

- 4.5.2.2 Acceptable levels of performance shall be that the pumps start, reach their required developed head on recirculation flow and the control board indications and visual observation indicate that the pumps are operating properly. The pumps should be run for at least 15 minutes.

Valves

- 4.5.2.3 The boron injection tank isolation valves shall be opened and closed one at a time by operator action at intervals not to exceed one month when the reactor coolant system is above the cold shutdown condition. When periods of reactor cold shutdown extend this interval beyond one month, the test shall be performed prior to reactor heatup.
- 4.5.2.4 The spray additive valves shall be tested with the pumps shut down and the containment spray pump suction valves closed. Each spray additive valve will be opened and closed by operator action at each cold shutdown which extends more than 48 hours but not more often than once each quarter.
- 4.5.2.5 The accumulator check valves will be checked for operability during each refueling shutdown.
- 4.5.2.6 The refueling water storage tank outlet valves shall be tested at each cold shutdown which extends more than 48 hours but not more often than once each quarter.
- 4.5.2.7 When the reactor coolant pressure is in excess of 1,000 psi, it shall be verified at least once per 12 hours (from the RTGB indicators/controls) that the following valves are in their proper position with control power to the valve operators removed.

<u>Valve Number</u>	<u>Valve Position</u>
1- MOV 862 A&B	Open
2- MOV 863 A&B	Closed
3-MOV 864 A&B	Open
4- MOV 866 A&B	Closed

- 4.5.28 At monthly intervals during power operations each valve (manual, power operated, or automatic) in the safety injection (low and high pressure) and containment spray system flow paths that is not locked, sealed, or otherwise secured in position shall be verified as correctly positioned.

Basis

The Safety Injection System and the Containment Spray System are principal plant safeguards that are normally inoperative during reactor operation. Complete systems tests cannot be performed when the reactor is operating because a safety injection signal causes reactor trip, main feedwater isolation and containment isolation, and a Containment Spray System test requires the system to be temporarily disabled. The method of assuring operability of these systems is therefore to combine systems tests to be performed during annual plant shutdowns, with more frequent component tests, which can be performed during reactor operation.

The systems tests demonstrate proper automatic operation of the Safety Injection and Containment Spray Systems. A test signal is applied to initiate automatic action and verification made that the components receive the safety injection in the proper sequence. The test demonstrates the operation of the valves, pump circuit breakers, and automatic circuitry.(1) (2) (4)

During reactor operation, the instrumentation which is depended on to initiate safety injection and containment spray is generally

checked each shift and the initiating circuits are tested monthly (in accordance with Specification 4.1). The testing of the analog channel inputs is accomplished in the same manner as for the reactor protection system. The engineered safety features logic system is tested by means of test switches to simulate inputs from the analog channels. The test switches interrupt the logic matrix output to the master relay to prevent actuation. Verification that the logic is accomplished is indicated by the matrix test light. Upon completion of the logic checks, verification that the circuit from the logic matrices to the master relay is complete is accomplished by use of an ohmmeter to check continuity. In addition, the active components (pumps and signal valves) are to be tested monthly to check the operation of the starting circuits and to verify that the pumps are in satisfactory running order. The test interval of one month is based on the judgement that more frequent testing would not significantly increase the reliability (i.e., the probability that the component would operate when required), and that more frequent testing would result in increased wear over a long period of time.

Monthly testing of the safety injection pumps, residual heat removal pumps, containment spray pumps and the boron injection tank isolation valves is not required when in the cold shutdown condition. These components are not required for plant safety when the reactor is in cold shutdown and testing during this condition will result in unnecessary wear on the equipment.

Other systems that are also important to the emergency cooling function are the accumulators, the Component Cooling System, the Service Water System and the containment fan coolers. The accumulators are a passive safeguard. In accordance with Specification 4.1, the water volume and pressure in the accumulators are checked periodically. The other systems mentioned operate when the reactor is in operation and by these means are continuously monitored for satisfactory performance.

The surveillance requirements are provided to ensure that the ECCS valves are in their proper position during operation in which ESF equipment could be required.

References

- (1) FSAR Section 6.2
- (2) FSAR Section 6.4
- (3) FSAR Section 6.1
- (4) CP&L report and supplemental letters of September 29, November 5, December 8, 1971, and March 29, 1972.