ATTACHMENT 2

TECHNICAL SPECIFICATIONS CHANGES

SURRY UNITS 1 AND 2

3.2 CHEMICAL AND VOLUME CONTROL SYSTEM

Applicability

Applies to the operational status of the Chemical and Volume Control System.

Objective

To define those conditions of the Chemical and Volume Control System necessary to ensure safe reactor operation.

Specification

A. When fuel is in a reactor there shall be at least one flow path to the core for boric acid injection. The minimum capability for boric acid injection shall be equivalent to that supplied from the refueling water storage tank.

B. For one unit operation the reactor shall not be critical unless the following Chemical and Volume Control System conditions are met:

1. Two charging pumps shall be operable and one charging pump from the opposite unit shall be operable. *
2. Two boric acid transfer pumps shall be operable.
3. The boric acid tanks (tank associated with the unit plus the common tank) together shall contain a minimum of 6000 gallons of at least 7.0% (but not greater than 8.5%) by weight boric acid solution at a temperature of at least 112°F.

*Submitted for NRC approval on January 12, 1983 (Serial No. 740)

4. System piping and valves shall be operable to the extent of establishing two flow paths to the core; one flow path from the boric acid tanks to the charging pumps and a flow path from the refueling water storage tank to the charging pumps.
5. Two channels of heat tracing shall be operable for the flow paths requiring heat tracing.
6. System piping, valves and control board indication required for the operation of the components enumerated in Specification B.1 shall be operable. *

C. For two unit operation the reactor shall not be critical unless the following Chemical and Volume Control System conditions are met:

1. Two charging pumps shall be operable per unit.
2. Three boric acid transfer pumps shall be operable.
3. When the common tank is in service, it shall be assigned to only one unit at a time. For that unit which has usage of the common tank, the boric acid tanks (unit's tank plus common tank) together shall contain a minimum of 6000 gallons of at least 7.0% (but not greater than 8.5%) by weight boric acid solution at a temperature of at least 112°F.

   For that unit which does not have usage of the common tank, the unit's own tank shall contain a minimum of 6000 gallons of at least 7.0% (but not greater than 8.5%) by weight boric acid solution at a temperature of at least 112°F.

   When the common tank is assigned to one unit, valves shall be positioned to establish a flow path to that unit and prevent flow to the other unit.

*Submitted for NRC approval on January 12, 1983 (Serial No. 740)

Basis

The Chemical and Volume Control System provides control of the Reactor Coolant System Boron inventory. This is normally accomplished by using boric acid transfer pumps which discharge to the suction of each unit's charging pumps. The Chemical and Volume Control System contains four boric acid transfer pumps. Two of these pumps are normally assigned to each unit but valving and piping arrangements allow pumps to be shared such that 3 out of 4 pumps can service either unit. An alternate (not normally used) method of boration is to use the charging pumps taking suction directly from the refueling water storage tank. There are two sources of borated water available to the suction of the charging pumps through two different paths, one from the refueling water storage tank and one from the discharge of the boric acid transfer pumps.

A. The boric acid transfer pumps can deliver the boric acid tank contents (7.0% solution of boric acid) to the charging pumps.

B. The charging pumps can take suction from the volume control tank, the boric acid transfer pumps and the refueling water storage tank. Reference is made to Technical Specification 3.3.

The quantity of boric acid in storage from either the boric acid tanks or the refueling water storage tank is sufficient to borate the reactor coolant in order to reach cold shutdown at any time during core life.

Approximately 6000 gallons of the 7.0% solution of boric acid are required to meet cold shutdown conditions. Thus, a minimum of 6000 gallons in the boric acid tank is specified. An upper concentration limit of 8.5% boric acid in the tank is specified to maintain solution solubility at the specified low temperature limit of 112°F. For redundancy, two channels of heat tracing are installed on lines normally containing concentrated boric acid solution.

The Boric Acid Tank(s), which are located above the Boron Injection Tank(s), are supplied with level alarms, which would annunciate if a leak in the system occurred.

References

FSAR Section 9.1 Chemical and Volume Control System

3.3 SAFETY INJECTION SYSTEM

Applicability

Applies to the operating status of the Safety Injection System.

Objective

To define those limiting conditions for operation that are necessary to provide sufficient borated cooling water to remove decay heat from the core in emergency situations.

Specifications

A. A reactor shall not be made critical unless the following conditions are met:

1. The refueling water storage tank contains not less than 387,100 gal of borated water. The boron concentration shall be at least 2000 ppm and not greater than 2200 ppm.
2. Each accumulator system is pressurized to at least 600 psia and contains a minimum of 975 ft^3 and a maximum of 989 ft^3 of borated water with a boron concentration of at least 1950 ppm.

3. Two channels of heat tracing shall be available for the flow paths.

4. Two charging pumps are operable.

5. Two low head safety injection pumps are operable.

6. All valves, piping, and interlocks associated with the above components which are required to operate under accident conditions are operable.

7. The Charging Pump Cooling Water Subsystem shall be operating as follows:

   a. Make-up water from the Component Cooling Water Subsystem shall be available.

   b. Two charging pump component cooling water pumps and two charging pump service water pumps shall be operable.

   c. Two charging pump intermediate seal coolers shall be operable.

8. During power operation the A.C. power shall be removed from the following motor operated valves with the valve in the open position:

Unit No. 1	Unit No. 2
MOV 1890C	MOV 2890C

9. During power operation the A.C. power shall be removed from the following motor operated valves with the valve in the closed position:

Unit No. 1	Unit No. 2
MOV 1869A	MOV 2869A
MOV 1869B	MOV 2869B
MOV 1890A	MOV 2890A
MOV 1890B	MOV 2890B

10. The accumulator discharge valves listed below in non-isolated loops shall be blocked open by de-energizing the valve motor operator when the reactor coolant system pressure is greater than 1000 psig.

Unit No. 1	Unit No. 2
MOV 1865A	MOV 2865A
MOV 1865B	MOV 2865B
MOV 1865C	MOV 2865C

11. Power operation with less than three loops in service is prohibited. The following loop isolation valves shall have AC power removed and be locked in open position during power operation.

Unit No. 1	Unit No. 2
MOV 1590	MOV 2590
MOV 1591	MOV 2591
MOV 1592	MOV 2592
MOV 1593	MOV 2593
MOV 1594	MOV 2594
MOV 1595	MOV 2595

12. The total system uncollected leakage from valves, flanges, and pumps located outside containment shall not exceed the limit shown in Table 4.11-1 as verified by inspection during system testing. Individual component leakage may exceed the design value given in Table 4.11-1 provided that the total allowable system uncollected leakage is not exceeded.

6. One charging pump component cooling water pump or one charging pump service water pump may be out of service provided the pump is restored to operable status within 24 hours.
7. One charging pump intermediate seal cooler or other passive component may be out of service provided the system may still operate at 100 percent capacity and repairs are completed within 48 hours.
8. Power may be restored to any valve referenced in Specifications 3.3.A.9 and 3.3.A.10 for the purpose of valve testing or maintenance provided that no more than one valve has power restored and provided that testing and maintenance is completed and power removed within 24 hours.
9. Power may be restored to any valve referenced in Specification 3.3.A.11 for the purpose of valve testing or maintenance provided that no more than one valve has power restored and provided that testing or maintenance is completed and power removed within 4 hours.
10. The total uncollected system leakage for valves, flanges, and pumps located outside containment can exceed the limit shown in Table 4.11-1 provided immediate attention is directed to making repairs and system leakage is returned to within limits within 7 days.

The accumulators (one for each loop) discharge into the cold leg of the reactor coolant piping when Reactor Coolant System pressure decreases below accumulator pressure, thus assuring rapid core cooling for large breaks. The line from each accumulator is provided with a motorized valve to isolate the accumulator during reactor start-up and shutdown to preclude the discharge of the contents of the accumulator when not required. These valves receive a signal to open when safety injection is initiated.

To assure that the accumulator valves satisfy the single failure criterion, they will be blocked open by de-energizing the valve motor operators when the reactor coolant pressure exceeds 1000 psig. The operating pressure of the Reactor Coolant System is 2235 psig and safety injection is initiated when this pressure drops to 600 psig. De-energizing the motor operator when the pressure exceeds 1000 psig allows sufficient time during normal startup operation to perform the actions required to de-energize the valve. This procedure will assure that there is an operable flow path from each accumulator to the Reactor Coolant System during power operation and that safety injection can be accomplished.

The removal of power from the valves listed in the specification will assure that the systems of which they are a part satisfy the single failure criterion.

TABLE 4.1-2B

MINIMUM FREQUENCIES FOR SAMPLING TESTS

	DESCRIPTION	TEST	FREQUENCY	FSAR SECTION REFERENCE
1.	Reactor Coolant Liquid Samples	Radio-chemical Analysis (1)	Monthly (5)	
		Gross Activity (2)	5 days/week (5)	9.1
		Tritium Activity	Weekly (5)	9.1
		*Chemistry (Cl, F & O_2)	5 days/week	4
		*Boron Concentration	Twice/week	9.1
		$\bar{E}$ Determination	Semiannually (3)	
		DOSE EQUIVALENT I-131	Once/2 weeks (5)	
		Radio-iodine Analysis (including I-131, I133 & I-135)	Once/4 hours (6) and (7) below	
2.	Refueling Water Storage Tank Water Sample	Boron Concentration	Weekly	6
3.	Boric Acid Tanks	*Boron Concentration	Twice/week	9.1
4.	Chemical Additive Tank	NaOH Concentration	Monthly	6
5.	Spent Fuel Pit	*Boron Concentration	Monthly	9.5
6.	Secondary Coolant	Fifteen minute degassed b and q activity (4)	Once/72 hours	10.3
		DOSE EQUIVALENT I-131	Monthly (4) Semiannually (8)	
7.	Stack Gas Iodine and Particulate Samples	*I-131 and particulate radioactive releases	Weekly	
8.	Accumulator	Boron Concentration	Monthly	6.2

*See Specification 4.1.D

(1) A radiochemical analysis will be made to evaluate the following corrosion products: Cr-51, Fe-59, Mn-54, Co-58, and Co-60.

(2) A gross beta-gamma degassed activity analysis shall consist of the quantitative measurement of the total radioactivity of the primary coolant in units of μCi/cc.

TABLE 4.1-1 (Continued)

	Channel Description	Check	Calibrate	Test	Remarks
10.	Rod Position Bank Counters	S (1,2)	N.A.	N.A.	1) Each six inches of rod motion when data logger is out of service 2) With analog rod position
11.	Steam Generator Level	S	R	M	
12.	Charging Flow	N.A.	R	N.A.	
13.	Residual Heal Removal Pump Flow	N.A.	R	N.A.	
14.	Boric Acid Tank Level	*D	R	N.A.	
15.	Refueling Water Storage Tank Level	S	R	M	
16.	Boron Injection Tank Level	N.A.	N.A.	N.A.	
17.	Volume Control Tank Level	N.A.	R	N.A.	
18.	Reactor Containment Pressure-CLS	*D	R	M (1)	1) Isolation Valve signal and spray signal
19.	Process and Area Radiation Monitoring System	*D	R	M	
20.	Boric Acid Control	N.A.	R	N.A.	
21.	Containment Pump Level	N.A.	R	N.A.	
22.	Accumulator Level and Pressure	S	R	N.A.	
23.	Containment Pressure-Vacuum Pump System	S	R	N.A.	
24.	Steam Line Pressure	S	R	M	