

Attachment 2 to AEP:NRC:0916S

Proposed Revised Technical Specification Pages

8605060106 860501  
PDR ADOCK 05000316  
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## REACTIVITY CONTROL SYSTEMS

### BORATED WATER SOURCES - SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

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3.1.2.7 As a minimum, one of the following borated water sources shall be OPERABLE:

- a. A boric acid storage system and associated heat tracing with:
  - 1. A minimum usable contained borated water volume 4300 gallons,
  - 2. Between 20,000 and 22,500 ppm of boron, and
  - 3. A minimum solution temperature of 145°F.
- b. The refueling water storage tank with:
  - 1. A minimum usable contained borated water volume of 90,000 gallons,
  - 2. A minimum boron concentration of 2000 ppm, and
  - 3. A minimum solution temperature of 35°F.

APPLICABILITY: MODES 5 and 6.

#### ACTION:

With no borated water source OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until at least one borated water source is restored to OPERABLE status.

#### SURVEILLANCE REQUIREMENTS

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4.1.2.7 The above required borated water source shall be demonstrated OPERABLE:

- a. At least once per 7 days by:
  - 1. Verifying the boron concentration of the water,
  - 2. Verifying the contained borated water volume, and
  - 3. Verifying the boric acid storage tank solution temperature when it is the source of borated water.
- b. At least once per 24 hours by verifying the RWST temperature when it is the source of borated water and the outside air temperature is < 35°F.



## REACTIVITY CONTROL SYSTEMS

### BORATED WATER SOURCES - OPERATING

#### LIMITING CONDITION FOR OPERATION

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3.1.2.8 Each of the following borated water sources shall be OPERABLE:

- a. A boric acid storage system and associated heat tracing with:
  - 1. A minimum contained borated water volume of 5470 gallons,
  - 2. Between 20,000 and 22,500 ppm of boron, and
  - 3. A minimum solution temperature of 145°F.
- b. The refueling water storage tank with:
  - 1. A contained borated water volume of between 350,000 and 420,000 gallons,
  - 2. Between 2000 and 2200 ppm of boron, and
  - 3. A minimum solution temperature of 80°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

#### ACTION:

- a. With the boric acid storage system inoperable, restore the storage system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to at least 1%  $\Delta k/k$  at 200°F; restore the boric acid storage system to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.
- b. With the refueling water storage tank inoperable, restore the tank to OPERABLE status within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

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4.1.2.8 Each borated water source shall be demonstrated OPERABLE:



BASES

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.

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 below 152°F, unless the reactor vessel head is removed, provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV.

The boration capability of either system is sufficient to provide the required SHUTDOWN MARGIN from expected operating conditions after xenon decay and cooldown to 200°F. The maximum expected boration capability usable volume requirement is 3700 gallons of 20,000 ppm borated water from the boric acid storage tanks or 118,000 gallons of 2000 ppm borated water from the refueling water storage tank. The numbers included in the Technical Specifications (BAST: 5470 gallons / RWST: 350,000 gallons) conservatively bound these and other applicable accident analysis requirements.

With the RCS temperature below 200°F, one injection system 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 change in the event the single injection system becomes inoperable.

The boron capability required below 200°F is sufficient to provide the required MODE 5 SHUTDOWN MARGIN after xenon decay and cooldown from 200°F to 140°F. This condition requires usable volumes of either 4300 gallons of 20,000 ppm borated water from the boric acid storage tanks or 90,000 gallons of 2000 ppm borated water from the refueling water storage tank.

The limits on contained water volume and boron concentration of the RWST also ensure a pH value of between 8.5 and 11.0 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 boron injection system during REFUELING ensures that this system is available for reactivity control while in MODE 6.

