ATTACHMENT 3

PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS 3.1.2.1 & 3.1.2.3
AND BASES

TSI - 054

3/4.1.2 BORATION SYSTEMS

FLOW PATHS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.1 As a minimum, one of the following boron injection flow paths shall be OPERABLE and capable of being powered from an OPERABLE emergency power source:

a. A flow path from the Boric Acid Storage System via either a boric acid transfer pump or a gravity feed connection, and a charging pump to the Reactor Coolant System if the Boric Acid Storage System is OPERABLE as given in Specification 3.1.2.5a. for MODES 5 and 6 or as given in Specification 3.1.2.6a. for MODE 4; or

b. The flow path from the refueling water storage tank via a charging pump to the Reactor Coolant System if the refueling water storage tank is OPERABLE as given in Specification 3.1.2.5b. for MODES 5 and 6 or as given in Specification 3.1.2.6b. for MODE 4.

APPLICABILITY: MODES 4*, 5*, and 6*.

ACTION:

With none of the above flow paths OPERABLE or capable of being powered from an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.1.2.1 At least one of the above required flow paths shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that the temperature of the heat traced portion of the flow path is greater than or equal to 65°F when a flow path from the boric acid tanks is used, and

b. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

* The requirements of this specification are not applicable during charging pump testing or switching pursuant to Specification 4.1.2.3.2.

CHARGING PUMPS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.1.2.3 One charging pump in the boron injection flow path required by Specification 3.1.2.1 shall be OPERABLE and capable of being powered from an OPERABLE emergency power source.

APPLICABILITY: MODES 4**, 5, and 6.

ACTION:

With no charging pump OPERABLE or capable of being powered from an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.1.2.3.1 The above required charging pump shall be demonstrated OPERABLE by verifying, on recirculation flow, that a differential pressure across the pump of greater than or equal to 2300 psid is developed when tested pursuant to Specification 4.0.5.

4.1.2.3.2 All charging pumps, excluding the above required OPERABLE pump, shall be demonstrated inoperable* at least once per 31 days, except when the reactor vessel head is removed, by verifying that the motor circuit breakers are secured in the open position.

Reactor Coolant Pump seal injection flow MAY be maintained during the RCS isolation PROCESS.

OR Pump switching

*An inoperable pump may be energized for testing provided the discharge of 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.

**The provisions of Specification 3.0.4 and 4.0.4 are not applicable for entry into MODE 4 from MODE 3 for the charging pumps declared OPERABLE pursuant to Specification 4.1.2.4 provided that a maximum of one charging pump is OPERABLE within 4 hours after entry into MODE 4 from MODE 3 or prior to the temperature of one or more of the RCS cold legs decreasing below 325°F, whichever comes first.

BORATION SYSTEMS (Continued)

With the RCS temperature below 350°F, one boron injection flow path/source is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting CORE ALTERATIONS and positive reactivity changes in the event the single boron injection flow path/source becomes inoperable.

(Insert A from Attachment A here)

The limitation for a maximum of one charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps except the required OPERABLE pump to be inoperable below 350°F provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV.

The boration capability required below 200°F is sufficient to provide a variable SHUTDOWN MARGIN based on the results of a boron dilution accident analysis where the SHUTDOWN MARGIN is varied as a function of RCS boron concentration after xenon decay and cooldown from 200°F to 140°F. This condition requires either 2900 gallons of 7000 ppm borated water from the boric acid storage system or 122,000 gallons of 2500 ppm borated water from the RWST for MODE 5 and 33,000 gallons of 2500 ppm borated water from the RWST for MODE 5.

The contained water volume limits include allowance for water not available because of discharge line location and other physical characteristics.

The limits on contained water volume and boron concentration of the RWST also ensure a pH value of between 7.5 and 10.0 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

The OPERABILITY of one Boron Injection System during REFUELING ensures that this system is available for reactivity control while in MODE 6.

3/4.1.3 MOVABLE CONTROL ASSEMBLIES

The specifications of this section ensure that: (1) acceptable power distribution limits are maintained, (2) the minimum SHUTDOWN MARGIN is maintained, and (3) the potential effects of rod misalignment on associated accident analyses are limited. OPERABILITY of the control rod position indicators is required to determine control rod positions and thereby ensure compliance with the control rod alignment and insertion limits. Verification that the Digital Rod Position Indicator agrees with the demanded position within ± 12 steps at 24, 48, 120, and 259 steps withdrawn for the Control Banks and 18, 234, and 259 steps withdrawn for the Shutdown Banks provides assurances that the Digital Rod Position Indicator is operating correctly over the full range of indication. Since the Digital Rod Position Indication System does not indicate the actual shutdown rod position between 18 steps and 234 steps, only points in the indicated ranges are picked for verification of agreement with demanded position.

PRESSURE/TEMPERATURE LIMITS (Continued)

increase with increasing heatup rate, a lower bound curve cannot be defined. Rather, each heatup rate of interest must be analyzed on an individual basis.

Following the generation of pressure-temperature curves for both the steady-state and finite heatup rate situations, the final limit curves are produced as follows. A composite curve is constructed based on a point-by-point comparison of the steady-state and finite heatup rate data. At any given temperature, the allowable pressure is taken to be the lesser of the three values taken from the curves under consideration.

The use of the composite curve is necessary to set conservative heatup limitations because it is possible for conditions to exist such that over the course of the heatup ramp the controlling condition switches from the inside to the outside and the pressure limit must at all times be based on analysis of the most critical criterion.

Finally, the composite curves for the heatup rate data and the cooldown rate data are adjusted for possible errors in the pressure and temperature sensing instruments by the values indicated on the respective curves.

Although the pressurizer operates in temperature ranges above those for which there is reason for concern of nonductile failure, operating limits are provided to assure compatibility of operation with the fatigue analysis performed in accordance with the ASME Code requirements.

LOW TEMPERATURE OVERPRESSURE PROTECTION

The OPERABILITY of two PORVs or an RCS vent opening of at least 2.0 square inches ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the RCS cold legs are less than or equal to 350°F. Either PORV has adequate relieving capability to protect the RCS from overpressurization when the transient is limited to either: (1) the start of an idle RCP with the secondary water temperature of the steam generator less than or equal to 50°F above the RCS cold leg temperatures, or (2) the maximum credible mass injection flow rate due to the startup of a single HHSI pump plus 100 gpm net charging flow, while the RCS is in a water solid condition and the RCS temperature is between 350°F and 200°F.

(Insert B from Attachment A here)

For RCS temperatures less than 200°F, the maximum overpressure event consists of operating a centrifugal charging pump with complete termination of letdown and a failure of the charging flow control valve to the full flow condition.

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 a maximum pressure

BASES

LOW TEMPERATURE OVERPRESSURE PROTECTION (Continued)

overshoot beyond the PORV Setpoint which can occur as a result of time delays in signal processing and valve opening, instrument uncertainties, and single failure. To ensure that mass and heat input transients more severe than those assumed cannot occur, Technical Specifications require lockout of all high head safety injection pumps while in MODE 5 and MODE 6 with the reactor vessel head on. All but one high head safety injection pump are required to be locked out in MODE 4. Technical Specifications also require lockout of the positive displacement pump and all but one charging pump while in MODES 4, 5, and 6 with the reactor vessel head installed and disallow start of an RCP if secondary temperature is more than 50°F above primary temperature.

Administrative controls and two RHR relief valves will be used to provide cold overpressure protection (COMS) during the ASME stroke testing of two administratively declared inoperable PORVs. During the performance of the PORV function test, two RHR trains will be OPERABLE and in operation with the auto closure interlock bypassed (or deleted) to provide COMS.

With one PORV inoperable, COMS will be provided during the ASME test by the OPERABLE PORV and one RHR relief valve associated with an OPERABLE and operating RHR train which has the auto closure interlock bypassed (or deleted). Each RHR relief valve provides sufficient capacity to relieve the flow resulting from the maximum charging flow with concurrent loss of letdown. The RHR pump design developed head, corresponding to the design flowrate of 3400 gpm, is 205 ft and the actual pump developed pressure is 115 psig. This results in actuation of the RHR relief valves at a RCS pressure of approximately 485 psig (600 psig - 115 psig).

Therefore two OPERABLE and operating RHR trains or one OPERABLE PORV and one OPERABLE and operating RHR train will provide adequate and redundant overpressure protection. Use of the RHR relief valves will maintain the RCS pressure below the low temperature endpoint of the Technical Specification limit curve (550 psig, Ref. Technical Specification Fig. 3.4-2).

With regard to the MODE 6 applicability of this Technical Specification, the statement "with the head on the reactor vessel" means any time the head is installed with or without tensioning the RPV studs.

The Maximum Allowed PORV Setpoint for the COMS will be updated based on 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

ATTACHMENT A

Insert A

In order to provide for charging pump testing and switching below 350°F, an allowance to have both Centrifugal Charging Pumps energized simultaneously is permitted provided the pump discharge is isolated from the RCS. During pump switching, isolation from the RCS does not violate the requirement to have the boration flow path available below 350°F since the simultaneous energization of the two charging pumps and accompanying RCS isolation, is a momentary action under direct administrative control. Such actions are acceptable due to the limited time the flow path is isolated, the stable reactivity of the reactor, and the restrictions prohibiting CORE ALTERATIONS and positive reactivity should the isolated flow path not be immediately realigned following the pump testing or switching. Isolation of the RCS also precludes a cold overpressurization event during the pump switching or testing process. Reactor Coolant Pump seal flow may be maintained during the RCS isolation process.

Insert B

The design mass input transient in MODE 4 assumes that, with failure of one PORV to open, a safety injection signal will start one High Head Safety Injection pump. The normal charging and letdown flow paths would be isolated by a containment isolation phase "A" signal, but a Reactor Coolant Pump seal flow rate of 100 gpm would be maintained (normal seal flow is 20 gpm). The capacity of each PORV is sufficient to discharge the combined High Head Safety Injection and Reactor Coolant Pump seal flow rate at RCS pressure below the present maximum allowable PORV setpoint pressure for 200°F. In MODE 5, the mass input transient assumes the operation of one Centrifugal Charging Pump (CCP) with letdown isolated and the charging flow control valve full open. In each case the letdown is isolated allowing only the path through the RCP seals with a maximum CCP flow of 100 gpm. Whether one or both CCPs are lined up to the RCP seal flow path, the credible flow through the RCP seals can only be 20 gpm with letdown isolated unless a seal failure occurs. Therefore, by positioning the charging isolation valve closed during a pump testing or switching process, assurance is provided that a mass addition pressure transient, which exceeds the relief capacity of a single PORV, will not occur.