New Hampshire Yankee
April 24, 1991

ENCLOSURE 1 TO NYN-91067

PROPOSED TECHNICAL SPECIFICATION CHANGES

EMERGENCY CORE COOLING SYSTEMS

~~ECCS SUBSYSTEMS - T_{avg} LESS THAN 350°F~~ ℓ

ECCS SUBSYSTEMS - T_{avg} EQUAL TO OR LESS THAN 200°F

LIMITING CONDITION FOR OPERATION

3.5.3.2 ~~All Safety Injection pumps shall be inoperable.~~ ℓ INSERT A

APPLICABILITY: MODE 5 and MODE 6 with the reactor vessel head on.

ACTION:

~~With a Safety Injection pump OPERABLE, restore all Safety Injection pumps to an inoperable status within 4 hours.~~ ℓ INSERT B

SURVEILLANCE REQUIREMENTS

4.5.3.2 All Safety Injection pumps required to be inoperable shall be demonstrated inoperable* by verifying that the motor circuit breakers are secured in the open position at least once per 31 days.

*An inoperable pump may be energized for testing or for filling accumulators provided the discharge at the pump has been isolated from the RCS by a closed isolation valve with power removed from the valve operator, or by a manual isolation valve secured in the closed position.

Inserts for Technical Specification 3.5.3.2

Insert A:

As a minimum, the following number of Safety Injection pumps shall be inoperable:

a. Two when the RCS vent area is less than 18 square inches.*

b. One when the RCS vent area is equal to or greater than 18 square inches.

Insert B:

With fewer than the required number of Safety Injection pumps inoperable, restore all pumps required to be inoperable, to inoperable status within 4 hours.

REACTOR COOLANT SYSTEM

PRESSURE/TEMPERATURE LIMITS

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.9.3 ~~At least one of~~ The following Overpressure Protection Systems shall be OPERABLE:

a. INSERT A

~~a.~~ 1) Two residual heat removal (RHR) suction relief valves each with a setpoint of 450 psig ± 3%, or

~~b.~~ 2) Two power-operated relief valves (PORVs) with lift setpoints that vary with RCS temperature which do not exceed the limit established in Figure 3.4-4, or

~~c.~~ 3) The Reactor Coolant System (RCS) depressurized with an RCS vent of greater than or equal to 1.58 square inches. area

b. INSERT B

APPLICABILITY: MODE 4 when the temperature of any RCS cold leg is less than or equal to 329°F; MODE 5 and MODE 6 with the reactor vessel head on.

ACTION:

a. INSERT C

~~a.~~ 1) With one PORV and one RHR suction relief valve inoperable, either restore two PORVs or two RHR suction relief valves to OPERABLE status within 7 days or depressurize and vent the RCS through at least a 1.58-square-inch vent within the next 8 hours.

~~b.~~ 2) With both PORVs and both RHR suction relief valves inoperable, depressurize and vent the RCS through at least a 1.58-square-inch vent within 8 hours.

~~c.~~ 3) In the event the PORVs, or the RHR suction relief valves, or the RCS vent(s) are used to mitigate an RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.8.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the PORVs, or the RHR suction relief valves, or RCS vent(s) on the transient, and any corrective action necessary to prevent recurrence.

b. INSERT D

Inserts for Technical Specification 3.4.9.3

Insert A:

In MODE 4 when the temperature of any RCS cold leg is less than or equal to 329°F; and in MODE 5 and MODE 6 with all Safety Injection pumps inoperable:

Insert B:

In MODE 5 and MODE 6 with all Safety Injection pumps except one inoperable:

1) The Reactor Coolant System (RCS) depressurized with an RCS vent area equal to or greater than 18 square inches.

Insert C:

In MODE 4, MODE 5 and MODE 6 with all Safety Injection pumps inoperable:

Insert D:

In MODE 5 and MODE 6 with all Safety Injection pumps except one inoperable:

1) With the RCS vent area less than 18 square inches, immediately restore all Safety Injection pumps to inoperable status.

SURVEILLANCE REQUIREMENTS

4.4.9.3.1 Each PORV shall be demonstrated OPERABLE by:

a. Performance of an ANALOG CHANNEL OPERATIONAL TEST on the PORV actuation channel, but excluding valve operation, within 31 days prior to entering a condition in which the PORV is required OPERABLE and at least once per 31 days thereafter when the PORV is required OPERABLE;

b. Performance of a CHANNEL CALIBRATION on the PORV actuation channel at least once per 18 months; and

c. Verifying the PORV isolation valve is open at least once per 72 hours when the PORV is being used for overpressure protection.

4.4.9.3.2 Each RHR suction relief valve shall be demonstrated OPERABLE when the RHR suction relief valves are being used for cold overpressure protection as follows:

a. For RHR suction relief valve RC-V89

1) By verifying at least once per 31 days that RHR RCS Suction Isolation Valve RC-V88 is open with power to the valve operator removed, and

2) By verifying at least once per 12 hours that RC-V87 is open.

b. For RHR suction relief valve RC-V24

1) By verifying at least once per 31 days that RC-V22 is open with power to the valve operator removed, and

2) By verifying at least once per 12 hours that RC-V23 is open.

c. Testing pursuant to Specification 4.0.5.

4.4.9.3.3 The RCS vent(s) shall be verified to be open at least once per 12 hours* when the vent(s) is being used for overpressure protection.

valve(s) or device(s)

*Except when the vent pathway is provided with a ~~valve~~ that is locked, sealed, or otherwise secured in the open position, then verify ~~those valve(s)~~ this valve(s) or device(s) open at least once per 31 days.

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ENCLOSURE 2 TO NYN-91067

PROPOSED REVISIONS TO
TECHNICAL SPECIFICATION BASES

3/4.4.9 PRESSURE/TEMPERATURE LIMITS (Continued)

COLD OVERPRESSURE PROTECTION

The Maximum Allowed PORV Setpoint for the Cold Overpressure Mitigation System (COMS) is derived by analysis which models the performance of the COMS assuming various mass input and heat input transients. Operation with a PORV Setpoint less than or equal to the maximum Setpoint ensures that Appendix G criteria will not be violated with consideration for: (1) a maximum pressure overshoot beyond the PORV Setpoint which can occur as a result of time delays in signal processing and valve opening; (2) a 50°F heat transport effect made possible by the geometrical relationship of the RHR suction line and the RCS wide range temperature indicator used for COMS; (3) instrument uncertainties; and (4) single failure. To ensure mass and heat input transients more severe than those assumed cannot occur, Technical Specifications require lockout of both Safety Injection pumps and all but one centrifugal charging pump while in MODES 4, 5, and 6 with the reactor vessel head installed and disallow start of an RCP if secondary coolant temperature is more than 50°F above reactor coolant temperature. Exceptions to these requirements are acceptable as described below.

Operation above 350°F but less than 375°F with only centrifugal charging pump OPERABLE and no Safety Injection pumps OPERABLE is allowed for up to 4 hours. As shown by analysis, LOCAs occurring at low temperature, low pressure conditions can be successfully mitigated by the operation of a single centrifugal charging pump and a single RHR pump with no credit for accumulator injection. Given the short time duration and the condition of having only one centrifugal charging pump OPERABLE and the probability of a LOCA occurring during this time, the failure of the single centrifugal charging pump is not assumed.

Operation below 350°F but greater than 325°F with all centrifugal charging and Safety Injection pumps OPERABLE is allowed for up to 4 hours. During low pressure, low temperature operation all automatic Safety Injection actuation signals except Containment Pressure - High are blocked. In normal conditions, a single failure of the ESF actuation circuitry will result in the starting of at most one train of Safety Injection (one centrifugal charging pump, and one Safety Injection pump). For temperatures above 325°F, an overpressure event occurring as a result of starting two pumps can be successfully mitigated by operation of both PORVs without exceeding Appendix G limit. ~~Given the short time duration that this condition is allowed and the low probability of a single failure of a PORV is not assumed.~~ INSERT Initiation of both trains of Safety Injection during this 4-hour time frame due to operator error or a single failure occurring during testing of a redundant channel are not considered to be credible accidents.

Operation with all centrifugal charging pumps and both Safety Injection pumps OPERABLE is acceptable when RCS temperature is greater than 350°F, a single PORV has sufficient capacity to relieve the combined flow rate of all

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A single failure of a PORV is not assumed due to the short duration that this condition is allowed and the low probability of an event occuring during this interval in conjunction with the failure of a PORV to open.

3/4.4.9 PRESSURE/TEMPERATURE LIMITS (Continued)

COLD OVERPRESSURE PROTECTION (Continued)

pumps. Above 350°F two RCPs and all pressure safety valves are required to be OPERABLE. Operation of an RCP eliminates the possibility of a 50°F difference existing between indicated and actual RCS temperature as a result of heat transport effects. Considering instrument uncertainties only, an indicated RCS temperature of 350°F is sufficiently high to allow full RCS pressurization in accordance with Appendix G limitations. Should an overpressure event occur in these conditions, the pressurizer safety valves provide acceptable and redundant overpressure protection.

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The Maximum Allowed PORV Setpoint for the Cold Overpressure Mitigation System will be revised on the basis of the results of examinations of reactor vessel material irradiation surveillance specimens performed as required by 10 CFR Part 50, Appendix H.

3/4.4.10 STRUCTURAL INTEGRITY

The inservice inspection and testing programs for ASME Code Class 1, 2, and 3 components ensure that the structural integrity and operational readiness of these components will be maintained at an acceptable level throughout the life of the plant. These programs are in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g) except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i).

Components of the Reactor Coolant System were designed to provide access to permit inservice inspections in accordance with Section XI of the ASME Boiler and Pressure Vessel Code, 1983 Edition and Addenda through Summer 1983.

3/4.4.11 REACTOR COOLANT SYSTEM VENTS

Reactor Coolant System vents are provided to exhaust noncondensible gases and/or steam from the Reactor Coolant System that could inhibit natural circulation core cooling. The OPERABILITY of least one Reactor Coolant System vent path from the reactor vessel head and the pressurizer steam space ensures that the capability exists to perform this function.

The valve redundancy of the Reactor Coolant System vent paths serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a vent valve, power supply, or control system does not prevent isolation of the vent path.

The function, capabilities, and testing requirements of the Reactor Coolant System vents are consistent with the requirements of Item II.B.1 of NUREG-0737, Clarification of TMI Action Plant Requirements," November 1980.

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When operating below 200°F in MODE 5 or MODE 6, Technical Specification 3.5.3.2 allows one Safety Injection pump to be made OPERABLE whenever the RCS has vent area equal to or greater than 18 square inches. Cold overpressure protection in this configuration is provided by the 18 square inch or greater mechanical opening in the RCS pressure boundary. This mechanical opening is larger in size than the 1.58 square inch opening required for normal overpressure protection and is of sufficient size to ensure that the Appendix G limits are not exceeded when an SI pump is operating in MODE 5 or MODE 6. Additionally, when operating in a reduced inventory condition, the larger vent area limits RCS pressure during overpressure transients to reduce the possibility of adversely affecting steam generator nozzle dams. When the reactor has been shut down for at least 7 days, the larger vent area also enhances the ability to provide a gravity feed to the RCS from the Refueling Water Storage Tank in the unlikely event that the CCP and SI pumps were unavailable after a loss of RHR.

BASES

3/4.5.1 ACCUMULATORS

The OPERABILITY of each Reactor Coolant System (RCS) accumulator ensures that a sufficient volume of borated water will be immediately forced into the reactor core through each of the cold legs in the event the RCS pressure falls below the pressure of the accumulators. This initial surge of water into the core provides the initial cooling mechanism during large RCS pipe ruptures.

The limits on accumulator volume, boron concentration, and pressure ensure that the assumptions used for accumulator injection in the safety analysis are met.

The accumulator power-operated isolation valves are considered to be "operating bypasses" in the context of IEEE Std. 279-1971, which requires that bypasses of a protective function be removed automatically whenever permissive conditions are not met. In addition, as these accumulator isolation valves fail to meet single-failure criteria, removal of power to the valves is required.

The limits for operation with an accumulator inoperable for any reason except an isolation valve closed minimizes the time exposure of the plant to a LOCA event occurring concurrent with failure of an additional accumulator which may result in unacceptable peak cladding temperatures. If a closed isolation valve cannot be immediately opened, the full capability of one accumulator is not available and prompt action is required to place the reactor in a mode where this capability is not required.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS

The OPERABILITY of two independent ECCS subsystems ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single-failure consideration. Either subsystem operating in conjunction with the accumulators is capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits for all postulated break sizes ranging from the double-ended break of the largest RCS cold-leg pipe downward. In addition, each ECCS subsystem provides long-term core cooling capability in the recirculation mode during the accident recovery period.

With the RCS temperature below 350°F, one OPERABLE ECCS subsystem is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the limited core cooling requirements.

The limitation for a maximum of one centrifugal charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps and safety injection pumps except the required OPERABLE charging pump to be inoperable in MODES 4 and 5 and in MODE 6 with the reactor vessel head on provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV or RHR suction relief valve.

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When the RCS has a vent area equal to or greater than 18 square inches, one Safety Injection pump may be made OPERABLE when in MODE 5 or MODE 6 (below 200°F). When operating in this configuration, cold overpressure protection is provided by the mechanical vent opening, equal to or greater than 18 square inches, that is required to be present in the RCS boundary prior to making the SI pump OPERABLE. This required RCS vent area and the surveillance requirement to verify the presence of the RCS vent area provides assurance that a mass addition transient can be relieved and that adequate cold overpressure protection is provided.

ENCLOSURE 3 TO NYN-91067

NO SIGNIFICANT HAZARDS CONSIDERATION

NO SIGNIFICANT HAZARDS CONSIDERATION

Background

NRC Generic Letter 88-17, "Loss of Decay Heat Removal", requires that prior to operating in a reduced inventory condition, at least two available means of adding inventory to the Reactor Coolant System (RCS) be provided in addition to pumps which are part of the normal decay heat removal system. These means are to include at least one high pressure injection pump. Currently, the Seabrook Station Technical Specifications require that all Safety Injection (SI) pumps be inoperable in MODE 5 and in MODE 6 with the reactor vessel head on to preclude RCS mass addition transients which are more severe than that assumed in the design basis for the Cold Overpressure Mitigation System (COMS). The proposed changes will allow one SI pump to be made operable when the plant is in either MODE 5 or MODE 6 with the reactor vessel head on when an adequate mechanical venting capability exists to preclude overpressure of the RCS.

Description of Proposed Changes

The changes proposed are to Technical Specification 3.5.3.2, EMERGENCY CORE COOLING SYSTEMS, ECCS SUBSYSTEMS - T_{avg} LESS THAN 350°F, ECCS SUBSYSTEMS - T_{avg} EQUAL TO OR LESS THAN 200°F, LIMITING CONDITION FOR OPERATION; Technical Specification 4.5.3.2, the associated SURVEILLANCE REQUIREMENTS; and the Technical Specification BASES for 3/4.4.9 PRESSURE/TEMPERATURE LIMITS and 3/4.5.2 AND 3/4.5.3 ECCS SUBSYSTEMS.

a. Technical Specification 3.5.3.2

The proposed change to Technical Specification (TS) 3.5.3.2 would allow one Safety Injection (SI) pump to be made OPERABLE when the plant is operating in either MODE 5 or MODE 6 and a Reactor Coolant System (RCS) vent equal to or greater than 18 square inches is established.

Currently, when the plant is in either MODE 5 or MODE 6 with the reactor vessel head on, all SI pumps are required by existing TS 3.5.3.2 to be inoperable, in order to prevent RCS mass addition transients more severe than those assumed in the design basis for the Cold Overpressure Mitigation System (COMS) setpoints. The pumps are made inoperable by securing the pump motor circuit breakers in an open position. The proposed change would allow one SI pump to be made OPERABLE by restoring the associated motor circuit breaker to a closed position whenever an RCS vent area equal to or greater than 18 square inches is established. This change addresses programmed enhancement (3b) of NRC Generic Letter 88-17 and provides an additional means of adding inventory to the RCS. The use of the SI pump provides a diverse and redundant means to makeup RCS inventory in the event the Residual Heat Removal System and the Centrifugal Charging Pump became unavailable while the plant is operating in a reduced inventory condition.

The Limiting Condition for Operation (LCO) of this specification has been revised to state the number of Safety Injection pumps that, as a minimum, must be inoperable under two unique plant configurations. These configurations are 1) with an RCS vent area less than 18 square inches and 2) with an RCS vent area equal to or greater than 18 square inches. The Action Statement has also been rewritten in terms of the required number of inoperable pumps rather than addressing an OPERABLE pump.

In order to provide overpressure protection of the reactor vessel Appendix G pressure/temperature limits during this mode of operation, the proposed changes to TS 3.5.3.2 requires that a mechanical opening equal to or greater than 18 square inches must be present is the RCS pressure boundary **prior** to making the SI pump operable. The size of the required mechanical opening was determined by analysis to be 18 square inches. This area is less than 21 square inches, the free flow area of one pressurizer safety valve flange, thus the removal of one safety valve would provide the required vent area.

The Surveillance Requirement has been rewritten to be consistent with the Action Statement and to require a demonstration of inoperability by verification that the motor circuit breaker is secured in the open position for those pumps required to be inoperable. Additionally, the asterisk (*) has been deleted from the surveillance requirement and relocated to part a. of the LCO to ensure that inoperable pumps are energized for testing while isolated from the RCS, only when no Safety Injection pumps are OPERABLE.

The additional surveillance requirement that was included in the December 14, 1990 submittal has been relocated to Technical Specification 3.4.9.3 and is discussed in item b. below.

Additionally, the page subtitle was revised to eliminate the heading "ECCS Subsystems - Tavg Equal to or Less Than 350°F". This specification is applicable in MODE 5 and MODE 6 and therefore only applies when Tavg is equal to or less than 200°F.

b. Technical Specification 3.4.9.3

This specification was revised to establish the requirements for the overpressure protection in one specification and to consolidate the surveillance requirements. This is a change from the original submittal which specified the requirement for the RCS vent area and the surveillance requirement in Technical Specification 3.5.3.2.

Specification 3.4.9.3 has also been revised to specify which overpressure protection systems are required to be OPERABLE in two unique plant configurations.

- First, for operation in MODE 4 when the temperature of any RCS cold leg is less than or equal to 329°F; and in MODE 5 and MODE 6 with all Safety Injection pumps inoperable, the required overpressure protection systems are specified. There are no changes to the overpressure protection system descriptions with the exception of adding the word "area" in item 3).

- A second plant configuration was addressed which is operation in MODE 5 or MODE 6 with all Safety Injection pumps, except one inoperable. In this configuration the requirement to depressurize the RCS with a vent area equal to or greater than 18 square inches is added. The 18 square inch vent provides the overpressure protection to ensure that the Appendix G limits are not exceeded.

Similar changes are made to the action statements that must be taken in these two plant configurations.

Surveillance Requirements 4.4.9.3.3 was revised to add the words valve(s) or device(s). This change would allow a device to be locked in place in the RCS opening to ensure the required vent path is maintained. The removal of a pressurizer safety valve is one of the methods being considered to establish the required vent area equal to or greater than 18 square inches. When the safety valve is removed it is expected that some type of screen will be installed to keep debris from the RCS. If the device were locked in place, the equivalent surveillance requirement would be applied as now exists from a vent pathway that is provided by a valve that is locked in the open position. It should be noted that by revising the submittal to utilize the surveillance/requirements of specification 4.4.9.3.3 the surveillance frequency from our original submittal has been reduced from 24 to 12 hours and introduces additional conservatism.

c. Bases

Two changes are proposed to the BASES for TS 3/4.4.9.

- As noted in the existing BASES, operation below 350°F but above 325°F with all Centrifugal Charging Pumps (CCP) and Safety Injection (SI) pumps operable, is allowed for up to 4 hours. The first proposed change is a clarification of the wording dealing with the reasoning behind the assumption that there will be no single failure of a PORV in conjunction with an inadvertent actuation of a single ESF train. The existing sentence is not complete. The proposed change inserts the appropriate words and punctuation to make the sentence complete. This change is just a wording clarification of an existing aspect of the BASES and does not change the intent or meaning of the BASES.

- The second change to the BASES for TS 3/4.4.9 is to insert a discussion of the basis for the proposed revision to the requirement that both SI pumps be locked-out while in MODES 4, 5 and 6. The change describes that one SI pump may be operable while in MODE 5 or MODE 6 whenever the required RCS vent area equal to or greater than 18 square inches is established. The overpressure protection for a mass addition transient is provided by the RCS vent area equal to or greater than 18 square inches.

Finally, a change is also proposed to the BASES of TS 3/4.5.3 to describe the basis for the proposed revision to the requirement to lockout both SI pumps in MODE 5 and MODE 6. The change describes the requirement to verify the existence of the adequate RCS vent area prior to making an SI pump OPERABLE and the surveillance requirement to verify the presence of the RCS vent area on a periodic bases.

Engineering Evaluation

The 1.58 square inch vent area specified in Technical Specification (TS) 3.4.9.3c is the equivalent flow area of a single pressurizer power operated relief valve (PORV). The relief capacity of a single pressurizer PORV is sufficient to prevent violation of the Appendix G pressure limits for the current Cold Overpressure Mitigation System (COMS) system design basis events. The current COMS design basis events and mass addition assumptions are either: (1) operation of a single Centrifugal Charging Pump (CCP) or a single Safety Injection (SI) pump without letdown (limiting mass addition events), or, (2) inadvertent start of a Reactor Coolant Pump with a 50°F temperature differential between the Reactor Coolant System (RCS) and Steam Generator (SG) secondary temperatures (limiting heat addition event). The 18 square inch vent area specified in the proposed change to TS 3.5.3.2, therefore, provides more than the minimum vent area which would be sufficient to preclude violation of Appendix G pressure limits for the COMS design basis events.

Since TS 3.5.3.1 and TS 3.5.3.2 currently prohibit operation of an SI pump in Modes 4, 5 and 6, the COMS design basis does not include simultaneous operation of a CCP and an SI pump. Implementation of the proposed TS change would allow one SI pump to be made operable in Modes 5 and 6. As a result, a mass addition transient more limiting than the current COMS system design basis mass addition event becomes possible. This event is characterized by mass addition from the simultaneous operation of both a single CCP and a single SI pump, with no letdown. A vent flow area greater than 1.58 square inches is required to prevent violation of the Appendix G limits during such an event. The pressure relief capacity afforded by the 18 square inch vent area specified in the proposed change to TS 3.5.3.2 is more than sufficient to prevent violation of the Appendix G pressure limits for this event. The anticipated method of providing this vent area is removal of a pressurizer safety valve (SV) from its flange or optionally, opening a pressurizer manway.

A vent area larger than that required based upon Appendix G overpressure protection requirements was conservatively specified after consideration was given to two other factors influencing mid-loop operation as discussed below:

- If operating with SG nozzle dams in place, in order to avoid exposure of plant personnel to reactor coolant due to nozzle dam failure, it is necessary to provide a vent capable of maintaining the pressure in the RCS hot and cold legs lower than the allowable pressure differential across the nozzle dams in order to preclude failure. The 18 square inch vent area specified is sufficient to limit the pressure differential across the SG nozzle dams during the new mass addition event to 33 psig, which is less than the 56.5 psig design pressure differential of the nozzle dams which may be used at Seabrook. In the event of a loss of Residual Heat Removal (RHR) cooling during mid-loop operation, the 18 square inch vent area (as provided by removal of a single pressurizer SV) also provides adequate steam relief capacity to prevent RCS pressure from exceeding the SG nozzle dam design pressure differential assuming the plant has been shutdown for at least 48 hours. The equilibrium RCS pressure is

expected to be 46 psig following a loss of RHR shutdown cooling, during mid-loop operation, 48 hours after shutdown utilizing best estimate decay heat and no makeup flow so that decay heat is removed by vaporization of saturated liquid.

- In addition to the SI pump and the CCP, gravity feed from the Refueling Water Storage Tank (RWST) to the RCS is possible at Seabrook subject to RCS (hot leg) pressure and RWST level. With an RWST level of 25%, gravity feed is possible with RCS pressures up to 32 psig. With a full RWST, gravity feed is possible up to an RCS pressure of 45 psig. The RCS pressures discussed above are substantially below the Appendix G pressure limit. A vent path larger than the 1.58 square inches specified in TS 3.4.9.3c is required to meet Appendix G limits and to allow gravity feed from the RWST. Removal of a single pressurizer SV from its flange (which provides a vent area slightly greater than the 18 square inches specified in the proposed change to TS 3.5.3.2) is the smallest vent path under consideration for this purpose. This vent path is sufficient to pass the steaming rates associated with decay heat removal via saturated steam cooling while maintaining RCS hot leg pressures $\leq$ 45 psig, for shutdown times in excess of 168 hours (7 days); and maintaining RCS hot leg pressure $\leq$ 32 psig, for shutdown times in excess of 360 hours (15 days). Gravity feed from the RWST is a backup means of providing RCS makeup and cooling. The primary method is to utilize the RHR system. If RHR were to fail the Coolant Charging System, using the CCP, and the Safety Injection System, using the SI pump are the primary backups systems to provide additions to the RCS inventory. Gravity feed from the RWST is available to backup these systems in the unlikely event that both the CCP and SI pumps are unavailable after a loss of RHR.

The 18 square inch vent area specified in the proposed change to TS 3.5.3.2 therefore represents a conservatively large vent area with respect to Appendix G overpressure protection requirements, and a minimum desirable vent area with respect to these other considerations. Seabrook Station procedures will include administrative controls to ensure that a vent path of at least 18 square inches is established prior to making the SI pump available for use in a reduced inventory condition.

NO SIGNIFICANT HAZARDS CONSIDERATION CONCLUSION

New Hampshire Yankee has reviewed the proposed changes in accordance with the criteria specified in 10 CFR 50.92, and based upon the information provided in the revised Technical Specifications and above has determined that the proposed changes would not:

1. Involve a significant increase in the probability or consequences of any accident previously evaluated. The only accident potentially affected by the proposed change to allow operation of an SI pump when the RCS has a vent area equal to or greater than 18 square inches is the low temperature overpressurization mass addition transient. The probability of this event is not affected since the operable Safety Injection (SI) pump would only be made OPERABLE after the suitable vent area in the Reactor Coolant System pressure boundary had been established. The creation of this vent area is similar to the existing requirement in Technical Specification 3.4.9.3.c to provide an RCS vent of at least 1.58 square inches in the event that neither of the COMS alternate relief valve configurations is available. The maximum possible flow rate into the Reactor Coolant System (RCS) during the mass addition transient will be

increased, however this does not increase the consequences of this type of accident. The consequences of such an event would be mitigated by ensuring that a suitable vent area in the RCS pressure boundary exists prior to making an SI pump OPERABLE. This vent area will prevent any transient induced pressure increase from exceeding the 10 CFR 50 Appendix G pressure limit. The inclusion of the surveillance requirement in Technical Specification 3.4.9.3.3 ensures that the RCS vent area is maintained. Additionally, by providing an additional source of reactor vessel inventory, the proposed change reduces the consequences of a malfunction of the Residual Heat Removal (RHR) system.

2. Create the possibility of a new or different kind of accident from any previously evaluated. Allowing a SI pump to be operable in these modes creates the possibility of a more severe mass addition transient than those within the capability of the Cold Overpressure Mitigation System (COMS). However, the proposed requirement to provide an RCS vent area equal to or greater than 18 square inches prior to making the SI pump OPERABLE provides overpressure protection for the Appendix G limit. This prerequisite to provide the RCS vent area prior to allowing one (1) SI pump to be OPERABLE is similar to the existing requirement in Technical Specification 3.4.9.3c to provide an RCS vent of at least 1.58 square inches in the event that neither of the COMS alternate relief valve configurations is available. The opening of a small vent in the RCS pressure boundary to provide overpressure protection is not a new or different approach than that currently used for low temperature overpressure protection and therefore does not create the possibility of a new or different type of accident than any previously evaluated.

3. Involve a significant reduction in a margin of safety. The proposed changes would allow one SI pump to be made OPERABLE in MODE 5 and MODE 6 creates the possibility of a mass addition transient more severe than those considered in the COMS design basis. However, the requirement to provide a suitably sized RCS vent area prior to making the SI pump OPERABLE will ensure that no violation of Appendix G limits will occur for such an event and no reduction of margin of safety for overpressure protection can occur. The utilization of the RCS vent area equal to or greater than 18 square inches provides protection of the reactor vessel Appendix G limit independent of the COMS system. Therefore the proposed changes do not result in a reduction in the margin of safety.