

II. Markup of Proposed Changes

See attached markup of proposed changes to Technical Specifications.

PLANT SYSTEMS

3/4.7.4 SERVICE WATER SYSTEM/ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.4 At least two independent service water loops shall be OPERABLE, including three OPERABLE pumps in each loop. INSERT A

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

ACTION:

INSERT B

- a. With one service water pump inoperable, restore the required service water pumps 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.
- b. With two service water pumps inoperable, restore at least one of the inoperable service water pumps 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.
- c. With two service water pumps within one loop inoperable, restore at least one of the inoperable pumps to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- d. With one cooling tower service water pump inoperable, restore the required cooling tower service water pump to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.4 At least two Station Service 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:
 - 1) Each automatic valve servicing safety-related equipment actuates to its correct position on its associated Engineered Safety Feature actuation test signal, and
 - 2) Each of the four Station pumps aligned to the ocean ultimate heat sink (UHS) starts automatically upon loss of or failure to start of the redundant pump within the loop and each of the two pumps aligned to the cooling tower UHS starts on a cooling tower actuation (TA) signal.

INSERT C

LIMITING CONDITION FOR OPERATION

3.7.5 The ultimate heat sink (UHS) shall be OPERABLE with:

- a. A service water pumphouse water level at or above 5'-0", minus 35'-0" Mean Sea Level, USGS datum, and
- b. A mechanical draft cooling tower comprised of one cooling tower cell with one OPERABLE** fan and a second cell with two OPERABLE** fans, and a contained basin water level of equal to or greater than 42.15* feet at a bulk average water temperature of less than or equal to 70°F, and
- c. A portable tower makeup pump system stored to be OPERABLE for 30 days following a Safe Shutdown Earthquake.

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

ACTION:

- a. With the service water pumphouse inoperable, restore the service water pumphouse 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.
- b. With the mechanical draft cooling tower inoperable, restore the cooling tower 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.
- c. With the portable tower makeup pump system not stored to be OPERABLE, restore the portable tower makeup pump system to its required stored condition within 72 hours, or declare the portable tower makeup pump system inoperable.
- d. With the portable tower makeup pump system inoperable, continue operation and notify the NRC within 1 hour in accordance with the procedure of 10 CFR 50.72 of actions or contingencies to ensure an adequate supply of makeup water to the mechanical draft cooling tower for a minimum of 30 days.

* 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.

**A fan may be considered OPERABLE if it is capable of being manually started from the main control board.

PLANT SYSTEMS

ULTIMATE HEAT SINK

SURVEILLANCE REQUIREMENTS

4.7.5 The ultimate heat sink shall be determined OPERABLE:

- a. At least once per 24 hours by:
 - 1) Verifying the water level in the service water pumphouse to be at or above 5'-0", minus 36'-0" Mean Sea Level, and
 - 2) Verifying the water in the mechanical draft cooling tower basin to be greater than or equal to a level of 42.15 feet.
- b. At least once per week by verifying that the water in the mechanical draft cooling tower basin to be at a bulk average temperature of less than or equal to 70°F.
- c. At least once per 31 days by:
 - 1) Starting from the control room each UHS cooling tower fan that is required to be OPERABLE and operating each of those 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:
 - 1) Verifying that each automatic valve in the flowpath actuates to its correct position on a Tower Actuation test signal, and
 - 2) Verifying the portable tower makeup pump develops a flow greater than or equal to 200 gpm on recirculation test flow.

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PLANT SYSTEMS

BASES

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

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. 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.

3/4.7.5 ULTIMATE HEAT SINK

The limitations on service water pumphouse level, and the OPERABILITY requirements for the mechanical draft cooling tower and the portable tower makeup pump system, ensure that sufficient cooling capacity is available to either: (1) provide normal cooldown of the facility or (2) mitigate the effects of accident conditions within acceptable limits. This cooling capability is provided by the Atlantic Ocean except during loss of ocean tunnel water flow, when the cooling capability is provided by the mechanical draft cooling tower with tower makeup using portable pumps.

The limitations on minimum water level and the requirements for mechanical draft cooling tower OPERABILITY are based on providing a 30-day cooling water supply to safety-related equipment without exceeding its 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 initially 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. Manual action is sufficient to maintain the cooling tower basin at a temperature which precludes equipment damage during the postulated design basis event.

THE SAFETY-RELATED EQUIPMENT'S

INSERT A

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.

INSERT B

- 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.

INSERT C

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.

INSERT C (continued)

- 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.

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.

INSERT D

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.

INSERT E

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.

INSERT E (continued)

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 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.

INSERT F

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,

III. Retype of Proposed Changes

See attached retype of proposed changes to Technical Specifications. The attached retype reflects the currently issued version of Technical Specifications. Pending Technical Specification changes or Technical Specification changes issued subsequent to this submittal are not reflected in the enclosed retype. The enclosed retype should be checked for continuity with Technical Specifications prior to issuance.

Revision bars are provided in the right hand margin to designate a change in the text.

PLANT SYSTEMS

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.

PLANT SYSTEMS

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.

PLANT SYSTEMS

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.

PLANT SYSTEMS

3/4.7.5 (THIS SPECIFICATION NUMBER IS NOT USED)

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PLANT SYSTEMS

BASES

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

PLANT SYSTEMS

BASES

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)

IV. Safety Evaluation of License Amendment Request 93-02 Proposed Changes

Seabrook Station currently has two Technical Specifications that pertain to the transfer of primary and secondary component heat load. Technical Specification 3/4.7.4 specifies requirements for the Service Water System. Technical Specification 3/4.7.5 specifies requirements for the Ultimate Heat Sink.

Combining Technical Specifications 3/4.7.4 and 3/4.7.5 consolidates the requirements for the transfer of heat loads from plant components. The current requirements of Technical Specification 3/4.7.5 are incorporated in the proposed Technical Specification 3/4.7.4. The Allowed Outage Time (AOT) for an INOPERABLE portable tower makeup pump system has been made consistent with the AOT for an improperly stored pump (72 hours).

Technical Specification 3/4.7.4 currently requires two OPERABLE Service Water loops with each loop having three OPERABLE pumps (two service water pumps and one cooling tower service water pump) when in Modes 1, 2, 3, and 4. This requirement unnecessarily exceeds single failure criteria since the second service water pump is not required for plant safety. The proposed changes redefine an OPERABLE service water loop as having one OPERABLE service water pump and one OPERABLE cooling tower service water pump. Additional changes are proposed to the duration that cooling tower service water loops and service water loops may be inoperable, and to the surveillance requirements for service water pumps.

North Atlantic performed a Probabilistic Risk Assessment (PRA) Evaluation which assumed that the standby service water pumps were unavailable for an extended period of time while at power. The purpose of this evaluation was to account for planned and unplanned maintenance, consistent with the assumptions for other equipment that does not have a Limiting Condition of Operation. The new service water model developed in this evaluation was used to evaluate the unavailability of both service water pumps in a loop consistent with the proposed Action Statement requirement of 72 hours, and cooling tower service water pump unavailability with the proposed Action Statement requirement of seven days. This evaluation demonstrates that the impact on the core damage frequency associated with the proposed changes to Technical Specification 3/4.7.4 is insignificant within the bounds of the core damage frequency uncertainty. The evaluation did not include the positive contributions due to increased flexibility in performing pump maintenance without changing operating mode or the fact that in actuality, service water pump maintenance would receive high priority to restore its availability. The Service Water Probabilistic Risk Assessment is enclosed herein in Section VIII.

Each service water pump is capable of supplying 100 percent of the flow required by a single loop to dissipate plant heat loads during normal full power operation and during postulated accident conditions. The cooling tower service water pump in each loop is also capable of providing 100 percent of the required cooling flow in that loop to dissipate heat loads of the design basis event upon failure of the service water pumphouse tunnels. Thus, with three OPERABLE pumps in each loop, the Service Water System currently has two redundant loops with each loop having three pumps capable of dissipating the design basis event heat loads.

The proposed change is consistent with maintaining redundant service water loops each of which is capable of supplying 100 percent of the cooling water flow required during a LOCA with a concurrent loss of offsite power. An OPERABLE service water loop will be defined as having two OPERABLE pumps, a service water pump and a cooling tower service water pump. The standby service water pump will be

considered an installed spare to provide operational flexibility, increased system availability, and the capability for on-line pump maintenance. The increase in the Allowed Outage Time (AOT) for the cooling tower service water pump reflects its lower risk relationship as compared to the operating service water pump. The 72 hour AOT for a service water loop is consistent with the Standard Technical Specifications for Westinghouse Pressurized Water Reactors and is supported by the new Probabilistic Risk Assessment for the Service Water System.

The proposed change remains consistent with the Bases for Technical Specification 3/4.7.4. Each of the two independent loops will operate with either a service water pump or a cooling tower service water pump and will provide sufficient cooling capacity for continued operation of safety-related equipment during accident conditions. Since each loop will have a redundant pump, the system, assuming a single failure, remains consistent with the assumptions specified in the UFSAR, Section 9.2.

This proposed amendment does not change the cooling tower actuation logic. Automatic tower actuation will still occur upon loss of service water pressure with at least one service water pump breaker closed, as would be experienced on loss of the service water pumphouse due to seismic failure of the tunnels. The tower actuation signal is automatically generated if low service water pressure is sensed by two out of three loop pressure instruments. These pressure instruments are Class 1E Seismic Category I and indicate service water pump discharge header pressure. If the operating service water pump's breaker opens due to electrical failure of the pump motor, and the standby pump fails to start or is unavailable due to maintenance, a tower actuation will be manually generated from the Main Control Board. For conservatism, the probabilistic risk assessment for this proposed change assumed a manual tower actuation was required upon loss of the operating service water pump. Manual transfer of service water heat loads to the cooling tower is consistent with Section 9.2 of the UFSAR and is addressed in the appropriate system operating, abnormal, and emergency procedures.

Since each set of service water pumps and the associated cooling tower service water pumps are powered from the emergency buses, a loss of power to one bus will still leave the other service water loop unaffected with at least one OPERABLE service water pump.

While a literal interpretation of the proposed change could result in having a service water pump inoperable for an extended period of time, North Atlantic has committed to a safe, conservative operating philosophy. This policy would preclude operation of the Service Water System in a degraded condition due to pump inoperability for an extended period of time. The Seabrook Station Maintenance Manual identifies a priority system for the repair of system components. In the case of the Service Water System, a Service Water pump repair would receive a high priority and would thereby be expeditiously repaired.

The requirement specified in Surveillance Requirement 4.7.4.b.2 to verify that each of the four service water pumps starts automatically upon loss, or failure to start, of the redundant pump within the loop is deleted. With the standby service water pump not required for loop OPERABILITY, the basis for testing the automatic start capability of these pumps as a Technical Specification Surveillance no longer exists. The deletion of this portion of Surveillance Requirement 4.7.4.b.2 does not affect the regular inservice testing which is performed on the service water pumps and cooling tower service water pumps as required by Technical Specification Surveillance Requirement 4.0.5. The OPERABILITY of the service water pumps and cooling

tower service water pumps is demonstrated during quarterly inservice testing of these pumps as required by North Atlantic Procedure MA 6.4 "Inservice Testing of Pumps."

The proposed Technical Specification changes are consistent with the Updated Final Safety Analysis Report (UFSAR) Section 9.2, the conclusions of the current Service Water System model in the Seabrook Probabilistic Safety Assessment (IPE Report), and the Bases for Technical Specification 3/4.7.4.

In addition, the proposed changes to Technical Specification 3/4.7.4 will enhance plant operation by providing greater flexibility in planning and performing maintenance on the Service Water System. Most maintenance on the pumps is currently performed during refueling outages due to the restrictive nature of the current Technical Specifications. Performing planned maintenance at times other than during outages would provide greater flexibility in outage planning and would likely improve plant and component reliability. The proposed changes will also permit the performance of unplanned maintenance during plant operation while minimizing plant heatup and cooldown cycles.

Seabrook Station Technical Specification 3/4.7.5 specifies the requirements for the ultimate heat sink. This specification has been consolidated into the proposed Technical Specification 3/4.7.5. This consolidation is proposed to reduce the potential for confusion between the Specifications and to control station operation in a manner consistent with the station design basis. The ultimate heat sink is the Atlantic Ocean when the service water pumps are utilized and the atmosphere when the cooling tower service water pumps are utilized.

V. Determination of Significant Hazards for License Amendment Request 93-02 Proposed Changes

- (1) The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes do not increase the consequences of any accident previously evaluated in the UFSAR. The only design basis accident of concern is a Loss of Coolant Accident (LOCA) concurrent with a loss of offsite power. The systems relied upon to mitigate this accident are the Emergency Core Cooling System (ECCS), the Containment Building Spray System (CBS) and the emergency AC power system emergency diesel generators (EDG's). The Service Water System has a potential effect on the ECCS and CBS systems since it provides the cooling water flow for the Primary Component Cooling Water System, which in turn provides the cooling water flow for the ECCS and CBS systems and it provides cooling water for the EDG's.

The Service Water System is designed to provide the required cooling water flow to safety related systems necessary for the safe shutdown of the plant following a LOCA with a loss of off-site power. The system was designed with two independent loops, with each loop having two possible heat sinks. The normal heat sink is the Atlantic Ocean, with cooling water flow provided by one of two service water pumps. The alternate heat sink is the atmosphere utilizing a Seismic Category 1, mechanical draft cooling tower. In the unlikely event that insufficient ocean water flow is available at the service water pumphouse, a tower actuation signal would be generated to automatically align the system to the cooling tower, with full flow provided by the associated cooling tower service water pump. If both service water pump breakers are open due to maintenance and/or electrical fault, manual initiation of the tower actuation signal will continue to be performed in accordance with existing procedures.

The required post-LOCA cooling flow can be provided by one pump in one service water loop. The proposed Technical Specification changes will still require the capability to meet the single failure criteria. Technical Specifications will continue to require two independent service water loops with each loop provided with two redundant pumps (e.g. one service water pump and one cooling tower service water pump). The increased Allowed Outage Time (AOT) for an inoperable service water loop is consistent with the Standard Technical Specifications for Westinghouse Pressurized Water Reactors (NUREG-1431). The increased AOT for the cooling tower service water pumps reflects their lower risk relationship as compared to the service water pumps.

The Service Water System Probabilistic Risk Assessment (PRA) model was revised to include; (1) the affects of removing the standby service water pump from the definition of loop OPERABILITY, (2) increasing to seven days the AOT for the cooling tower service water pumps and (3) the 72 hour AOT for an inoperable service water loop. This PRA evaluation demonstrates that the proposed Technical Specification changes have an insignificant effect on the core damage frequency. Redundancy of the Service Water System is maintained, with two redundant loops provided with redundant pumps, each of which is capable of supplying 100 percent of the required flow to dissipate the heat of the design basis event.

- (2) The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed Technical Specification changes do not change the design or function of any plant structure, system or component, nor do they introduce any new failure modes. The Service Water System will continue to meet single failure criteria for the design basis accident by requiring two redundant service water loops, with each loop containing fully redundant pumps capable of removing post-LOCA heat loads from the design basis accident. There are no modifications to plant structures, systems and components associated with these proposed changes, and the operation of plant equipment and systems remains unchanged. Since the changes proposed in this License Amendment Request do not revise existing plant structures, systems and components nor does it change the manner in which the plant is operated and in which it will respond to the design basis accident the proposed changes do not create the possibility of a new or different kind of accident from any previously analyzed.

- (3) The proposed changes do not result in a significant reduction in the margin of safety.

The bases for Technical Specification 3/4.7.4 state the following:

"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. 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."

The changes proposed in this License Amendment Request do not alter the Service Water System's ability to perform its safety related function as defined above. As discussed for criterion (1) and (2) above, OPERABILITY of the standby service water pump is not necessary to ensure at least one loop with at least one pump supplying 100 percent of the required flow is available during the design basis accident. Thus, there is no significant reduction in the margin of safety. Since none of the assumptions in the Technical Specification Bases are affected by this proposed change the margin of safety which exists in the Service Water System is not reduced.

VI. Proposed Schedule for License Amendment Issuance and Effectiveness

North Atlantic requests NRC review of License Amendment Request 93-02 and issuance of a license amendment having immediate effectiveness by October 10, 1993.

The proposed changes to Technical Specification 3/4.7.4 will enhance plant operation by providing greater flexibility in planning and performing maintenance on the Service Water System and will consolidate the requirements for the Service Water System, which includes the service water pumphouse and mechanical draft cooling tower, in one Technical Specification. Most maintenance on the pumps is currently performed during refueling outages due to the restrictive nature of the current Technical Specifications. Performing planned maintenance at times other than during outages would provide greater flexibility in outage planning. The proposed changes will also permit the performance of unplanned maintenance during plant operation while minimizing plant heatup and cooldown cycles.

VII. Environmental Impact Assessment

North Atlantic has reviewed the proposed license amendment against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, nor increase the types and amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, North Atlantic concludes that the proposed change meets the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an Environmental Impact Statement.

VIII. Other Supporting Information

PRA Evaluation: Change in Service Water Tech Spec 3.7.4
Engineering Evaluation 92-09, Revision 2
December

Enclosed herein.