October 5, 1994

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

SUBJECT: AMENDMENT NO. 32 TO FACILITY OPERATING LICENSE NPF-86: PRIMARY COMPONENT COOLING WATER SYSTEM OPERABILITY REQUIREMENTS - LICENSE AMENDMENT REQUEST 93-01 AND SERVICE WATER SYSTEM/ULTIMATE HEAT SINK OPERABILITY REQUIREMENTS - LICENSE AMENDMENT REQUEST 93-02 (TAC M85491 AND M85750)

Dear Mr. Feigenbaum:

The Commission has issued the enclosed Amendment No. 32 to Facility Operating License No. NPF-86 for the Seabrook Station, Unit No. 1, in response to your application (license amendment request 93-01) dated February 26, 1993, as modified by letter dated March 11, 1994, and your application (license amendment request 93-02) dated April 7, 1993, as modified by letter dated February 24, 1994.

This amendment revises the Appendix A Technical Specifications (TS) relating to the operability requirements for the primary component cooling water (PCCW) system, the service water (SW) system, and the ultimate heat sink. The amendment redefines the requirements for operable PCCW and SW systems and combines the technical specification requirements for the SW system and the ultimate heat sink. The changes affect TS sections 3/4.7.3, 3/4.7.4, and 3/4.7.5.

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

Docket No. 50-443
Serial No. SEA-94-018

Enclosures: 1. Amendment No. 32 to NPF-86
2. Safety Evaluation
cc w/encls: See next page
DISTRIBUTION:

Docket File	ADe Agazio	OPA
PUBLIC	OGC	OC/LFDCB
PDI-4 Plant	GHill (2)	JRogge, RGI
SVarga	JWing	
CMiller (a)	WLeFave	
SNorris	ACRS (10)	

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NAME	SNorris	ADeAgzaio:bf	JStolz	EHOLLER		
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 5, 1994

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

SUBJECT: AMENDMENT NO. 32 TO FACILITY OPERATING LICENSE NPF-86: PRIMARY COMPONENT COOLING WATER SYSTEM OPERABILITY REQUIREMENTS - LICENSE AMENDMENT REQUEST 93-01 AND SERVICE WATER SYSTEM/ULTIMATE HEAT SINK OPERABILITY REQUIREMENTS - LICENSE AMENDMENT REQUEST 93-02 (TAC M85491 AND M85750)

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This amendment revises the Appendix A Technical Specifications (TS) relating to the operability requirements for the primary component cooling water (PCCW) system, the service water (SW) system, and the ultimate heat sink. The amendment redefines the requirements for operable PCCW and SW systems and combines the technical specification requirements for the SW system and the ultimate heat sink. The changes affect TS sections 3/4.7.3, 3/4.7.4, and 3/4.7.5.

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Sincerely,

Albert W. De Agazio

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Division of Reactor Projects - I/II
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cc w/encls: See next page

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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. 32
License No. NPF-86

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by North Atlantic Energy Service Corporation, et al. (the licensee), dated February 26, 1993, and April 7, 1993, as modified by letters dated March 11, 1994, and February 24, 1994, comply 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 Company (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 and Power Department, Massachusetts Municipal Wholesale Electric Company, Montaup Electric Company, New England Power Company, New Hampshire Electric Cooperative, Inc., Taunton Municipal Light Plant, and 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. 32, 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

Phillip F. McKee, 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: October 5, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 32

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	Insert
3/4 7-11*	3/4 7-11*
3/4 7-12	3/4 7-12
3/4 7-13	3/4 7-13
--	3/4 7-13A
--	3/4 7-13B
3/4 7-14	3/4 7-14
3/4 7-15	3/4 7-15
3/4 7-16*	3/4 7-16*
B 3/4 7-3	B 3/4 7-3
--	B 3/4 7-3A
B 3/4 7-4*	B 3/4 7-4*

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

LIMITING CONDITION FOR OPERATION

3.7.2 The temperatures of both the reactor and secondary coolants in the steam generators shall be greater than 70°F when the pressure of either coolant in the steam generator is greater than 200 psig.

APPLICABILITY: At all times.

ACTION:

With the requirements of the above specification not satisfied:

a. Reduce the steam generator pressure of the applicable side to less than or equal to 200 psig within 30 minutes, and

b. Perform an engineering evaluation to determine the effect of the overpressurization on the structural integrity of the steam generator. Determine that the steam generator remains acceptable for continued operation prior to increasing its temperatures above 200°F.

SURVEILLANCE REQUIREMENTS

4.7.2 The pressure in each side of the steam generator shall be determined to be less than 200 psig at least once per hour when the temperature of either the reactor or secondary coolant is less than 70°F.

3/4.7.3 PRIMARY COMPONENT COOLING WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.3 At least two independent primary component cooling water loops shall be OPERABLE, including one OPERABLE pump in each loop.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one primary component cooling water (PCCW) loop inoperable, restore the required primary component cooling water loop to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.3 At least two primary component cooling water loops shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position is in its correct position; and

b. At least once per 18 months during shutdown, by verifying that each automatic valve servicing safety-related equipment actuates to its correct position on its associated Engineered Safety Feature actuation signal.

3/4.7.4 SERVICE WATER SYSTEM/ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.4 The Service Water System shall be OPERABLE with:

a. An OPERABLE service water pumphouse and two service water loops with one OPERABLE service water pump in each loop,

b. An OPERABLE mechanical draft cooling tower and two cooling tower service water loops with one OPERABLE cooling tower service water pump in each loop, and

c. A portable cooling tower makeup system stored in its design operational readiness state.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With one service water loop inoperable, return the loop to OPERABLE status within 72 hours, or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one cooling tower service water loop or one cooling tower cell inoperable, return the affected loop or cell to OPERABLE status within 7 days, or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With two cooling tower service water loops or the mechanical draft cooling tower inoperable, return at least one loop and the mechanical draft cooling tower to OPERABLE status within 72 hours, or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With two loops (except as described in c) or the service water pumphouse inoperable, return at least one of the affected loops and the service water pumphouse to OPERABLE status within 24 hours, or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

e. With the portable tower makeup pump system not stored in its design operational readiness state, restore the portable tower makeup pump system to its required condition within 72 hours, or continue operation and notify the NRC within the following 1 hour in accordance with the requirements of 10 CFR 50.72 of actions to ensure an adequate supply of makeup water for the service water cooling tower for a minimum of 30 days.

3/4.7.4 SERVICE WATER SYSTEM/ULTIMATE HEAT SINK

SURVEILLANCE REQUIREMENTS

4.7.4.1 Each service water loop shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position is in its correct position; and

b. At least once per 18 months during shutdown, by verifying that each automatic valve servicing safety-related equipment actuates to its correct position on its associated Engineered Safety Feature actuation test signal.

4.7.4.2 Each service water cooling tower loop shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position is in its correct position; and

b. At least once per 18 months during shutdown, by verifying that:

1) Each automatic valve servicing safety-related equipment actuates to its correct position on its associated Engineered Safety Feature actuation test signal,

2) Each automatic valve in the flowpath actuates to its correct position on a Tower Actuation (TA) test signal and

3) Each service water cooling tower pump starts automatically on a TA signal.

4.7.4.3 The service water pumphouse shall be demonstrated OPERABLE at least once per 24 hours by verifying the water level to be at or above 5'-0" (-36'-0" Mean Sea Level).

4.7.4.4 The mechanical draft cooling tower shall be demonstrated OPERABLE:

a. At least once per 24 hours by verifying the water in the mechanical draft cooling tower basin to be at a level of greater than or equal to 42.15* feet.

b. At least once per week by verifying that the water in the cooling tower basin to be at a bulk average temperature of less than or equal to 70°F.

*With the cooling tower in operation with valves aligned for tunnel heat treatment, the tower basin level shall be maintained at greater than or equal to 40.55 feet.

3/4.7.5 (THIS SPECIFICATION NUMBER IS NOT USED)

3/4.7.4 SERVICE WATER SYSTEM/UTIMATE HEAT SINK

SURVEILLANCE REQUIREMENTS

c. At least once per 31 days by:

1) Starting from the control room each cooling tower fan that is required to be OPERABLE and operating each of these fans for at least 15 minutes, and

2) Verifying that the portable tower makeup pump system is stored in its design operational readiness state.

d. At least once per 18 months by verifying that the portable tower makeup pump develops a flow greater than or equal to 200 gpm.

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3/4.7.6 CONTROL ROOM EMERGENCY MAKEUP AIR AND FILTRATION SUBSYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6 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 or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

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

a. At least once per 12 hours by verifying that the control room is maintained below the limiting equipment qualification temperature in the control room area.

b. 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;

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure-induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on a steam generator RT_{NDT} of 60°F and are sufficient to prevent brittle fracture.

3/4.7.3 PRIMARY COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the Primary Component Cooling Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

3/4.7.4 SERVICE WATER SYSTEM/ULTIMATE HEAT SINK

The Service Water System consists of two independent loops, each of which can operate with either a service water pump train or a cooling tower pump train. Each service water loop consists of a service water pump and the piping, valves, and other components necessary to provide the flowpath required for heat removal. Each service water cooling tower loop consists of a service water cooling tower pump and the necessary piping, valves and other components required to provide its flowpath. The OPERABILITY of the Service Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses, which also assumes loss of either the cooling tower or ocean cooling.

Cooling is normally provided by the Atlantic Ocean via the service water pumphouse. A seismically qualified mechanical draft cooling tower is provided as a backup to the ocean cooling water source because the supply from the circulating water tunnels is not seismically qualified. The mechanical draft cooling tower was designed to use three cells to support two units. Unit 1 utilizes two train-related cells; cell 1 serves Train A and has a single fan, the common cell serves Train B and has two fans. The cooling tower design basis is to provide the necessary ultimate heat sink in the event of a loss of ocean tunnel water flow; however, this source may be used during normal operations subject to the level and temperature limitations of this specification.

Switchover from the service water pumphouse to the mechanical draft cooling tower is accomplished either automatically (Tower Actuation (TA) signal) or manually. Manual action is required to realign the system from the cooling tower to the service water pumphouse. While a cooling tower pump is operating, interlocks prevent the train associated service water pumps from starting. To provide additional protection, during operation while aligned to the cooling tower, the service water pump control switches may be maintained in the pull-to-lock position to prevent inadvertent pump operation. As previously

3/4.7.6 CONTROL ROOM EMERGENCY MAKEUP AIR AND FILTRATION SUBSYSTEM

The OPERABILITY of the Control Room Emergency Makeup Air and Filtration Subsystem ensures that: (1) the allowable temperature for continuous-duty rating for the equipment and instrumentation cooled by this system is not exceeded; and (2) the control room will remain habitable for operations personnel during and following credible accident conditions. Cumulative operation of the system with the heaters on for 10 hours over a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. Heaters run continuously to maintain the relative humidity below 70%. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rems or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50. ANSI N510-1980 will be used as a procedural guide for surveillance testing.

3/4.7.7 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads.

Snubbers are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of the 2-kip, 10-kip and 100-kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location and size and of system affected shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined and approved by the Station Operation Review Committee (SORC). The determination shall be based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g., temperature, atmosphere, location, etc.), and the recommendations of Regulatory Guides 8.8 and 8.10. The addition or deletion of any hydraulic or mechanical snubber shall be made in accordance with Section 50.59 of 10 CFR Part 50.

Surveillance to demonstrate OPERABILITY is by performance of the requirements of an approved inservice inspection program.

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the Commission if a justifiable basis for exemption is presented and, if applicable, snubber life destructive testing was performed to qualify the snubbers for the applicable design conditions at either the completion of their fabrication or at a subsequent date. Snubbers so exempted

3/4.7.4 SERVICE WATER SYSTEM/ULTIMATE HEAT SINK (Continued)

discussed, realignment to the service water pumphouse requires manual action; maintaining the control switches in the pull-to-lock position does not change this required action sequence. Pump operation is not affected by maintaining the control switches in the pull-to-lock position during this period; therefore, OPERABILITY of the service water pumps is not compromised.

The limitations on service water pumphouse minimum water level and the requirements for cooling tower OPERABILITY are based on providing a 30-day cooling water supply to safety-related equipment without exceeding the safety related equipment design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants," March 1974.

The Cooling Tower is normally aligned to allow return flow to bypass the tower sprays and return to the basin. In addition, the control switches for the cooling tower fans are normally maintained in the "pull-to-lock" position. Upon receipt of a Tower Actuation Signal, the fans and sprays are manually operated as required. This manual operation, which is governed by procedures, ensures that ice does not buildup on the cooling tower tile fill and fans. The cooling tower basin temperature limit of 70°F provides sufficient time for manual initiation of the cooling tower sprays and fans following the design basis seismic event with a concurrent LOCA, during the design extreme ambient temperature conditions. Under this scenario, manual action is sufficient to maintain the cooling tower basin at a temperature which precludes equipment damage during the postulated design basis event.

3/4.7.5 (THIS SPECIFICATION NUMBER IS NOT USED)

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 32 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 application dated February 26, 1993, as supplemented by letter of March 11, 1994, and application dated April 7, 1993, as supplemented by letter dated February 24, 1994, North Atlantic Energy Service Corporation (North Atlantic) proposed changes to the Appendix A Technical Specifications (TS) for the Seabrook Station, Unit 1 (Seabrook).

The proposed changes would revise the Appendix A TS relating to the operability requirements for the primary component cooling water (PCCW) system, the service water (SW) system, and the ultimate heat sink (UHS). The proposed changes would redefine the requirements for operable PCCW and SW systems and would combine the TS requirements for the SW system and the UHS. The changes would affect TS sections 3/4.7.3, 3/4.7.4, and 3/4.7.5.

North Atlantic's letters dated March 11, 1994 and February 24, 1994, provide additional clarifying information related to risk calculations but neither letter changes the initial proposed no significant hazards consideration determinations.

2.0 DISCUSSION AND EVALUATION

2.1 Service Water System and Ultimate Heat Sink

2.1.1 Discussion

The SW system at Seabrook employs two independent and redundant cooling loops. Each loop can be supplied by either of two full-capacity SW pumps (4 pumps total) drawing water from the Atlantic Ocean via a pumphouse, or alternatively each loop can be supplied by a full-capacity cooling tower SW pump (2 pumps total) drawing water from a mechanical draft cooling tower. Each of the six pumps is a 100% capacity pump capable of handling all of the necessary heat loads for all normal and design basis events.

Because the tunnels between the Atlantic Ocean and the pumphouse are not designed to seismic Category I requirements, a seismic Category I cooling tower is provided to protect against their failure due to a seismic event. Therefore, to meet the design basis for the SW system, each loop must have an operable SW pump and an operable cooling tower SW pump.

By letters dated April 7, 1993, and February 24, 1994, North Atlantic proposed changes to the Seabrook TS to redefine the requirements for an operable SW system and to consolidate the SW system requirements with the requirements for the UHS. TS 3/4.7.4 for the SW system requires two operable SW loops with each loop having three operable pumps (two SW pumps and one cooling tower SW pump) when the plant is in Modes 1 through 4. North Atlantic asserts that this requirement is unnecessarily restrictive since the second SW pump in each loop is not required for normal or any design basis event, and the associated cooling tower SW pump provides redundancy to cover all design basis events. Operation of any one of the pumps will satisfy the SW cooling requirements during normal operation or any design basis event.
North Atlantic has proposed to amend the plant TS to:

(1) Redefine SW system operability in terms of one operable SW pumphouse, two SW loops each with one operable SW pump, an operable cooling tower, two cooling tower SW loops each with one operable cooling tower SW pump, and a portable cooling tower makeup system in operational readiness,

(2) Extend the allowed outage time (AOT) for one inoperable SW loop from 24 hours to 72 hours and for one inoperable cooling tower SW loop from 72 hours to seven days,

(3) Add an AOT of 24 hours for two inoperable SW pumps and 72 hours for two inoperable cooling tower SW pumps,

(4) Revise the surveillance requirements for SW pumps, and

(5) Add two new action statements based on the proposed definition of SW system operability.

In conjunction with the changes related to the number of pumps required to operable, North Atlantic has proposed to delete TS 3/4.7.5 for the UHS and consolidate the UHS requirements into TS 3/4.7.4 for the SW system. North Atlantic asserts that this consolidation would reduce the potential for confusion between the specifications and to control station operation in a manner consistent with station design. The current specification for the UHS specifies the requirement for the SW pumphouse and the mechanical draft cooling tower. The Atlantic Ocean is the UHS when the SW pumps are used, and the atmosphere, via the cooling tower, is the UHS when the cooling tower SW pumps are used.

North Atlantic has proposed these changes to take advantage of the extra redundancy in the SW system and UHS designs to provide enhanced flexibility during station operation. Presently, TS 3/4.7.4 and 3/4.7.5 are unduly restrictive in that no credit is given for the extra redundancy. These current TS are more restrictive than the Westinghouse Standard TS (STS), NUREG-0452, and the improved Westinghouse STS, NUREG-1431, both of which are based upon a station design with minimum redundancy.

The proposed changes to TS 3/4.7.4 reflect the design basis of the SW system in that with two operable loops, each having one operable SW pump and one operable cooling tower pump (given each pump's UHS is operable), the system is capable of performing its safety function for all design basis events given the worst case single active failure, including the failure of either diesel generator. The additional backup SW pumps are not required by NRC regulation and are not relied upon for any design basis event, therefore, an action statement is not necessary if one of the backup pumps becomes inoperable.

The proposed change also added an AOT (72 hours) if the portable cooling tower makeup pump is not stored in its proper position. After 72 hours, plant operation may continue provided a report is made to the NRC within 1 hour in accordance with the requirements of 10 CFR 50.72. The current TS does not specify an AOT for the portable makeup pump. Under the proposed TS, if the makeup pump is inoperable for reasons other than improper storage, a one hour report is required with no AOT, which is consistent with the current TS. The staff concludes that this AOT is acceptable since it allows North Atlantic to perform periodic testing and maintenance of the pump without an hourly report describing the actions taken to ensure an adequate supply of makeup water for the cooling tower for a minimum of 30 days. The 72 hours is conservative given the low probability of an event requiring a makeup system during this time frame.

The staff also concludes that the consolidation of the SW system and UHS specifications to one TS is acceptable and necessary to achieve and maintain clarity, within the specifications, of the overall requirements for system operability.

North Atlantic asserts that the proposed changes would enhance plant operations and likely improve component reliability by providing more flexibility to perform maintenance on the SW system when the system is required to be operable.

As a result of the removal of the backup SW pumps from the TS, North Atlantic has also proposed to eliminate the related surveillance requirement that verifies each of the four SW pumps starts automatically upon loss of or failure to start of its redundant SW pump within the loop. This automatic start feature is not relied upon in any accident analysis or any other design basis event and is, therefore not required to be part of the TS even without the proposed changes to remove the backup pumps from the specifications.

The proposed changes would impact risk by increasing the likelihood that a SW pump would be unavailable due to planned or unplanned maintenance. North Atlantic has evaluated the impact of the proposed changes on system unavailability and on the potential increase in the total reactor core damage frequency.

North Atlantic supported the proposed changes with a probabilistic risk assessment. North Atlantic used the results published in the "Seabrook Station Probabilistic Safety Study", July 1993 and the generic pump

maintenance data from "Data Base for Probabilistic Risk Assessment of Light Water Nuclear Power Plants - Maintenance Data", PLG-0500, Volume 3, Revision 1, August 1989.

In the analysis of SW system unavailability (current TS), North Atlantic made the following assumptions:

- No planned maintenance is done on the SW system during power operation that would cause a pump to be inoperable;
- No contribution is given to two SW pumps in unplanned maintenance at the same time;
- No explicit maintenance contribution is modeled for valves and instrumentation that would make a SW loop inoperable;
- No maintenance contribution is included from failures of SW or cooling tower ventilation; and
- Maintenance is unrecoverable. For the two redundant standby SW pumps, it was assumed that (a) each pump is unavailable due to planned maintenance once every four years for 14 days; (b) planned maintenance is done one pump at a time; and (c) the pumps are repaired in unplanned maintenance with no special priority.

The SW system configuration is quantified for a number of different boundary conditions, including the number of support systems available, loss of offsite power, safety injection signals and whether the cooling tower is included. A sensitivity study was evaluated for the case assuming that the two standby SW pumps are permanently removed. The results of the analysis show that the change in system unavailability due to the proposed amendment is less than two percent for all the boundary cases and up to seven percent for the sensitivity case.

Loss of the SW system would have the following consequences:

- For transients and loss of coolant accidents, loss of SW would fail primary component cooling leading to loss of cooling to the reactor coolant pump seals and to the emergency core cooling system pumps; and
- For a loss-of-offsite-power event, loss of SW would fail the diesel generators leading to station blackout.

In the estimate of the potential increase in the reactor core damage frequency, North Atlantic compared the dominant sequences in the current TS with those resulting from the proposed amendment. North Atlantic found that the change in the core damage frequency is dominated by the initiating event frequency for loss of one SW train. The resulting increase in the total core damage frequency from the increase in SW system unavailability is 1.9×10^{-6} per year, or 2.4 percent of the current value.

2.1.2 Evaluation and Finding

The staff has determined that the methodology used in the North Atlantic's analysis is appropriate, the supporting data are pertinent and current, the assumptions are sound and conservative, and the results of the analysis are reasonable.

The staff has further determined that the change in the SW system unavailability due to the proposed TS amendment and the resulting increase in the total reactor core damage frequency are insignificantly small.

The staff concludes that the existing TS for the SW system is unnecessarily restrictive and exceeds applicable regulatory requirements by requiring more pumps to be operable than is necessary to meet the system design basis. The staff further concludes that the proposed changes to TS 3/4.7.4 accurately reflect the SW system and UHS design bases and provide an adequate level of safety while providing considerable flexibility. The proposed changes are also consistent with the Westinghouse STS, both NUREG-0452 and NUREG-1431.

On the basis of the above, the staff finds that the proposed TS changes for the SW system and UHS at the Seabrook Nuclear Station, Unit No. 1, are acceptable.

2.2 Primary Component Cooling Water System

2.2.1 Discussion

The PCCW system at Seabrook employs two independent and redundant cooling loops, each with two full capacity pumps. Each PCCW loop supplies cooling water to safety related heat exchangers that are required for safe shutdown during normal operation and following design basis events. Each loop also supplies cooling water to the reactor coolant pump thermal barrier loop and to other nonsafety-related heat exchangers. The PCCW system is designed such that a single pump in either loop can handle the heat loads for all design basis events, including a loss of coolant accident (LOCA) coincident with a loss of offsite power.

TS 3/4.7.3 currently requires two operable PCCW loops with each loop having two operable PCCW pumps. North Atlantic asserts that this requirement is unnecessarily restrictive since the second pump in each loop is not required to mitigate any design basis event. With any one of the four pumps inoperable the present TS provide a 7 day AOT before the plant must be brought to cold shutdown. With two pumps (one in each loop) inoperable the AOT is 72 hours, and with two pumps in the same loop inoperable the AOT is 24 hours.

By application dated February 26, 1993, as supplemented by letter dated March 11, 1994, North Atlantic proposed to amend the plant TS to:

(1) Redefine a PCCW loop as having one operable PCCW Pump,

(2) Change TS 3.7.3 Action Statement a to refer to PCCW loops vice PCCW pumps and establish the AOT for an inoperable PCCW loop as 72 hours, and delete TS 3.7.3 Action Statements b and c, and

(3) Delete Surveillance Requirement 4.7.3 b.2.

The proposed changes reflect the design basis of the PCCW system in that with two operable loops, each having one operable pump, the system is capable of performing its safety function for all design basis events given the worst case single active failure, including the failure of either diesel generator. The additional backup pumps are not required by any NRC regulations and are not relied upon for any design basis event, therefore, an action statement is not necessary if one of the backup pumps becomes inoperable.

The proposed AOT for one loop (72 hours) is consistent with the Seabrook AOTs for other engineered safety feature systems for a loss of redundancy. The proposed changes are consistent with the Westinghouse STS, NUREG-0452, and are also consistent with the improved Westinghouse STS (NUREG-1431).

North Atlantic supported the proposed changes with a probabilistic risk assessment. North Atlantic asserted that the proposed changes would enhance plant operations and outage flexibility by allowing planned and corrective maintenance to be performed on line without affecting adversely the ability of the system to mitigate a postulated design basis event.

The proposed TS changes would impact risk by increasing the likelihood that a PCCW pump would be unavailable due to maintenance, either planned or unplanned. The loss of either train of the PCCW system would affect the plant power generation through loss of cooling to two reactor coolant pump motors.

North Atlantic evaluated the impact of the proposed changes on the unavailability of the PCCW system and on the potential increase in the total reactor core damage frequency.

Two sensitivity cases were evaluated: (1) the two standby PCCW pumps were assumed to be permanently removed; and (2) the impact of the proposed TS changes for SW systems discussed in Section 2.1 was combined with the impact of the proposed TS changes for the PCCW system.

North Atlantic used the results published in the "Seabrook Station Probabilistic Safety Study", July 1993, and the generic pump maintenance data from "Data Base for Probabilistic Risk Assessment of Light Water Nuclear Power Plants - Maintenance Data", PLG-0500, Volume 3, Revision 1, August 1989.

In the analysis of PCCW system unavailability (current TS), North Atlantic made the following assumptions:

- No planned maintenance is done on the PCCW system during power operation that would cause a pump to be inoperable;

- No contribution is given to two PCCW pumps in unplanned maintenance at the same time;
- No explicit maintenance contribution is modeled for valves and instrumentation that would make a loop inoperable;
- No maintenance contribution is included from failures of the PCCW pump area ventilation; and
- Maintenance is unrecoverable. For the two redundant standby PCCW pumps, it was assumed that (a) each pump is unavailable due to planned maintenance once every four years for 14 days; (b) planned maintenance is done one pump at a time; and (c) the pumps are repaired in unplanned maintenance with no special priority.

The PCCW system configuration is quantified for a number of different boundary conditions, including the number of support systems available, loss of offsite power, and containment isolation. The results of the analysis show that the increase in system unavailability due to the proposed changes is less than six percent for all the boundary cases and up to a factor of ten for the sensitivity study case where the two standby PCCW pumps were assumed to be permanently removed.

In the estimate of the potential increase in the reactor core damage frequency, North Atlantic compared the dominant sequences in the current TS with those resulting from the proposed amendments. The increase in the total core damage frequency from the increase in unavailability of the PCCW system is 8.0×10^{-6} per year, or 14 percent of the current value. When combined with the previously proposed changes discussed in Section 2.1, the increase in the total core damage frequency is 20 percent of the current value.

2.2.2 Evaluation and Finding

The staff has determined that the methodology used in the North Atlantic's analysis is appropriate, the supporting data are pertinent and current, the assumptions are sound and conservative, and the results of the analysis are reasonable. The staff has determined that the change in the PCCW system unavailability due to the proposed TS amendment is insignificantly small. The resulting increase in the total reactor core damage frequency is also small.

The staff concludes that the proposed changes to TS 3/4.7.3 accurately reflect the PCCW design basis and provide an adequate level of safety while providing considerable flexibility. The proposed changes are also consistent with the Westinghouse STS, both NUREG-0452 and NUREG-1431.

On the basis of the above, the staff finds that the proposed TS changes for the PCCW system at Seabrook, are acceptable. In future proposed amendments affecting the SW or PCCW systems, North Atlantic should demonstrate that the resulting potential increases in the total core damage frequency would not cumulate to an unacceptable level.

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 requirements with respect to installation or use of facility components 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 proposed findings that the amendment involves no significant hazards consideration, and there has been no public comment on such findings (58 FR 25860 and 58 FR 34082). 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.

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