

Attachment 3

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EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- e. At least once per 18 months for the ADS by:
1. Performing a system functional test which includes simulated automatic actuation of the system throughout its emergency operating sequence, but excluding actual valve actuation.
 2. Manually opening each ADS valve when the reactor steam dome pressure is greater than or equal to 100 psig* and observing that:
 - a) The control valve or bypass valve position responds accordingly, or
 - b) There is a corresponding change in the measured steam flow, or
 - c) The acoustic monitoring system indicates the valve is open.

f. At least once per 12 hours for the Division I and II ADS air supply systems, by verifying the associated ADS accumulator air supply header pressure is greater than or equal to the required minimum pressure of 131 psig.

*The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test.

3/4.5 EMERGENCY CORE COOLING SYSTEM

BASES

ECCS - OPERATING and SHUTDOWN (Continued)

The capacity of the HPCS system is selected to provide the required core cooling. The HPCS pump is designed to deliver greater than or equal to 467/1400/5010 gpm at differential pressures of 1177/1147/200 psid. Initially, water from the condensate storage tank is used instead of injecting water from the suppression pool into the reactor, but no credit is taken in the safety analyses for the condensate storage tank water.

With the HPCS system inoperable, adequate core cooling is assured by the OPERABILITY of the redundant and diversified automatic depressurization system and both the LPCS and LPCI systems. In addition, the reactor core isolation cooling (RCIC) system will automatically provide makeup, at reactor operating pressures, on a reactor low water level condition. The HPCS out-of-service period of 14 days is based on the demonstrated OPERABILITY of redundant and diversified low pressure core cooling systems.

The surveillance requirements provide adequate assurance that the HPCS system will be OPERABLE when required. Although all active components are testable and full flow can be demonstrated by recirculation through a test loop during reactor operation, a complete functional test with reactor vessel injection requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage and to provide cooling at the earliest moment.

Upon failure of the HPCS system to function properly after a small break loss-of-coolant accident, the automatic depressurization system (ADS) automatically causes selected safety/relief valves to open, depressurizing the reactor so that flow from the low pressure core cooling systems can enter the core in time to limit fuel cladding temperature to less than 2200°F. ADS is conservatively required to be OPERABLE whenever reactor vessel pressure exceeds 100 psig. This pressure is substantially below that for which the low pressure core cooling systems can provide adequate core cooling for events requiring ADS.

ADS automatically controls seven selected safety/relief valves although the safety analysis only takes credit for six valves. It is therefore appropriate to permit one valve to be out-of-service for up to 14 days without materially reducing system reliability.

3/4.5.3 SUPPRESSION POOL

The suppression pool is required to be OPERABLE as part of the ECCS to ensure that a sufficient supply of water is available to the HPCS, LPCS and LPCI systems in the event of a LOCA. This limit on suppression pool minimum water volume ensures that sufficient water is available to permit recirculation cooling flow to the core. The OPERABILITY of the suppression pool in OPERATIONAL CONDITIONS 2 or 3 is required by Specification 3.6.3.1.

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During normal plant operations, ADS and non-ADS safety/relief valve (SRV) accumulator pressure is maintained by the non-safety related SVV compressors. Post-accident air pressure for SRV actuation is supplied by the safety-related Penetration Valve Leakage Control System (PVLCS) compressors. Since PVLCS compressors are not loaded on to the safety-related, divisional electrical buses until 10-20 minutes after the start of an accident, the pneumatic force for any ADS SRV actuations required during the initial stage of an accident must be provided by ADS accumulator air pressure.

The required minimum ADS accumulator air supply header pressure must be greater than or equal to 131 psig during normal plant operations to ensure that the design and licensing basis requirements are satisfied (2 ADS actuations with drywell pressure at 70% of drywell design pressure or 4-5 actuations at atmospheric pressure without makeup air). Long-term, post-accident operability of ADS is assured with the PVLCS supplying air at a pressure greater than or equal to 101 psig.

Pressure indication and low pressure alarm channels are provided in the Main Control Room for both divisional ADS SRV accumulator air supply headers.