

North
Atlantic

SEABROOK STATION UNIT 1

Facility Operating License NPF-86
Docket No. 50-443

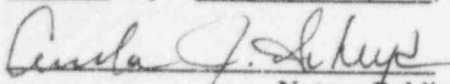
License Amendment Request No. 96-06
AC SOURCES—EMERGENCY DIESEL GENERATOR REQUIREMENTS
(TAC M96640)

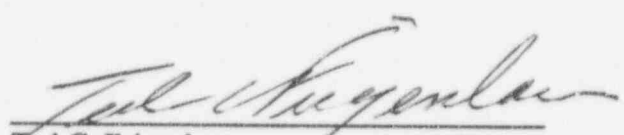
This License Amendment Request is submitted by North Atlantic Energy Service Corporation pursuant to 10CFR50.90. The following information is enclosed in support of this License Amendment Request:

- Section I - Introduction and Safety Assessment for Proposed Changes
- Section II - Markup of Proposed Changes
- Section III - Retype of Proposed Changes
- Section IV - Determination of Significant Hazards for Proposed Changes
- Section V - Proposed Schedule for License Amendment Issuance and Effectiveness
- Section VI - Environmental Impact Assessment

Sworn and Subscribed
before me this

16th day of October, 1996


Notary Public


Ted C. Feigenbaum
Executive Vice President and Chief Nuclear Officer

**THE FOLLOWING INFORMATION IS PROVIDED IN SUPPORT OF
LICENSE AMENDMENT REQUEST - LAR 96-06**

I. INTRODUCTION AND SAFETY ASSESSMENT OF PROPOSED CHANGES

Refer to the enclosed introduction and safety assessment of the proposed changes to the Technical Specifications addressed by this license amendment request.

II. MARKUP OF PROPOSED CHANGES

Refer to the attached markup of the proposed changes to the Technical Specifications. The attached markup reflects the currently issued revision of the Technical Specifications listed below. Pending Technical Specifications or Technical Specification changes issued subsequent to this submittal are not reflected in the enclosed markup.

The following Technical Specifications are included in the attached markup:

Technical Specification	Title	Page(s)
LCO - 3.8.1.1.b.2	A.C. Sources-Operating	3/4 8-1
SR 4.8.1.1.2.f	A.C. Sources-Operating	3/4 8-5
SR 4.8.1.1.2.f.14	A.C. Sources-Operating	3/4 8-8
SR - 4.8.1.1.2.h.2	A.C. Sources-Operating	3/4 8-9

III. RETYPE OF PROPOSED CHANGES

Refer to the attached retype of the proposed changes to the Technical Specifications. The attached retype reflects the currently issued version of the 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.

IV. DETERMINATION OF SIGNIFICANT HAZARDS FOR PROPOSED CHANGES

Refer to the enclosed determination of significant hazards for the proposed changes to the Technical Specifications addressed by this license amendment request.

V. PROPOSED SCHEDULE FOR LICENSE AMENDMENT ISSUANCE AND EFFECTIVENESS

North Atlantic requests NRC review of License Amendment Request 96-06 and issuance of a license amendment by April 1, 1997, having immediate effectiveness and implementation required within 60 days.

VI. 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 effluent 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.

Section I

Introduction and Safety Assessment for the Proposed Changes

I. INTRODUCTION AND SAFETY ASSESSMENT OF PROPOSED CHANGES

A. Introduction

License Amendment Request (LAR) 96-06 proposes four changes related to emergency diesel generator (EDG) requirements contained in Technical Specification (TS) 3/4.8.1, "AC Sources". They are:

1. **Minimum Volume;** Limiting Condition for Operation (LCO) 3.8.1.1.b.2 - Change the fuel storage system minimum volume requirement from 60,000 gallons to 62,000 gallons.

This change increases the fuel storage system minimum volume requirements from 60,000 gallons to 62,000 gallons to account for external factors that may affect the fuel consumption rate. The revised storage requirement reflects actual EDG test data and accounts for external variables including changes in fuel oil specific gravity, heating value of the fuel, and ambient conditions. The revised fuel storage minimum volume requirement does not require changing the storage tank level alarm setpoints and it is currently being administratively controlled.

2. **Surveillance Testing;** Surveillance Requirement (SR) 4.8.1.1.2.f - Insert the # sign after the words "during shutdown" in the EDG 18 month shutdown surveillance requirement and add a corresponding footnote to allow the option of performing selected SR's, or portions thereof, during conditions or modes other than shutdown provided a 10CFR50.59 safety evaluation supports safe conduct of that surveillance in a condition or mode that is consistent with safe operation of the plant.

This change qualifies the requirement to perform EDG surveillance requirements "during shutdown". This change will permit certain maintenance and testing activities to be performed during conditions or modes other than shutdown subject to the performance of a 10CFR50.59 Safety Evaluation.

3. **Surveillance Testing;** SR 4.8.1.1.2.f.14 - Delete the reference to the automatic start of the cooling tower fans.

This change deletes the reference to the automatic start of the cooling tower fans in SR 4.8.1.1.2.f.14. The surveillance requirement for the automatic start of the cooling tower fans was deleted from the Ultimate Heat Sink Technical Specification (TS 3/4.7.5) per Amendment 18, however, due to an administrative oversight in License Amendment Request, LAR 92-13, this reference should have been deleted at that time as well. Until this requirement is deleted, Seabrook Station has continued to comply with the requirements of Surveillance Requirement 4.8.1.1.2.f.14, as presently worded.

4. **Pressure Testing;** SR 4.8.1.1.2.h.2 - Delete the surveillance requirement to pressure test the ASME Code Class 3 diesel fuel oil piping to 110% of system design pressure.

This change deletes the requirements of SR 4.8.1.1.2.h.2 that requires a pressure test of those portions of the diesel fuel oil system that are designed to Section III, Subsection ND of the ASME Code, (Class 3). SR 4.0.5 establishes the requirement to perform inservice inspection and inservice testing of ASME Code Class 3 components in accordance with the ASME Code Section XI requirements. Additionally, application of ASME Section XI Code Case N498-1, "Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2 and 3 Systems Section XI, Division 1", essentially eliminates the need for hydrostatic pressure testing above system nominal operating pressure.

B. Safety Assessments of Proposed Changes

1. **Minimum Volume;** Limiting Condition for Operation (LCO) 3.8.1.1.b.2 - Change the fuel storage system minimum volume requirement from 60,000 gallons to 62,000 gallons.

Seabrook Station Technical Specification (TS) 3.8.1.1.b.2 requires "A separate Fuel Storage System containing a minimum fuel volume of 60,000 gallons of fuel, . . ." The assumed accident scenarios that the emergency diesel generator (EDG) fuel requirements must satisfy are:

- Large break Loss Of Coolant Accident (LOCA) with Loss of Off-Site Power (LOP), and
- LOP only

The analysis supporting the current 60,000 gallon storage requirement includes vendor supplied data regarding EDG performance and other conservative assumptions used in the calculations regarding plant equipment performance and EDG loading and fuel oil consumption. The analysis supporting the proposed fuel storage requirement increase uses actual EDG performance data from previous 24 hour EDG load tests and also accounts for possible variations in fuel oil specific gravity, heating value of the fuel, and ambient conditions. The least fuel demanding EDG is assumed to be the single active failure which results in the highest fuel consuming EDG operating (conservative assumption). Among the conservative assumptions used in the fuel oil consumption analysis; a 10% margin is added to the calculated fuel oil consumption as required by ANSI Standard N195-1976, "Fuel Oil Systems for Standby Diesel Generators".

Including the variations of fuel properties in the EDG fuel oil consumption analysis results in an increase in the fuel storage system minimum volume requirement to 62,000 gallons. The revised fuel storage minimum volume requirement does not require changing the storage tank level alarm setpoints and is currently being administratively controlled.

The minimum fuel storage requirement ensures that the EDG has a minimum of a 7 day supply of fuel oil to meet the maximum Engineered Safety Feature load requirements following a LOP and a design basis accident as described in Updated Final Safety Analysis Report (UFSAR) Section 9.5.4.1, *Diesel Generator Fuel Oil Storage and Transfer System - Design Basis*. This change assures that the 7 day supply of fuel oil will be maintained.

2. **Surveillance Testing;** Surveillance Requirement (SR) 4.8.1.1.2.f - Qualifying the words "during shutdown" from the EDG 18 month shutdown surveillance requirement.

The proposed change qualifies the requirement to perform EDG surveillance requirements "during shutdown. This change will permit certain maintenance and testing activities to be performed during conditions or modes other than shutdown subject to the performance of 10CFR50.59 Safety Evaluation.

Generic Letter (GL) 91-04 concludes that the TSs need not restrict surveillance's as only being performed during shutdown so long as proper regard to their effect on safe operation of the plant is given. However, the NRC indicated that if the performance of a refueling interval surveillance during

plant operation would adversely affect safety, the licensee should postpone the surveillance until the plant is shut down for refueling, or is in a condition or mode that is consistent with safe conduct of that surveillance. North Atlantic concludes that qualifying the words "during shutdown" with a footnote which requires that a 10CFR50.59 safety evaluation to be performed prior to conduct of a particular surveillance, or portions thereof, will by its very nature ensure that any impact on plant safety is appropriately addressed.

The proposed change to SR 4.8.1.1.2.f does not alter the intent or method by which the surveillance activities are conducted, does not involve any physical changes to the plant, does not alter the way any structure, system or component functions, and does not modify the manner in which the plant is operated. As such, the proposed change to SR 4.8.1.1.2.f will not degrade the ability of each EDG to perform its intended functions.

3. **Surveillance Testing;** SR 4.8.1.1.2.f.14 - Delete the reference to the automatic start of the cooling tower fans. Amendment 18 to the Seabrook Station Operating License deleted the surveillance requirement to test the automatic start of the cooling tower fans on a Tower Actuation test signal.

The SR to test the automatic start of the cooling tower fans on a Tower Actuation test signal was deleted from the Ultimate Heat Sink Technical Specification (3/4.7.5) to prevent damage to the fans during potential starts under ice conditions. Amendment 18 (dated November 27, 1992) to the Seabrook Station Operating License deleted the SR and included a No Significant Hazards Evaluation. The discussion, evaluations and conclusions presented in License Amendment Request (LAR) 92-13 (dated September 30, 1992) and Amendment 18 are applicable to the deletion of the automatic fan start reference from SR 4.8.1.1.2.f.14.

The automatic start function of the cooling tower fans has been defeated by placing the control switch in Pull-to-Lock, based on the issuance of Amendment 18. The proposed change to delete the automatic fan start reference from SR 4.8.1.1.2.f.14 is administrative only; based on issuance of Amendment 18, the defeat of the automatic fan start and the implementation of a manual start as outlined in LAR 92-13.

4. **Pressure Testing;** SR 4.8.1.1.2.h.2 - Delete the requirement to pressure test the ASME Code fuel oil piping.

Chapter 1.8 of the Seabrook Station updated FSAR states that Seabrook Station's fuel oil systems for standby diesel generators conforms to the requirements of Regulatory Guide (RG) 1.137 Revision 1, dated October 1979, "Fuel-Oil Systems for Standby Diesel Generators". RG1.137 adopts Section 7.3 of ANSI N195-1976, "Fuel-Oil Systems for Standby Diesel Generators" which specifies testing in accordance with ASME Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components". RG 1.137 also states, in part, that for those portions of the fuel-oil systems for standby diesel generators that are designed to Section III of Subsection ND of the Code (i.e., Class 3 components), that an acceptable method of meeting the requirements of Section 7.3 is to ensure that the system arrangement would allow:

- (1) Pressure testing of the fuel-oil system to a pressure of 1.10 times the system design pressure at 10-year intervals. In the case of storage tanks, recommendations of the tank vendor should be taken into account when establishing the test pressure.

Section XI of the ASME Code, Table IWD-2500-1, requires that Class 3 systems subject to hydrostatic testing be tested at a frequency of every 10 years in accordance with the requirements of Article IWA-5000, Article IWD-5000 and Subarticle IWD-2600. Article IWD-5000, "System Pressure Tests" allows the following in Subarticle IWD-5223, "System Hydrostatic Test":

- a) The system hydrostatic test pressure shall be at least 1.10 times the system design pressure for systems with design temperature of 200°F or less.
- b) In the case of atmospheric storage tanks, the hydrostatic head developed with the tank filled to its design capacity shall be acceptable as the test pressure.

ASME Section XI further requires, in conjunction with the 10-year hydrostatic tests, that system pressure tests at nominal operating pressures be conducted periodically for Class 3 piping components in accordance with the requirements of Article IWA-2400 Inspection Intervals. Seabrook Station performs inservice examinations and system pressure tests in accordance with the schedule of Subarticle IWA-2420 Inspection Program B. Inspection Program B 10-year Inspection Intervals are subdivided into 40-month periods. Hence, system pressure tests are conducted at least three times during each 10-year interval. ASME Section XI examinations and tests are invoked by SR 4.0.5.

SR 4.8.1.1.2.h.2 requires performance of a system pressure test of the Class 3 fuel oil piping at 110% of the system design pressure every 10 years. This SR does not make exception for Class 3 fuel-oil piping systems which may contain piping and components that cannot be pressurized to 110% of system design pressure, (e.g., components vented to atmosphere). Portions of Seabrook Station's fuel-oil system includes above ground and below grade Class 3 tanks and some piping that are designed for and operate at atmospheric conditions, (i.e., no isolation valves on the atmospheric vents). Therefore it is not feasible to perform a 110% system pressure test on these components. However, the requirements of Section XI, Subarticle IWD-5223, paragraph (b) of the ASME Code recognizes this fact in allowing the system pressure test for atmospheric storage tanks to be the nominal hydrostatic pressure developed with the tank filled to its design capacity. This system pressure test, as allowed by Section XI of the ASME Code, satisfies the requirements of SR 4.0.5 but does not satisfy the requirements of SR 4.8.1.1.2.h.2.

SR 4.0.5 invokes the surveillance requirements for inservice inspection and testing of ASME Code Class 1, 2 and 3 components in accordance with Section XI of the ASME Code. Since SR 4.0.5 requires ASME Section XI inspection and testing, SR 4.8.1.1.2.h.2 is seen as redundant to the requirements of SR 4.0.5 and that the specific testing methodology to meet the requirements of SR 4.8.1.1.2.h.2 is not practical for the current design of the standby diesel fuel-oil systems.

Furthermore, to alleviate the hardship of performing the ASME Code required hydrostatic testing, which provides minimal assurance of increased leakage detection, without a compensating increase in the level of quality and safety, North Atlantic pursued a Relief Request for use of ASME Section XI Code Case N-498-1, "Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2 and 3 Systems Section XI, Division 1", dated May 11, 1994. Use of this Relief Request has been authorized by the NRC; "Approval for Use of ASME Code Cases N-416-1, N-498-1, and N-522 Seabrook Station Unit No. 1 (TAC M91849)", dated July 24, 1995. Code Case N-498-1 allows that certain pressure/leakage tests (at normal system operating pressure) may be performed in lieu of the ten-year system hydrostatic tests, provided certain additional requirements, as specified in the Code Case, are met. One of these requirements stipulates that a system pressure test (i.e., at nominal operating pressure) shall be conducted at or near the end of each inspection interval or during the same inspection period of each inspection

interval of Inspection Program B (Subarticle IWA-2420, Section XI, Division 1). As noted above, the system pressure tests are presently and will continue to be conducted in accordance with Inspection Program B of ASME Section XI, as invoked by SR 4.0.5.

The deletion of SR 4.8.1.1.2.h.2 will not adversely impact plant safety since the requirements to inspect and test the Class 3 portions of the standby diesel fuel-oil systems are still implemented by the provisions of SR 4.0.5, which in turn, invokes such inspection and testing per the applicable requirements of Section XI of the ASME Code. The Class 3 portions of the standby diesel fuel-oil systems will be inspected and tested using the more practical ASME Section XI methods, as modified by use of NRC authorized Code Case N-498-1 alternative test methods, which are more appropriate for the design and operation of standby diesel fuel-oil systems. Deletion of this SR will not impair EDG operability. The EDG's will still perform their intended safety function to achieve and maintain the plant in a safe shutdown condition.

Section II

Markup of Proposed Changes