

October 5, 1999

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:  
CONTROL ROOM EMERGENCY MAKEUP AIR, FILTRATION, AND AIR  
CONDITIONING POSITIVE REACTIVITY CHANGES DURING SHUTDOWN  
(TAC NO. MA1358)

Dear Mr. Feigenbaum:

The Commission has issued the enclosed Amendment No. 64 to Facility Operating License No. NPF-86 for the Seabrook Station, Unit No 1, in response to your application dated March 27, 1998, as supplemented on June 17, 1998.

The amendment revises Technical Specification (TS) 3.7.6.1, Control Room Emergency Makeup Air and Filtration, and TS 3.7.6.2, Control Room Air Conditioning, to delete the restriction to suspend all operations involving positive reactivity changes during the plant conditions specified.

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,

ORIGINAL SIGNED BY:

John T. Harrison, 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. 64 to NPF-86  
2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

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Sincerely,

A handwritten signature in cursive script that reads "John T. Harrison".

John T. Harrison, 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. 64 to NPF-86  
2. Safety Evaluation

cc w/encls: See next page

Seabrook Station, Unit No. 1

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

NORTH ATLANTIC ENERGY SERVICE CORPORATION, ET AL.\*

DOCKET NO. 50-443

SEABROOK STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 64  
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 March 27, 1998, as supplemented June 17, 1998, 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.

\*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, Montaup Electric Company, 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.

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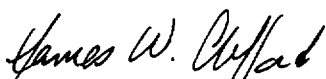
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-86 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 64 , 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 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
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: October 5, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 64

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. Overleaf pages have been provided.\*

Remove

3/4 7-15\*  
3/4 7-16  
3/4 7-18a

Insert

3/4 7-15\*  
3/4 7-16  
3/4 7-18a

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## PLANT SYSTEMS

### 3/4.7.6 CONTROL ROOM SUBSYSTEMS

#### EMERGENCY MAKEUP AIR AND FILTRATION

##### LIMITING CONDITION FOR OPERATION

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3.7.6.1 Two independent Control Room Emergency Makeup Air and Filtration Subsystems shall be OPERABLE.

APPLICABILITY: ALL MODES

ACTION:

MODES 1, 2, 3 and 4:

With one Control Room Emergency Makeup Air and Filtration Subsystem inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6:

- a. With one Control Room Emergency Makeup Air and Filtration Subsystem inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE Control Room Emergency Makeup Air and Filtration Subsystem in the filtration/recirculation mode.
- b. With both Control Room Emergency Makeup Air and Filtration Subsystems inoperable, or with the OPERABLE Control Room Emergency Makeup Air and Filtration Subsystem, required to be in the filtration/recirculation mode by ACTION a., not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS.

##### SURVEILLANCE REQUIREMENTS

---

4.7.6.1 Each Control Room Emergency Makeup Air and Filtration Subsystem shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;

## PLANT SYSTEMS

### 3/4.7.6 CONTROL ROOM SUBSYSTEMS

#### AIR CONDITIONING

#### LIMITING CONDITION FOR OPERATION

---

3.7.6.2 Two independent Control Room Air Conditioning Subsystems shall be OPERABLE.

APPLICABILITY: All MODES

ACTION:

MODES 1, 2, 3 and 4:

With one Control Room Air Conditioning Subsystem inoperable, restore the inoperable system to OPERABLE status within 30\* days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6:

- a. With one Control Room Air Conditioning Subsystem inoperable, restore the inoperable system to OPERABLE status within 30\* days or initiate and maintain operation of the remaining OPERABLE Control Room Air Conditioning Subsystem or immediately suspend all operations involving CORE ALTERATIONS.
- b. With both Control Room Air Conditioning Subsystems inoperable, or with the OPERABLE Control Room Air Conditioning Subsystem unable to maintain temperature below the limiting equipment qualification temperature in the control room area, suspend all operations involving CORE ALTERATIONS.

#### SURVEILLANCE REQUIREMENTS

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4.7.6.2 Each Control Room Air Conditioning Subsystem shall be demonstrated OPERABLE at least once per 92 days by verifying the ability to maintain temperature in the control room area below the limiting equipment qualification temperature for 24 hours.

\* For cycle 7, the allowable outage time may be extended to 60 days, on a one-time basis, for each train to implement modifications to the Control Room Air Conditioning Subsystems. The provisions of Specifications 3.0.4 and 4.0.4 are not applicable during the implementation of modifications to the Air Conditioning Subsystems.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 64 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 March 27, 1998, as supplemented June 17, 1998, the North Atlantic Energy Service Corporation (the licensee) submitted a request for changes to the Seabrook Station Technical Specifications (TSs). The requested changes would revise TS 3.7.6.1, Control Room Emergency Makeup Air and Filtration Subsystem (CREMAFS), and TS 3.7.6.2, Control Room Air Conditioning Subsystem (CRACS) to delete the restriction to suspend all operations involving positive reactivity changes during the plant conditions specified. The June 17, 1998, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

Per section 9.4.1.2 of Seabrook's Updated Final Safety Analysis Report (UFSAR), CREMAFS is a subsystem of the control room heating, ventilation, and air conditioning system. Section 6.5.1.1.c of the UFSAR states that CREMAFS is designed to supply makeup air to the control room following an accident or a release of radiological contaminants or smoke, to maintain a positive pressure within the control room complex, and to remove and retain airborne particulates and radioactive iodines from all makeup air and a portion of the recirculated air.

Per section 9.4.1.3 of the UFSAR, the location of the air intakes, in conjunction with the system's particulate and iodine filtration efficiency, satisfies the control room dose criteria specified in General Design Criteria (GDC) 19 of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, General Design Criteria for Nuclear Power Plants. Section 9.4.1.3 of the UFSAR also states that the filtration systems and associated fans and dampers are designed as Engineered Safety Features in accordance with Regulatory Guide 1.52, as clarified in Subsection 6.5.1 of the UFSAR.

Per section 9.4.1.2 of the UFSAR, CRACS is also a subsystem of the control room complex heating, ventilation, and air conditioning system. Section 9.4.1.1 of the UFSAR states that the

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cooling system is designed to maintain the control room temperature at or below design maximum temperatures when the outside air temperature is 88 °F or lower. Seabrook's CRACS provides cooling of the control room complex in accordance with GDC 4 and 19 of 10 CFR Part 50, Appendix A, General Design Criteria for Nuclear Power Plants.

TS 3.7.6.1 requires that Seabrook's CREMAFS is operable during all modes of operation. If the plant is operating in Modes 1 through 4, and both trains of CREMAFS become inoperable, TS 3.0.3 requires a shutdown which necessitates reducing the average Reactor Coolant System (RCS) temperature to  $\leq 200$  °F. However, upon reaching 200 °F, ACTION statement b. of TS 3.7.6.1 becomes applicable and includes the requirement to suspend all operations involving positive reactivity changes. Consequently, TS 3.7.6.1 prevents reducing the RCS temperature to any value less than exactly 200 °F since a cooldown below 200 °F is considered a positive reactivity change. Therefore, TS 3.7.6.1 imposes impractical operational restrictions under these circumstances.

Similarly, TS 3.7.6.2 requires that CRACS is operable during all modes of operation and imposes the same impractical operational restrictions if both trains of CRACS become inoperable in Modes 1 through 4 and the plant is required to enter Mode 5.

This restriction caused an operational problem at Seabrook that was reported to the NRC in Licensee Event Report (LER) 97-18 "Control Room Emergency Makeup Air and Filtration Subsystem Inoperability." On December 16, 1997, the plant was in Mode 4 and commenced a plant shutdown per TS 3.0.3 as a result of both trains of the CREMAFS being inoperable per TS 3.7.6.1. TS 3.0.3, which is applicable only during Modes 1 through 4, was exited upon reaching Mode 5, where TS 3.7.6.1 became applicable and required the suspension of all operations involving positive reactivity.

According to the LER, during the cooldown into Mode 5, control room operators reduced the RCS temperature from 200 °F to approximately 180-190 °F to ensure the that plant was maintained in a stable condition. To offset the positive reactivity change as a result of the cooldown, the operators borated the RCS which resulted in a net negative reactivity. However, regardless of the boration, the cooldown action was still a positive reactivity change and was determined to be reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by the plant's TSs.

Therefore, the purpose of this amendment request is to delete the restriction to suspend all operations involving positive reactivity changes in TS 3.7.6.1 and 3.7.6.2 which cannot practically be avoided during specific plant conditions.

### 3.0 EVALUATION

TS 3.7.6.1 requires that two independent CREMAFS trains be operable during all modes of operation. For operational modes 5 and 6, the TS states:

"With one Control Room Emergency Makeup Air and Filtration Subsystem inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and

maintain operation of the remaining OPERABLE Control Room Emergency Makeup Air and Filtration Subsystem in the filtration/recirculation mode."

or

"With both Control Room Emergency Makeup Air and Filtration Subsystem inoperable, or with the OPERABLE Control Room Emergency Makeup Air and Filtration Subsystem, required to be in the filtration/recirculation mode by ACTION a., not capable of being powered by an OPERABLE emergency power source, **suspend all operations involving CORE ALTERATIONS or positive reactivity changes.**" (Emphasis added.)

TS 3.7.6.2 requires that two independent CRACS trains be operable during all modes of operation. For operational modes 5 and 6, the TS states:

"With one Control Room Air Conditioning Subsystem inoperable, restore the inoperable system to OPERABLE status within 30 days or initiate and maintain operation of the remaining OPERABLE Control Room Air Conditioning Subsystem or immediately **suspend all operations involving CORE ALTERATIONS or positive reactivity changes.**" (Emphasis added.)

or

"With both Control Room Air Conditioning Subsystems inoperable, or with the OPERABLE Control Room Air Conditioning Subsystem unable to maintain temperature below the limiting equipment qualification temperature in the control room area, **suspend all operations involving CORE ALTERATIONS or positive reactivity changes.**" (Emphasis added.)

The restriction to suspend all operations involving positive reactivity changes in Modes 5 and 6 inappropriately prevents cooling the RCS temperature below 200 °F when Mode 5 is entered as a result of both trains of CREMAFS, or both trains of CRACS, being inoperable. The restriction also inappropriately prevents minor variations of the RCS temperature while in Modes 5 and 6.

In addition, the restriction is redundant to TS 3.1.1.2, "Reactivity Control Systems Shutdown Margin -  $T_{avg}$  Less Than Or Equal To 200 °F" in Mode 5 and TS 3.9.1 "Refueling Operations Boron Concentration" in Mode 6. TSs 3.1.1.2 and 3.9.1 provide the necessary protection for postulated reactivity addition accident conditions and maintaining shutdown margin within acceptable limits which allows for deliberate evolutions (such as small changes in temperature and boron concentration), without adversely affecting the net core reactivity.

Furthermore, the proposed change to delete the restriction to suspend all operations involving positive reactivity changes in Modes 5 and 6 with both trains of CREMAFS inoperable or both trains of CRACS inoperable is consistent with similar actions in NUREG-1431 "Standard Technical Specifications Westinghouse Plants."

Therefore, based on the information contained in the application, Seabrook's TSs, UFSAR, NUREG-1431, and LER 97-018-00, the staff finds that the proposed change to delete the

restriction to suspend all positive reactivity changes from TS 3.7.6.1 and TS 3.7.6.2 is acceptable.

#### 4.0 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.

#### 5.0 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. 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 (63 FR 19973). 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.

#### 6.0 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.

Principal Contributor: John Harrison

Date: October 5, 1999