

June 14, 1993

Docket
File

Docket No. 50-443
Serial No. SEA-93-008

Mr. Ted C. Feigenbaum
Senior Vice President
and Chief Nuclear Officer
North Atlantic Energy Service Corporation
Post Office Box 300
Seabrook, New Hampshire 03874

Dear Mr. Feigenbaum:

SUBJECT: AMENDMENT NO. 21 TO FACILITY OPERATING LICENSE NPF-86: RHR SYSTEM
INJECTION LINE FLOW ACCEPTANCE VALUE - LICENSE AMENDMENT REQUEST
92-12 (TAC M84858)

The Commission has issued the enclosed Amendment No. 21 to Facility Operating License No. NPF-86 for the Seabrook Station, Unit No. 1, in response to your application dated October 22, 1992. This amendment revises the Appendix A Technical Specifications (TSs) relating to emergency core cooling systems (ECCS). Specifically, the amendment modifies the acceptance value for a surveillance requirement intended to demonstrate that the ECCS is capable of delivering an adequate flow of cooling water to the core via the residual heat removal system (RHR) lines. Surveillance Requirement 4.5.2 h.3) is changed to require a total flow of at least 3869 gpm through the four RHR injection lines with one RHR pump in operation vice 2828 gpm.

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

Sincerely,
Original signed by

Albert W. De Agazio, Sr. Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 21 to NPF-86
- 2. Safety Evaluation

cc w/enclosures:

See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555

June 14, 1993

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Serial No. SEA-93-008

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Sincerely,

A handwritten signature in cursive script that reads "Albert W. De Agazio".

Albert W. De Agazio, Sr. Project Manager
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 21 to NPF-86
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. Ted C. Feigenbaum

Seabrook Station

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

NORTH ATLANTIC ENERGY SERVICE CORPORATION, ET AL*

DOCKET NO. 50-443

SEABROOK STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 21
License No. NPF-86

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by North Atlantic Energy Service Corporation, et al. (the licensee), dated October 22, 1992, 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, EUA Power Corporation, Hudson Light and 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 Vermont Electric Generation and Transmission Cooperative, Inc., and has exclusive responsibility and control over the physical construction, operation, and maintenance of the facility.

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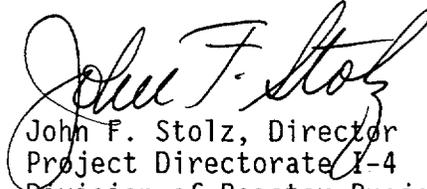
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-86 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 21 , 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 the date of its issuance, to be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



John F. Stolz, Director
Project Directorate I-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 14, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 21

FACILITY OPERATING LICENSE NO. NPF-86

DOCKET NO. 50-443

Replace the following pages of Appendix A, Technical Specifications, with the attached pages as indicated. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change. Overleaf pages have been provided.*

Remove

3/4 5-7

3/4 5-8*

Insert

3/4 5-7

3/4 5-8*

EMERGENCY CORE COOLING SYSTEMS

ECCS SUBSYSTEMS - T_{avg} GREATER THAN OR EQUAL TO 350°F

SURVEILLANCE REQUIREMENTS

4.5.2 (Continued)

- g. By verifying the correct position of each electrical and/or mechanical position stop for the following ECCS throttle valves:
- 1) Within 4 hours following completion of each valve stroking operation or maintenance on the valve when the ECCS subsystems are required to be OPERABLE, and
 - 2) At least once per 18 months.

High Head SI System
Valve Number

SI-V-143
SI-V-147
SI-V-151
SI-V-155

Intermediate Head SI System
Valve Number

SI-V-80
SI-V-85
SI-V-104
SI-V-109
SI-V-117
SI-V-121
SI-V-125
SI-V-129

- h. By performing a flow balance test, during shutdown, following completion of modifications to the ECCS subsystems that alter the subsystem flow characteristics and verifying that:
- 1) For centrifugal charging pump lines, with a single pump running:
 - a) The sum of the injection line flow rates, excluding the highest flow rate, is greater than or equal to 337 gpm, and
 - b) The total pump flow rate is less than or equal to 550 gpm.
 - 2) For Safety Injection pump lines, with a single pump running:
 - a) The sum of the injection line flow rates, excluding the highest flow rate, is greater than or equal to 445 gpm, and
 - b) The total pump flow rate is less than or equal to 660 gpm.
 - 3) For RHR pump lines, with a single pump running, the sum of the injection line flow rates is greater than or equal to 3869 gpm.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.3 ECCS SUBSYSTEMS - T_{avg} LESS THAN 350°F

LIMITING CONDITION FOR OPERATION

3.5.3.1 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE centrifugal charging pump,
- b. One OPERABLE RHR heat exchanger,
- c. One OPERABLE RHR pump, and
- d. An OPERABLE flow path capable of taking suction from the refueling water storage tank upon being manually realigned and transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODE 4.

ACTION:

- a. With no ECCS subsystem OPERABLE because of the inoperability of either the centrifugal charging pump or the flow path from the refueling water storage tank, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in COLD SHUTDOWN within the next 20 hours.
- b. With no ECCS subsystem OPERABLE because of the inoperability of either the residual heat removal heat exchanger or RHR pump, restore at least one ECCS subsystem to OPERABLE status or maintain the Reactor Coolant System T_{avg} less than 350°F by use of alternate heat removal methods.
- c. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.8.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected Safety Injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 21 TO FACILITY OPERATING LICENSE NO. NPF-86

NORTH ATLANTIC ENERGY SERVICE CORPORATION

SEABROOK STATION, UNIT NO. 1

DOCKET NO. 50-443

1.0 INTRODUCTION

During a routine review of a Station Procedure for performing a full-stroke exercise of the Residual Heat Removal (RHR) pump discharge check valves and associated cold-leg injection check valves, an inconsistency was identified between the procedure's acceptance flow value and that of Technical Specification Surveillance Requirement value. A review of the Westinghouse Emergency Core Cooling System analysis confirmed that the TS value was incorrect and non-conservative. The details of the discovery and subsequent actions are identified in a Licensee Event Report (LER) (Ref. 1). Corrective actions identified in the LER included the development of a proposed license amendment.

By application dated October 22, 1992, (Ref. 2), North Atlantic Energy Service Corporation (NAESCO/the licensee) proposed an amendment to the Appendix A Technical Specifications (TSs) for the Seabrook Station, Unit 1 (Seabrook). The proposed change would increase the acceptance value for the sum of the flows in the RHR System injection lines when one RHR pump is operating.

2.0 EVALUATION

Surveillance Requirement (SR) 4.5.2 h.3) currently specifies 2828 gpm for the acceptance flow value. NAESCO has determined that this is the correct value for the flow into the reactor coolant system (RCS) via three injection lines rather than the total of the three lines plus flow through the fourth line. However, the value that should be specified in SR 4.5.2 h.3) is the sum of the flows in four RHR lines, i.e., 3869 gpm. During certain design basis calculations, three of the four injection lines are assumed to deliver coolant to the reactor vessel; the fourth line is assumed to spill to containment through a rupture in the RCS.

Table 1 is a comparison of calculated and RHR test flow information provided by the NAESCO (Ref. 1 and 2). The acceptance value (2828 gpm) specified in SR 4.5.2 h.3) does not meet the Westinghouse calculated requirement (3868 gpm).

As can be seen from Table 1, all testing demonstrated total flows clearly exceeding the Westinghouse calculated requirement except the November 1989 test. NAESCO has stated that this test was conducted with the pressurizer vented to atmosphere. RHR flow was throttled during the November 1989 test to prevent overflowing of the RCS, therefore, the test result demonstrated that the 2828 gpm acceptance value could be met but did not demonstrate the full capability of the system.

NAESCO has proposed a change to require 3869 gpm to assure that the design basis requirement is met. NAESCO also stated that it has reviewed the TS bases and has determined that no change to the bases is required.

Table 1. Comparison of RHR Flow Rate Information

Item	RHR flow rate, gpm
Design basis flow to core via three RHR injection lines - no allowance for pump degradation	2712
Required total flow through four RHR injection lines to obtain design basis core flow - no pump degradation	3828
Required total flow to meet design basis via three RHR injection lines - 5% allowance for pump degradation	2828
Required total flow through four RHR injection lines to meet design basis core flow - 5% allowance for pump degradation	3868
Seabrook In-Service Testing procedure acceptance value	4350
RHR system initial testing (date not stated)	>3868
9/89 RHR "A" train test (throttled), pressurizer vented (Ref. 1)	4012
11/89 RHR "B" train test (throttled), pressurizer vented	3776
9/10/91 RHR "A" train test, reactor vessel head removed	5013
9/10/91 RHR "B" train test, reactor vessel head removed	4696

The staff has audited the NAESCO's request (Ref. 2), including the proposed TS changes and NAESCO's safety evaluation of the change. The staff also has considered appropriate portions of the Final Safety Analysis Report (Ref. 3) and the Standard Review Plan (Ref. 4). The staff concurs with NAESCO's conclusion that the currently specified value is incorrect, and the proposed change would correct this error.

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 surveillance requirement. 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 (57 FR 61119). 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.

Principal Contributors: W. Lyon
A. De Agazio

Date: June 14, 1993

6.0 REFERENCES

- (1) Licensee Event Report 92-001 Revision 01, "Non-Conservative Technical Specification Value, April 8, 1993.
- (2) Feigenbaum, Ted. C., "License Amendment Request 92-12: Change in Residual Heat Removal System Injection Line Flow Rate Acceptance Value," Letter to USNRC from Senior Vice President and Chief Nuclear Officer, North Atlantic Energy Service Corporation, NYN-92145, October 22, 1992.
- (3) "Seabrook Station Final Safety Analysis Report," Public Service Company of New Hampshire, New Hampshire Yankee Division.
- (4) "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, LWR Edition, NUREG-0800, July, 1981.