

September 19, 2000

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:  
TESTING PROTOCOL FOR CHARCOAL FILTER SAMPLES (TAC NO. MA7711)

Dear Mr. Feigenbaum:

The Commission has issued the enclosed Amendment No. 75 to Facility Operating License No. NPF-86 for the Seabrook Station, Unit No 1, in response to your application dated December 3, 1999.

The amendment changes the Technical Specifications by incorporating reference to the American Society for Testing and Materials Standard D3803-1989, "Standard Test Method for Nuclear-Grade Activated Charcoal," as the test protocol for charcoal filter laboratory testing. In addition, there is a change to Surveillance Requirement 4.7.6.1d.5) and 4.9.12d.4) specifying a minimum required heater output based on design rated voltage.

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/*

Robert M. Pulsifer, 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. 75 to NPF-86  
2. Safety Evaluation w/attachment

cc w/encls: See next page

Seabrook Station, Unit No. 1  
cc:

Lillian M. Cuoco, Esq.  
Senior Nuclear Counsel  
Northeast Utilities Service Company  
P.O. Box 270  
Hartford, CT 06141-0270

Mr. Peter Brann  
Assistant Attorney General  
State House, Station #6  
Augusta, ME 04333

Resident Inspector  
U.S. Nuclear Regulatory Commission  
Seabrook Nuclear Power Station  
P.O. Box 1149  
Seabrook, NH 03874

Town of Exeter  
10 Front Street  
Exeter, NH 03823

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Office of the Attorney General  
One Ashburton Place  
20th Floor  
Boston, MA 02108

Board of Selectmen  
Town of Amesbury  
Town Hall  
Amesbury, MA 01913

Mr. Dan McElhinney  
Federal Emergency Management Agency  
Region I  
J.W. McCormack P.O. &  
Courthouse Building, Room 401  
Boston, MA 02109

Mr. Stephen McGrail, Director  
ATTN: James Muckerheide  
Massachusetts Emergency Management  
Agency  
400 Worcester Road  
Framingham, MA 01702-5399

Philip T. McLaughlin, Attorney General  
Steven M. Houran, Deputy Attorney  
General  
33 Capitol Street  
Concord, NH 03301

Mr. Woodbury Fogg, Director  
New Hampshire Office of Emergency  
Management  
State Office Park South  
107 Pleasant Street  
Concord, NH 03301

Mr. Roy E. Hickok  
Nuclear Training Manager  
Seabrook Station  
North Atlantic Energy Service Corp.  
P.O. Box 300  
Seabrook, NH 03874

Mr. James M. Peschel  
Manager - Regulatory Programs  
Seabrook Station  
North Atlantic Energy Service Corp.  
P.O. Box 300  
Seabrook, NH 03874

Mr. W. A. DiProfio  
Station Director  
Seabrook Station  
North Atlantic Energy Service Corporation  
P.O. Box 300  
Seabrook, NH 03874

Mr. Frank W. Getman, Jr.  
President and Chief Executive Officer  
BayCorp Holdings, LTD  
20 International Drive, Suite 301  
Portsmouth, NH 03801-6809

Mr. B. D. Kenyon  
President and Chief Executive Officer  
Northeast Utilities Service Company  
P.O. Box 270  
Hartford, CT 06141-0270

Mr. Steve Allen  
Polestar Applied Technology, Inc.  
77 Franklin Street, Suite 507  
Boston, MA 02110

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

September 19, 2000

SUBJECT: SEABROOK STATION, UNIT NO. 1 - ISSUANCE OF AMENDMENT RE:  
TESTING PROTOCOL FOR CHARCOAL FILTER SAMPLES (TAC NO. MA7711)

Dear Mr. Feigenbaum:

The Commission has issued the enclosed Amendment No. 75 to Facility Operating License No. NPF-86 for the Seabrook Station, Unit No 1, in response to your application dated December 3, 1999.

The amendment changes the Technical Specifications by incorporating reference to the American Society for Testing and Materials Standard D3803-1989, "Standard Test Method for Nuclear-Grade Activated Charcoal," as the test protocol for charcoal filter laboratory testing. In addition, there is a change to Surveillance Requirement 4.7.6.1d.5) and 4.9.12d.4) specifying a minimum required heater output based on design rated voltage.

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/**

Robert M. Pulsifer, 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. 75 to NPF-86  
2. Safety Evaluation w/attachment

cc w/encls: See next page

DISTRIBUTION:

PUBLIC	JClifford	OGC	WBeckner
PDI-2 Rdg.	RPulsifer	ACRS	JLinville, RGN-I
EAdensam (EGA1)	TClark	GHill(2)	

ACCESSION NO. ML003744760

OFFICE	PDI-2/PM	PDI-2/LA	SLPB	OGC	PDI-2/SC
NAME	RPulsifer	TClark	JHannon	JEuchner	JClifford
DATE	8/29/00	8/29/00	8/30/00	9/11/00	9/15/00

**OFFICIAL RECORD COPY**

NORTH ATLANTIC ENERGY SERVICE CORPORATION, ET AL.\*

DOCKET NO. 50-443

SEABROOK STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 75  
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 December 3, 1999, 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, 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. 75 , 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

*/RA/*

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: September 19, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 75

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 6-21

3/4 6-22

3/4 7-17

3/4 7-18

3/4 9-14

3/4 9-15

Insert

3/4 6-21

3/4 6-22

3/4 7-17

3/4 7-18

3/4 9-14

3/4 9-15

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 75 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 December 3, 1999, the North Atlantic Energy Service Corporation (the licensee) submitted a request for changes to the Seabrook Station, Technical Specifications (TSs). The requested changes would change the TSs by incorporating reference to the American Society for Testing and Materials (ASTM) Standard D3803-1989, "Standard Test Method for Nuclear-Grade Activated Charcoal," as the test protocol for charcoal filter laboratory testing. In addition, there is a change to Surveillance Requirement 4.7.6.1d.5) and 4.9.12d.4) specifying a minimum required heater output based on design rated voltage.

2.0 EVALUATION

The NRC staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the licensee's submittal of December 3, 1999. In addition, the staff has reviewed and accepted the findings that are documented in the attached BNL Technical Evaluation Report (TER) regarding the proposed changes for TS 3/4.6.5, "Containment Enclosure Emergency Air Cleanup System" (EAH), 3/4.7.6.1, "Control Room Emergency Makeup Air and Filtration" (CBA), and 3/4.9.12, "Fuel Storage Building Emergency Air Cleaning System" (FAH). In view of the above, and because the NRC staff considers ASTM D3803-1989 to be the most accurate and most realistic protocol for testing charcoal in safety-related ventilation systems, the NRC staff finds that the proposed TS changes are acceptable. In addition, the staff finds that the TS pages satisfy the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999.

The NRC received a letter from ASTM in response to a March 8, 2000, Federal Register Notice (65 FR 12286) related to revising testing standards in accordance with ASTM D3803-1989 for laboratory testing of activated charcoal in response to GL 99-02. ASTM notified the NRC that the 1989 standard is out of date and should be replaced by D3803-1991 (1998). The staff acknowledges that the most current version of ASTM D3803 is ASTM D3803-1991 (reaffirmed in 1998). However, it was decided, for consistency purposes, to have all of the nuclear reactors test to the same standard (ASTM D3803-1989) because, prior to GL 99-02 being issued, approximately one third of nuclear reactors had TSs that referenced ASTM D3803-1989 and there are no substantive changes between the 1989 and 1998 versions.

One administrative change was made on TS page 3/4 7-17. The date of March 1978 was added to the footnote to indicate the date of reference Regulatory Guide 1.52, Revision 2. The staff finds that this is purely an administrative change to provide a consistent, complete reference, and is therefore acceptable.

### 3.0 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.

### 4.0 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 surveillance requirements. 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 (65 FR 4282). 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.

### 5.0 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.

Attachment: Technical Evaluation Report

Principal Contributor: Robert Pulsifer

Date: September 19, 2000

TECHNICAL EVALUATION REPORT  
BROOKHAVEN NATIONAL LABORATORY  
FOR THE OFFICE OF NUCLEAR REACTOR REGULATION  
DIVISION OF SYSTEMS SAFETY AND ANALYSIS  
PLANT SYSTEMS BRANCH  
RELATED TO AMENDMENT TO FACILITY OPERATING LICENSE NO. NPF-86  
NORTH ATLANTIC ENERGY SERVICE CORPORATION  
SEABROOK STATION - UNIT 1  
DOCKET NO. 50 - 443

## 1.0 INTRODUCTION

By letter dated December 3, 1999 (NYN-99110), North Atlantic Energy Service Corporation submitted its response to the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, for the Seabrook Station - Unit 1. In a separate letter also dated December 3, 1999 (NYN-99111), North Atlantic Energy Service Corporation requested changes to the Technical Specifications (TS) Sections 3/4.6.5, "Containment Enclosure Emergency Air Cleanup System(EAH), 3/4.7.6.1, "Control Room Emergency Makeup Air and Filtration (CBA), and 3/4.9.12, "Fuel Storage Building Emergency Air Cleaning System (FAH)" for the Seabrook Station. The proposed changes would revise the TS surveillance testing to meet the requested actions of GL 99-02. North Atlantic Energy Service Corporation is also requesting changes to Surveillance Requirements 4.7.6.1d(5) and 4.9.12d(4) associated with verification of heater capacity dissipation for the CBA and FAH systems to eliminate the upper limit on the heater capacities and instead specify only minimum acceptable heater capacities based on design basis rated voltage.

## 2.0 BACKGROUND

Safety-related air-cleaning units used in the engineered safety features (ESF) ventilation systems of nuclear power plants reduce the potential onsite and offsite consequences of a radiological accident by filtering radioiodine. Analyses of design basis accidents assume particular safety related charcoal adsorption efficiencies when calculating offsite and control room operator doses. To ensure that the charcoal filters used in these systems will perform in a manner that is consistent with the licensing basis of a facility, licensees have requirements in their TS to periodically perform a laboratory test (in accordance with a test standard) of charcoal samples taken from these ventilation systems.

In GL 99-02, the staff alerted licensees that testing nuclear-grade activated charcoal to standards other than American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," does not provide assurance for complying with their current licensing bases with respect to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) and Subpart A of 10 CFR Part 100.

GL 99-02 requested that all licensees determine whether their TS reference ASTM D3803-1989 for charcoal filter laboratory testing. Licensees whose TS do not reference ASTM D3803-1989 were requested to either amend their TS to reference ASTM D3803-1989 or propose an alternative test protocol.

### 3.0 EVALUATION

#### 3.1 Laboratory Charcoal Sample Testing Surveillance Requirements

The current and proposed laboratory charcoal sample testing TS surveillance requirements for the Containment Enclosure Emergency Air Cleanup System(EAH), Control Room Emergency Makeup Air and Filtration (CBA), and Fuel Storage Building Emergency Air Cleaning System (FAH) for the Seabrook Station are shown in Table 1 and Table 2, respectively.

The proposed use of ASTM D3803-1989 is acceptable because it provides accurate and reproducible test results. The proposed test temperature of 30EC for all systems is acceptable because it is consistent with ASTM D3803-1989. The proposed test relative humidity (RH) of 95% for the EAH and 70% for the CBA and FAH are also acceptable, because both CBA and FAH are equipped with safety-related heaters to maintain the RH at less than or equal to 70 percent during design basis accident conditions. This is consistent with the actions requested in GL 99-02.

In the December 3, 1999 letter (NYN-99111), North Atlantic Energy Service Corporation proposes to clarify Surveillance Requirement 4.7.6.1d.5) for verification of CBA heater dissipation. The proposed change deletes the specified range and specifies the minimum required output that the heater output must attain. The justification provided is that: "The current TS value of  $3.6 \pm 0.36$  kW is based upon the normal output of the heater when supplied with a voltage of 460V (design rated voltage). However, nominal operating bus voltage is 480V, which varies based upon the load on the bus. The proposed TS change states that at least 3.24 kW (based on design rated voltage of 460V) must be verified. By stipulating the design rated voltage in TS 4.7.6.1d.5) ensures the heater remains capable of performing its safety function. Specifying an upper kW range band for operability determination is restrictive and unnecessary. There is no safety concern if the heater is determined to be dissipating a higher kW output. Operating at a higher kW output improves dehumidification. Operating the heater at maximum operating bus voltage conditions may potentially reduce overall heater life but it does not pose a fire hazard or dryout concern for the charcoal filters. The proposed change is administrative and does not change the current operating conditions for the heater. Similarly, TS 4.9.12.d.4) (associated with FAH heater output verification) is also revised to state the minimum required kW output, based on design rated voltage." This is acceptable because specifying a minimum required heater output based on design rated voltage ensures that the heater output is verified operable against the appropriate criteria and will provide greater than the minimum required kW output to maintain 70% RH during design basis accident conditions.

The credited removal efficiency for radioactive organic iodine for EAH is 90% and for CBA (both trains) and FAH is 95 %. The proposed allowable charcoal test penetration for radioactive methyl iodide for EAH is less than or equal to 5 %, and for CBA (both trains) and FAH is less than or equal to 2.5%. The proposed test penetration was obtained by applying a safety factor of 2 to the credited efficiency. The proposed safety factor of 2 for all systems is acceptable because it ensures that the efficiency credited in the accident analysis is still valid at the end of the surveillance interval. This is consistent with the minimum safety factor of 2 specified in GL 99-02.

The actual and test face velocities for the EAH, CBA Train A, CBA Train B, and FAH are 46 fpm, 34.5 fpm, 58.3 fpm, and 44 fpm, respectively. This is acceptable because it ensures that the testing will be consistent with the operation of the ventilation system during design basis accident conditions and each one of the four proposed test face velocities are included in the plant's technical specifications. This is consistent with the August 23, 1999 errata to GL 99-02.

#### **4.0 CONCLUSION**

On the basis of its evaluation, BNL recommends that the NRC staff consider the proposed TS changes to be acceptable.

Principal Contributors: Anthony Fresco and Mano Subudhi

Date: August 14, 2000