.8.1.1 A.C. Sources - Operating. The changes are related to allowed outage time for restoration or verification of the operability of offsite power sources and to emergency diesel generator surveillance requirements.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

*/RA/*

George F. Wunder, Project Manager, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-443

Enclosures: 1. Amendment No. 80 to NPF-86  
2. Safety Evaluation

cc w/encls: See next page

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NORTH ATLANTIC ENERGY SERVICE CORPORATION, ET AL.\*

DOCKET NO. 50-443

SEABROOK STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 80  
License No. NPF-86

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by the North Atlantic Energy Service Corporation, et al. (the licensee), dated February 28, 2001, as supplemented July 31, 2001, and December 21, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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\*North Atlantic Energy Service Corporation (NAESCO) is authorized to act as agent for the: North Atlantic Energy Corporation, Canal Electric Company, The Connecticut Light and Power Company, Great Bay Power Corporation, Hudson Light & Power Department, Massachusetts Municipal Wholesale Electric Company, Little Bay Power Corporation, New England Power Company, New Hampshire Electric Cooperative, Inc., Taunton Municipal Light Plant, The United Illuminating Company, and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-86 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 80, and the Environmental Protection Plan contained in Appendix B are incorporated into Facility License No. NPF-86. NAESCO shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 90 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA CGratton for/*

James W. Clifford, Chief, Section 2  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: March 7, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 80

FACILITY OPERATING LICENSE NO. NPF-86

DOCKET NO. 50-443

Replace the following pages of the Appendix A, Technical Specifications, with the attached revised pages as indicated. The revised pages are identified by amendment number and contain marginal lines indicating the area of change.

Remove

3/4 8-1  
3/4 8-2  
3/4 8-2a  
3/4 8-3  
3/4 8-4  
3/4 8-5  
3/4 8-6  
3/4 8-7  
3/4 8-8  
B 3/4 8-1 through  
B 3/4 8-19

Insert

3/4 8-1  
3/4 8-2  
3/4 8-2a  
3/4 8-3  
3/4 8-4  
3/4 8-5  
3/4 8-6  
3/4 8-7  
3/4 8-8  
B 3/4 8-1 through  
B 3/4 8-19

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 80 TO FACILITY OPERATING LICENSE NO. NPF-86  
NORTH ATLANTIC ENERGY SERVICE CORPORATION  
SEABROOK STATION, UNIT NO. 1  
DOCKET NO. 50-443

## 1.0 INTRODUCTION

By letter dated February 28, 2001, as supplemented by letters dated July 31 and December 21, 2001, North Atlantic Energy Corporation (North Atlantic, the licensee) proposed changes to the Seabrook Station Technical Specification (TS) 3/4.8.1.1 A.C. Sources - Operating. The proposed changes are related to allowed outage time (AOT) for restoration or verification of the operability of offsite power sources and to emergency diesel generator (EDG) surveillance requirements (SRs). Specifically, North Atlantic has proposed changes to Limiting Conditions for Operation (LCO) 3.8.1.1 Actions a, b, c, and e and surveillance requirements (SRs) 4.8.1.1.1b, 4.8.1.1.2, 4.8.1.1.2a.5), 4.8.1.1.2a.6), 4.8.1.1.2b, 4.8.1.1.2e, 4.8.1.1.2f.4)b), 4.8.1.1.2f.5), 4.8.1.1.2f.7), 4.8.1.1.2f.8), 4.8.1.1.2f.13) and 4.8.1.1.2g. The July 31, 2001, and December 21, 2001, letters were within the scope of and did not affect the staff's finding of no significant hazards considerations.

## 2.0 BACKGROUND

General Design Criterion (GDC)-17, "Electric Power Systems," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 requires, in part, that nuclear power plants have an onsite and offsite electric power system to permit the functioning of structures, systems and components important to safety. The onsite system is required to have sufficient independence, redundancy and testability to perform its safety function, assuming a single failure, and the offsite system is required to be supplied by two independent circuits. In addition, GDC-17 requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as the result of loss of power from the unit, the offsite transmission network, or the onsite power supplies. GDC-18, "Inspection and Testing of Electric Power Systems," requires that electric power systems important to safety be designed to permit appropriate periodic inspection and testing.

As described in the licensee's February 28, 2001, application, Seabrook Station is connected to the New England grid via three 345kV offsite transmission lines. The transmission lines serve as the preferred AC electrical offsite power sources to the Seabrook Station. The transmission lines terminate in a switchyard that is designed and arranged so as to provide two physically

independent circuits between the offsite transmission network and the onsite Class 1E Distribution System.

The onsite Class 1E distribution system is divided into redundant load groups so that the loss of any one load group does not prevent the minimum safety functions from being performed. Each safety-related train is connected to offsite power via the train's unit auxiliary transformer or reserve transformer. Each safety-related train has one EDG which serves as a standby power source. During normal plant operations, the EDGs are in standby condition and start automatically if there is a loss of power on their respective emergency bus or upon receipt of a safety injection signal from the Engineered Safety Features Actuation System. Each EDG has a continuous rating of 6083 kW. The EDGs are designed to start from standby conditions and attain rated voltage and frequency as well as energizing the emergency busses with permanently connected loads within 10 to 12 seconds

### 3.0 EVALUATION

#### 3.1 LCO 3.8.1.1 Action a

This LCO currently requires, in part, that with one offsite power source inoperable that the licensee demonstrate the operability of the remaining source within 1 hour and at least once per 8 hours thereafter and restore at least two offsite circuits to operable status within 24 hours. The licensee has proposed to extend the AOT for restoring at least two offsite circuits to operable status from the current 24 hours to 72 hours. The licensee states that the proposed change will provide additional flexibility to investigate the cause of the inoperability, determine the appropriate remedial actions, and schedule the necessary resources without undue time pressure.

The current 24-hour AOT was based on the staff position taken during the development of TS for Seabrook Station, that the insulators used in the SF6 lines have high failure rates and the repair times are longer than those observed for aerial lines. However, during the development of the TS, the staff suggested that the applicant may want to re-examine this AOT if the number of offsite power lines into the site are increased or the failure rate of the SF6 insulators becomes favorable. The licensee states that no additional offsite lines are added into the site; however, since the issuance of the operating license, the reliability of SF6 has significantly improved. Historical data of SF6 failures as well as modifications indicate a history of favorable experience that justifies an AOT extension to 72 hours. Some insulators were replaced with a new design in outage 01 (1991) and outage 05 (1997). There have been no insulator failures in the improved design, and no failures in the original design since 1992.

Based on the improved reliability of the SF6 insulators, the staff concludes that the proposed AOT extension for the current 24 hours to 72 hours for restoring two offsite circuits to operable status is acceptable. Also, the 72-hour AOT is consistent with the guidance of Regulatory Guide (RG) 1.93, "Availability of Electric Power Sources," and NUREG-1431, "Improved Standard TSs for Westinghouse Plants.



### 3.2 LCO 3.8.1.1 Action b

This LCO currently requires, in part, that with one EDG inoperable the licensee demonstrate the operability of the remaining EDG within 8 hours. The licensee has proposed to extend the time for demonstrating operability of the remaining EDG from 8 hours to 24 hours. The licensee states that the current 8-hours AOT imposes unnecessary time pressure to remedy the inoperability, particularly when it is desirable to avoid the need for starting the remaining EDG to demonstrate operability. Increasing the time-period to 24 hours for requiring a start of the remaining EDG would provide additional time to investigate the cause of the inoperability, determine the appropriate remedial actions, and schedule the necessary resources. The staff agrees that 24 hours is a reasonable time frame to ensure operability of the remaining EDG; therefore, the proposed change is acceptable. In addition, the proposed change is consistent with NUREG-1431.

The licensee has proposed to change the footnote associated with Actions b and c. The proposed change would expand the footnote statement to exclude operability verification of the remaining EDG if it has been successfully operated within the last 24 hours or if it is currently operating. The licensee states that this change would reduce repetitive starting by providing clarification to the operator and avert the need for retesting the operable EDG when cascading into another Action statement, e.g., cascading from a condition described in Action c to Action b. The staff finds the proposed change to be consistent with Generic Letter (GL) 84-15, "Proposed Staff Actions To Improve and Maintain Diesel Generator Reliability," to reduce unnecessary EDG starts and to be acceptable.

The licensee has also proposed to link this LCO with Action d (ensuring that all required systems, subsystems, trains, components, and devices that depend on the remaining operable EDG as a source of emergency power are operable and that the steam-driven emergency feedwater pump is operable when in Mode 1, 2, or 3). This linkage is to serve as an operator reminder that the additional actions specified in Action d must be completed as well. The staff finds the proposed change to be conservative and acceptable.

### 3.3 LCO 3.8.1.1 Action c

This LCO currently requires, in part, that with one offsite and one EDG inoperable, demonstrate the operability of the remaining offsite source within one hour and at least once 8 hours thereafter. Demonstrate the operability of the remaining EDG within 8 hours. Restore at least one of the inoperable sources to operable status within 12 hours. Restore at least two offsite circuits to operable status within 24 hours and two EDGs to operable status within 72 hours from the time of initial loss. The licensee has proposed to increase the time for restoration of at least two offsite power sources from 24 hours to 72 hours to be consistent with the proposed 72-hour AOT extension in Action a, as discussed above. The staff finds the proposed change to be consistent with RG 1.93 and to be acceptable.

The licensee has also proposed to link this LCO with Action d. This linkage is to serve as an operator reminder that the additional actions specified in Action d must be completed as well. The staff finds the proposed change to be conservative and acceptable.

#### 3.4 LCO 3.8.1.1 Action e

This LCO currently requires, in part, that with two of the required offsite circuits inoperable, the licensee must restore at least one of inoperable offsite source to operable status within 24 hours. With only one offsite source restored, the licensee must restore at least two offsite circuits to operable status within 24 hours from the time of initial loss. The licensee has proposed to change the 24-hour requirement to 72 hours to restore at least two offsite circuits to operable status to be consistent with the proposed 72-hour AOT extension in Actions a and c, as discussed above. The staff finds the proposed change to be consistent with the RG 1.93 and to be acceptable.

#### 3.5 SR 4.8.1.1.1b

This SR currently requires demonstration, at least once per 18 months, during shutdown, of transferring (manually and automatically) unit power supply from the normal circuit to the alternate circuit. The licensee has proposed to delete “during shutdown” and reference a footnote that states that this SR shall not be performed in Modes 1 or 2. The licensee states that it would provide additional operational flexibility for planning and scheduling purposes by not limiting performance of the surveillance solely to the shutdown modes. The staff believes that as long as this SR is not performed in Modes 1 or 2, it should not cause any perturbation to the electrical distribution systems; therefore, the proposed change is acceptable. In addition the proposed change is consistent with NUREG-1431.

#### 3.6 SR 4.8.1.1.2

The proposed change to this SR inserts an additional asterisk to its associated footnote for correct referencing purposes only. The staff finds the proposed change to be administrative and acceptable.

#### 3.7 SR 4.8.1.1.2a.5)

This SR currently requires verification that the EDG starts from standby conditions and attains voltage and frequency of  $4160\pm 420$  volts and  $60\pm 1.2$ Hz within 10 seconds after the start signal. The EDG shall be started for this test by using one of the following signals:

- i. Manual, or
- ii. Simulated loss-of-offsite power by itself, or
- iii. Simulated loss-of-offsite power in conjunction with a Safety Injection (SI) Actuation test signal, or

iv. An SI Actuation test signal by itself.

The licensee has proposed to revise this SR to delete fast start of the EDG from the monthly testing and use modified start procedures involving idling and gradual acceleration to synchronous speed. Should the modified start procedures not be used a footnote is added to SR 4.8.1.1.2a.5) would direct continued fast starting as currently required. The licensee states that demonstration of the 10-second start capability would continue to be satisfied by a proposed addition of SR 4.8.1.1.2e on a 184-day frequency (see evaluation 3.9 below). Limiting the fast-starts to a 184-day frequency instead of once every month would significantly reduce the amount of stress and wear on the EDG and its components and systems. The staff finds the proposed change to be consistent with the guidelines of GL 84-15 to reduce engine wear and to be acceptable.

The licensee has also proposed to delete the currently prescribed optional EDG starting methods because the prescribed starting methods may prohibit gradual acceleration. The staff agrees that the prescribed starting methods may prohibit gradual starting of the EDGs and, therefore, the proposed change is acceptable. The proposed change is also consistent with RG 1.93 and NUREG-1431.

3.8 SR 4.8.1.1.2a.6)

This SR currently requires verification that the generator is synchronized, loaded to greater than or equal to 5600 kW, and less than or equal to 6100 kW, and operates at least 60 minutes. The licensee has proposed to load the EDG gradually to assure that it is not subjected to accelerated degradation. The licensee states that fast loading adversely affects EDG reliability. The staff finds the proposed change to be consistent with the guidelines of GL 84-15 and to be acceptable.

Additionally, the licensee has proposed to change this SR to include an additional criterion to the 60 minutes minimum operating time to ensure the engine attains stable operating temperature. The licensee states that attaining stable temperatures will ensure that all engine parts come to an equilibrium temperature before unloading the EDG, thereby minimizing the potential additional stress and wear due to uneven thermal growth. The proposed change will add "until stable operating temperature is attained," after "at least 60 minutes," in this SR. The staff finds the proposed change to be consistent with GL 84-15 to reduce stress and wear and to be acceptable.

The licensee has proposed to modify the footnote associated with this SR to state that the surveillance shall be preceded by and immediately follow without shutdown a successful performance of the 31-day or 184-day start surveillance. The licensee states that the change will reduce unnecessary additional EDG starts. The staff finds the proposed change to be consistent with GL 84-15 to reduce unnecessary starts and to be acceptable. The second sentence of the current footnote reads...

“The load range is provided to preclude routine overloading of the diesel generator.”

The licensee has proposed to delete this sentence because the information conveyed in it is better suited in the Bases. The staff finds this change to be administrative and acceptable.

### 3.9 SR 4.8.1.1.2b

This SR currently requires that 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, that the licensee check for and remove accumulated water from the day fuel tank. The licensee has proposed to delete the requirement to check and remove any accumulated water from the day tank whenever the EDG operates for 1 hour or greater. Checking for and removing accumulated water would still be done at least once per 31 days. The licensee states that operating experience has indicated that the presence of water following a run of 1 hour or more is not a significant problem. Based on the above, the staff concludes that the removal of water from the EDG day fuel tank once every 31 days provides reasonable assurance about the integrity of the fuel oil; therefore, the proposed change is acceptable. The proposed change is also consistent with NUREG-1431.

### 3.10 SR 4.8.1.1.2e

This SR currently requires that at least once every 31 days and after an extended operation of greater than 24 hours, the licensee visually inspect the lagging in the area of the flanged joints on the silencer outlet of the diesel exhaust system for leakage. The licensee has proposed to relocate this requirement to the Seabrook Station Technical Requirements (SSTRs) manual. The SSTR is a licensee-controlled document. Any changes to the SSTR are subject to the provisions of 10 CFR 50.59. The licensee states that this requirement is specific to Seabrook Station and is not part of NUREG-1431. Furthermore, the requirement does not have immediate impact on EDG operability and does not meet the four criteria specified in 10 CFR 50.36 for inclusion in the TS. Because this SR does not meet the criteria of 10 CFR 50.36 for inclusion in the TS, the staff concludes that the relocation of this SR requirement from the TS to the SSTR manual is acceptable.

In place of current SR 4.8.1.1.2e, the licensee has proposed to add a new SR for fast starting the EDG on a 184 day frequency. This new requirement would require that at least every 184 days the licensee verify that the EDG starts from standby condition and achieves the required voltage and frequency within 10 seconds after the start signal. The licensee states that limiting the fast-starts to a 184-day frequency instead of once every month would significantly reduce the amount of stress and wear on the EDG and its components and systems. The staff finds that the proposed change will reduce stress and wear in accordance with GL 84-15, and that the proposed change is in accordance with RG 1.93; therefore, the staff concludes that the proposed change is acceptable.

The licensee has proposed to add a footnote to link SR 4.8.1.1.2e with the SR 4.8.1.1.2a.6) loading requirements and to state that performance of this surveillance satisfies SR 4.8.1.1.2a.5). The licensee states that the proposed change serves as a reminder that the

requirement of SR 4.8.1.1.2a.6) must also be met and provides clarification to avoid an unnecessary EDG start to satisfy SR 4.8.1.1.2a.5). The staff finds the proposed addition of the note to be conservative and acceptable.

### 3.11 SR 4.8.1.1.2f.4)b)

This SR currently requires, in part, verification that the EDG starts from standby conditions on the simulated loss-of-offsite power signal, energizes the emergency busses with permanently connected loads within 12 seconds. The licensee has proposed to add a footnote to perform this SR with the engine at or near normal operating temperature rather than from the standby conditions.

The licensee states that starting the EDG from standby condition still contributes to engine degradation and that starting the engine from normal conditions would also benefit outage planning and scheduling to shorten the length of the outage by not forcing a wait for the engine to cool down before starting the next test. In addition the licensee states that two other plants currently perform similar testing as that which is being proposed. At Seabrook, the current EDG surveillance test procedures have the licensee perform the EDG Safety Injection (SI) start for SR 4.8.1.1.2.f.5) first, the loss of offsite power (LOOP) start for SR 4.8.1.1.2.f.4) second and the LOOP/SI start for SR 4.8.1.1.2.f.6) third. The licensee states that between the SR 4.8.1.1.2.f.5) and 4) starts, and between the 4.8.1.1.2.f.4) and 6) starts, accelerated cooling is used to expeditiously cool the engine from operating temperature to standby conditions. After EDG shutdown, EDG room supply and exhaust fans are operated to accelerate cooldown. The licensee states that it will be performing the LOOP/SI test for SR 4.8.1.1.f.6) first from standby conditions. SR 4.8.1.1.f.4) related to LOOP start will be performed at or near normal operating temperatures. The accelerating cooling will not be needed between tests. Based on the above, the staff concludes that the proposed change to perform the LOOP start for SR 4.8.1.1.f.4) at or near normal operating temperatures is acceptable. The purposes of SR 4.8.1.1.f.4) are 1) to verify all actions encountered from the LOOP signal, including shedding of the non-essential loads and energizing of the emergency busses and respective loads from the EDG, and 2) to demonstrate the capability of the EDG to achieve automatically the required voltage and frequency within the specified time. The ability of the EDG to reach required voltage and frequency from standby conditions will be demonstrated on a 184 day interval by the addition of SR 4.8.1.1.2.e and on an 18-month interval under existing SR 4.8.1.1.2f.6; therefore, requiring the licensee to cool the EDG solely for the purpose of conducting the SI start test is not necessary.

### 3.12 SR 4.8.1.1.2f.5

This SR currently reads as follows:

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

The licensee has proposed to revise this SR as follows:

Verifying that on an SI actuation test signal, without loss-of-offsite power, the diesel generator starts from standby conditions on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be greater than or equal to 3740 volts and 58.8 Hz within 10 seconds after the auto-start signal; the steady-state generator voltage and frequency shall be maintained at  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz during this test.

The licensee states that the proposed change will allow for the potential "overshoot" in voltage and frequency during initial EDG start. This SR is conducted with EDG unloaded. During the initial EDG start, voltage and frequency overshoots can occur that could cause the EDG to fail the surveillance. Such an overshoot does not necessarily indicate a degradation of the EDG governor or of the voltage regulator. The staff was concerned that although the proposed new SR to "verify voltage and frequency shall be greater than or equal to 3740 volts and 58.8 Hz within 10 seconds after the start signal," continues to assure that the EDG is capable of performing its design function within the required time, it does not specify the time when the EDG actually achieves steady-state voltage  $4160 \pm 420$  volts and frequency  $60 \pm 1.2$  Hz. The staff wants to ensure that deteriorating performances of the voltage regulator and governor associated with steady-state operation will be detected. The staff informed the licensee that the time for an EDG to reach steady-state required voltage and frequency must be monitored and trended to ensure that there is no degradation of the governor and the voltage regulator in this regard. In a letter dated December 21, 2001, the licensee revised the Bases Sections of this SR as well as SR 4.8.1.1.2e, 4.8.1.1.2f.7 and 4.8.1.1.2g to state that the time, voltage and frequency for the EDG to reach steady-state operation shall be periodically monitored and shall be trend evaluated to identify degradation of governor and voltage regulator performance. The staff finds this to be acceptable.

The licensee has proposed to add a footnote that would state that starting of the EDG per this SR may be performed with the engine at or near normal operating temperature. The licensee states that starting the EDG from standby condition contributes to engine degradation and that starting the engine from normal conditions would also benefit outage planning and scheduling to shorten the length of the outage by not forcing the licensee wait for the engine to cool down

before starting the next test. As discussed in SR 4.8.1.1.2f.4)b) above, the staff finds the addition of the proposed note to be acceptable. The purpose of the this SR is to verify the capability of the EDG to start automatically on an SI signal and achieve the required voltage and frequency within the specified time. The ability of the EDG to reach required voltage and frequency from standby conditions will be demonstrated on a 184 day interval by the addition of SR 4.8.1.1.2.e and on an 18-month interval under existing SR 4.8.1.1.2f.6; therefore, requiring the licensee to cool the EDG solely for the purpose of conducting the SI start test is not necessary.

### 3.13 SR 4.8.1.1.2f.7

This SR currently requires verification that the EDG operates for at least 24 hours. During the first 2 hours of this test, the EDG shall be loaded to greater than or equal to 6363 kW and less than or equal to 6700 kW (110 percent of the continuous rating of 6100 kW). During the remaining 22 hours of this test, the EDG shall be loaded to greater than or equal to 5600 kW and less than or equal to 6100 kW. The generator voltage and frequency shall be  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz within 10 seconds after the start signal; the steady-state generator voltage and frequency shall be maintained within these limits during the test. Within 5 minutes after completing this 24-hour test, verify that the EDG voltage and frequency are  $4160 \pm 420V$  and  $60 \pm 1.2$  Hz, respectively, within 10 seconds, and operates for longer than 5 minutes.

The licensee has proposed to eliminate the 2-hour part of the 24-hour test which is currently performed at 110% of the EDG continuous rated load provided the auto-connected loads do not exceed the EDG continuous rating of 6100 kW. This is because at Seabrook Train A is the most heavily loaded bus with a maximum calculated load of 5495 kW while the maximum expected accident load is approximately 3600 kW; both of these are well below the EDG continuous rating of 6100 kW. The licensee has also proposed that should the auto-connected loads in the future exceed the EDG continuous rating of 6100 kW, then the 2-hour test at 110% of continuous load run would continued to be performed. The revised SR 4.8.1.1.2f.7 reads as follows...

Verifying full load carrying capability of the diesel generator for an interval of not less than 24 hours:

- a) At a load greater than or equal to 5600 kW and less than or equal to 6100 kW, or
- b) Should auto-connected loads be equal to or greater than 6100 kW;
  1. Verify the diesel generator operates for an interval of not less than 2 hours at a load greater than or equal to 6363 kW and less than or equal to 6700 kW. For the remaining hours, at a load greater than or equal to 5600 kW and less than or equal to 6100 kW, and
  2. Verify that auto-connected loads to each diesel generator

do not exceed the short time rating of 6700 kW.

The staff has concluded that, since the maximum loading on the EDGs does not exceed the continuous rating of 6100 kW, there is no benefit from subjecting the EDG to an additional load of 10% of its continuous rated load (6700 kW). Further, should the loads be added in the future such that the load on the bus exceed the continuous rating of the EDGs, the licensee will perform the first 2-hour part of the test at a load greater than or equal to 6363 kW and less than or equal to 6700 kW (110% of the EDG continuous rating) and then the remaining hours at a load greater than or equal to 5600 kW and less than or equal to 6100 kW. The staff finds the proposed changes to be acceptable.

The licensee has proposed to separate the last part of this SR related to 5-minute hot restart test from SR 4.8.1.1.2f.7 and relocate it as SR 4.8.1.1.2f.8 (The current SR 4.8.1.1.2f.8 will be incorporated in SR 4.8.1.1.2f.7 as discussed below). This will allow the 5-minute hot restart test to be a stand-alone surveillance without tying it to the 24-hour test. The staff finds the proposed change to be consistent with RG 1.93 and to be acceptable.

The licensee has proposed to delete the wording in the footnote linking the 5-minute hot restart to the 24-hour test. Since the 5-minute hot restart test would be performed as a separate surveillance, the footnote will no longer be applicable. Therefore, the proposed change is acceptable.

#### 3.14 SR 4.8.1.1.2f.8

This SR currently requires verification that the auto-connected loads to each EDG do not exceed the short-term rating of 6697 kW. The licensee has proposed to incorporate the requirement of this SR in to SR 4.8.1.1.2f.7. As discussed in SR 4.8.1.1.2f.7) above, should the future loading on the EDGs become equal to or greater than 6100 kW only then this SR will be applicable. Based on the above, the staff finds the proposed change to be acceptable.

#### 3.15 SR 4.8.1.1.2f.13

This SR currently requires verification that the following lockout features prevent EDG starting:

- a) Barring device engaged, or
- b) Differential lockout relay.

The licensee has proposed to relocate this SR to the SSTR manual. The SSTR is specifically referenced in Chapter 16.3 of the FSAR and is considered to be a part of the FSAR; therefore, changes to the SSTR are subject to the provisions of 10 CFR 50.59. The licensee states that this SR is not associated with operability determination of the EDG, is not included in the improved Standard Technical Specifications for Westinghouse Plants (ITS) and does not meet the four criteria specified in 10 CFR 50.36 for inclusion in the TS. Since this SR is simply being relocated to the SSTR manual and any future change to the requirements would require a 10

CFR 50.59 evaluation. The staff finds the proposed relocation to be acceptable because this SR does not meet the criteria of 10 CFR 50.36 for inclusion in the TS.

### 3.16 SR 4.8.1.1.2g

This SR currently requires that at least once per 10 years or after any modifications which could affect EDG interdependence by starting both EDGs simultaneously during shutdown, and verifying that both EDGs accelerate to  $60 \pm 1.2$  Hz in less than or equal to 10 seconds. The licensee has proposed two changes to this SR. The first change is an editorial change to prevent starting the EDG from cold ambient conditions by stating that both EDGs shall be started simultaneously from standby condition. The staff finds the proposed change to be consistent with the guidelines of GL 84-15 to reduce EDG cold starts and to be acceptable.

The second change revises the surveillance criteria to address potential "overshoot" in voltage during initial EDG start or frequency outside the stated allowed limits due to the EDG being tested in the unloaded condition. In particular, the proposed change states that the generator voltage and frequency will be greater than 3740 volts and 58.8 Hz, respectively, within 10 seconds after the start signal and that the steady state voltage and frequency will be 4160 +/- 420 volts and 60 +/- 1.2 Hz., respectively. The staff finds the proposed change to be conservative and acceptable.

## 4.0 SUMMARY

The staff finds that the proposed changes meet the guidance of GL 84-15 and consistent with RG 1.93 and NUREG-1431. The staff concludes that Seabrook continues to meet the requirements of GDC-17 and, therefore, the proposed changes are acceptable.

## 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Hampshire and Massachusetts State officials were notified of the proposed issuance of the amendment. The State officials had no comments.

## 6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes SRs. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (66 FR 20007). Accordingly, the 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 need be prepared in connection with the issuance of the amendment.

## 7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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