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:

a. A flow path from the boric acid storage system via a boric acid transfer pump to a charging pump to the Reactor Coolant System if only the boric acid storage tank in Specification 3.1.2.7a is OPERABLE, or

b. The flow path from the refueling water storage tank via a charging pump or a low head safety injection pump (with an open RCS vent of greater than or equal to 3.14 square inches) to the Reactor Coolant System if only the refueling water storage tank in Specification 3.1.2.7b is OPERABLE.

APPLICABILITY: MODES 5 and 6

ACTION

With none of the above flow paths OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until at least one injection path is restored to OPERABLE status.

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:

1. Cycling each testable power operated or automatic valve in the flow path through at least one complete cycle of full travel.

REACTIVITY CONTROL SYSTEMS

CHARGING PUMP 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) or Low Head Safety Injection Pump (with an open reactor coolant system vent of greater than or equal to 3.14 square inches) shall be OPERABLE and capable of being powered from an OPERABLE emergency bus.

APPLICABILITY: MODES 5 and 6

ACTION:

With none of the above pumps OPERABLE, suspend all operations involving CORE ALTERNATIONS or positive reactivity changes until one charging pump or Low Head Safety Injection pump is restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.1.2.3.1 The above required charging pump shall be demonstrated OPERABLE at least once per 31 days by:

a. Starting (unless already operating) the pump from the control room,

b. Verifying, that on recirculation flow, the pump develops a discharge pressure of $\geq$2402 psig, and

c. Verifying pump operation for at least 15 minutes.

4.1.2.3.2 All pumps, except the above required charging or Low Head Safety Injection pump, shall be demonstrated inoperable at least once per 12 hours by verifying that the control switches are placed in the PULL-TO-LOCK position and tagged.

4.1.2.3.3 When the Low Head Safety Injection pump is used in lieu of a charging pump, the Low Head Safety Injection pump shall be demonstrated OPERABLE by:

a. Verification of an operable RWST pursuant to 4.1.2.7
b. Verification of an operable Low Head Safety Injection Pump pursuant to Specification 4.5.2.b.2,
c. Verification of power available* to MOV-1SI-890C with the plug inserted in its control circuit and an operable Low Head Safety Injection flow path from the RWST to the Reactor Coolant System once per shift, and
d. Verification that the vent is open at least once per 12 hours.**

* Emergency backup power need not be available

** Except when the vent path is provided with a valve which is locked or provided with remote position indication, or sealed, or otherwise secured in the open position, then verify these valves open at least once per 7 days.

REACTIVITY CONTROL SYSTEMS

CHARGING PUMPS OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.4 At least two charging pumps shall be OPERABLE

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

ACTION:

With only one charging pump OPERABLE, restore at least two charging pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to at least 1% $\Delta k/k$ at 200°F within the next 6 hours; restore at least two charging pumps to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.4.1 At least two charging pumps shall be demonstrated OPERABLE at least once per 31 days on a STAGGERED TEST BASIS by:

a. Starting (unless already operating) each pump from the control room,

b. Verifying, that on recirculation flow, each pump develops a discharge pressure of $\geq$ 2402 psig, and

c. Verifying pump operation for at least 15 minutes.

4.1.2.4.2 All charging pumps, except the above required OPERABLE pump, shall be demonstrated inoperable at least once per 12 hours whenever the temperature of one or more of the in-service RCS cold legs is $\leq$ 275°F by verifying that the control switches are placed in the PULL-TO-LOCK position and tagged.

A maximum of one centrifugal charging pump shall be OPERABLE whenever the temperature of one or more of the non isolated RCS cold legs is $\leq$ 275°F.

3/4.1.1.4 MODERATOR TEMPERATURE COEFFICIENT (MTC) (Continued)

fuel cycle. The surveillance requirement for measurement of the MTC at the beginning and near the end of each fuel cycle is adequate to confirm the MTC value since this coefficient changes slowly due principally to the reduction in RCS boron concentration associated with fuel burnup.

3/4.1.1.5 MINIMUM TEMPERATURE FOR CRITICALITY

This specification ensures that the reactor will not be made critical with the Reactor Coolant System average temperature less than 541°F. This limitation is required to ensure 1) the moderator temperature coefficient is within its analyzed temperature range, 2) the pressurizer is capable of being in an OPERABLE status with a steam bubble, 3) the reactor pressure vessel is above its minimum NDTT temperature and 4) the protective instrumentation is within its normal operating range.

3/4.1.2 BORATION SYSTEMS

The boron injection system ensures that negative reactivity control is available during each mode of facility operation. The components required to perform this function include 1) borated water sources, 2) charging pumps, 3) separate flow paths, 4) boric acid transfer pumps, 5) associated heat tracing systems, and 6) an emergency power supply from OPERABLE diesel generators.

With the RCS average temperature above 200°F, a minimum of two separate and redundant boron injection systems are provided to ensure single functional capability in the event an assumed failure renders one of the systems inoperable. Allowable out-of-service periods ensure that minor component repair or corrective action may be completed without undue risk to overall facility safety from injection system failures during the repair period.

With the RCS average temperature less than 200°F, Low Head Safety Injection pump may be used in lieu of the operable charging pump with a minimum open RCS vent of 3.14 square inches. This will provide latitude for maintenance and ISI examinations on the charging system for repair or corrective action and will ensure that boration and makeup are available when the charging pumps are out-of-service. An open vent insures that the RCS pressure will not exceed the shutoff head of the Low Head Safety Injection pumps.

MOV-1SI-890C is the Low Head Safety Injection Pump discharge isolation valve to the RCS coldlegs, the valve must be closed prior to reducing RCS pressure below the RWST head pressure to prevent draining into the RCS. Emergency backup power is not required since this valve is outside containment and can be manually operated if required, this will allow the associated diesel generator to be taken out of service for maintenance and testing.

3/4.1.2 BORATION SYSTEMS, (Continued)

The required volume of water in the refueling water storage tank for reactivity considerations while operating is 424,000 gallons. The associated technical specification limit on the refueling water storage tank has been established at 441,100 gallons to account for reactivity considerations and the NPSH requirements of the ECCS system.

The limitations for a maximum of one centrifugal charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps except the required OPERABLE pump to be inoperable below 275°F provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV. Substituting a Low Head Safety Injection pump for a charging pump in Modes 5 and 6 will not increase the probability of an overpressure event since the shutoff head of the Low Head Safety Injection pumps is below the setpoint of the overpressure protection system.

vessel inside radius are essentially identical, the measured transition shift for a sample can be applied with confidence to the adjacent section of the reactor vessel. The heatup and cooldown curves must be recalculated when the ΔRT_{NDT} determined from the surveillance capsule is different from the calculated ΔRT_{NDT} for the equivalent capsule radiation exposure.

The pressure-temperature limit lines shown on Figure 3.4-2 for reactor criticality and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50 for reactor criticality and for inservice leak and hydrostatic testing.

The number of reactor vessel irradiation surveillance specimens and the frequencies for removing and testing these specimens are provided in Table 4.4-3 to assure compliance with the requirements of Appendix H to 10 CFR Part 50.

The limitations imposed on the pressurizer heatup and cooldown rates and spray water temperature differential are provided to assure that the pressurizer is operated within the design criteria assumed for the fatigue analysis performed in accordance with the ASME Code requirements.

The OPERABILITY of two PORVs or an RCS vent opening of greater than 3.14 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 $\leq$ 275°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 $\leq$ 25°F above the RCS cold leg temperature or (2) the start of a charging pump and its injection into a water solid RCS.

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 Part 50.55a(g) except where specific written relief has been granted by the Commission pursuant to 10 CFR Part 50.55a (g)(6)(i).

3/4.4.11 RELIEF VALVES

The relief valves have remotely operated block valves to provide a positive shutoff capability should a relief valve become inoperable. The electrical power for both the relief valves and the block valves is capable of being supplied from an emergency power source to ensure the ability to seal this possible RCS leakage path.

ATTACHMENT B

No Significant Hazard Determination

Proposed Change Request No. 34, Revision 2 amends the Beaver Valley Power Station, Unit No. 1 Technical Specifications, Appendix A to allow the use of the Low Head Safety Inspection pumps with an open RCS vent of 3.14 square inches in lieu of a charging pump when in Modes 5 and 6.

Description of amendment request: The proposed amendment would revise applicable specifications to allow the use of the Low Head Safety Injection (LHSI) pumps with an open RCS vent of 3.14 square inches in place of a charging pump when in Modes 5 and 6. Applicable surveillance requirements have been added to require demonstration of LHSI pump operability and verification of an open vent when used in place of the charging pump. The Mode 5 and 6 Action statement has also been revised to specify action to be taken when no charging pump or LHSI pump is operable. The Bases have been revised to provide justification for using a LHSI pump in place of a charging pump.

Basis for proposed no significant hazards consideration determination: Based on the criteria for defining no significant hazards consideration setforth in 10CFR50.92(c), plant operation in accordance with the proposed amendment would not:

(1) involve a significant increase in the probability or consequence of an accident previously evaluated since negative reactivity control and makeup can be provided by the LHSI pumps. One or more LHSI pumps with an open RCS vent in lieu of an operable charging pump when in Modes 5 and 6 will allow the removal of the charging pumps from service for maintenance and ISI examination. One or more LHSI pumps may be operable since even without the open vent the shutoff head of the pumps is lower than the 10CFR50 Appendix G limits and the PORV setpoint, therefore, no matter how many pumps are in operation the LHSI pumps cannot overpressurize the RCS. The open vent will ensure that the RCS pressure is maintained low enough so that the LHSI pumps can inject borated water and will also act as a relief path to limit RCS pressure increase.

(2) create the possibility of a new or different kind of accident from any accident previously evaluated for the same reason as (1) above.

(3) involve a significant reduction in the margin of safety since no change to plant equipment or components is required. Plant operation in Modes 5 and 6 would be changed somewhat since the LHSI pumps may be used in place of the charging pumps. However, since the capability to provide reactivity control and makeup will continue to be provided, via the LHSI pumps, there is no significant reduction in the margin of safety.

The proposed changes incorporate administrative controls to allow the use of the LHSI pumps with an open RCS vent in place of a charging pump when in Modes 5 and 6. This will permit taking the charging pumps out of service for maintenance or modification and continue to provide the capability for negative reactivity control and makeup. Therefore, the changes will not increase the likelihood of a malfunction of safety-related equipment, increase the consequences of an accident previously analyzed, nor create the possibility of a malfunction different than previously evaluated in the UFSAR. Based on the above, it is proposed to characterize the change as involving no significant hazards consideration.