

Bases 3.5/4.5 (Continued):

The surveillance requirements provide adequate assurance that the LPCI 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 requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage to piping and to start cooling at the earliest moment.

The high pressure coolant injection (HPCI) system is provided to assure that the reactor core is adequately cooled to limit fuel clad temperature in the event of a small break in the reactor coolant system and loss of coolant which does not result in rapid depressurization of the reactor vessel. The HPCI system permits the reactor to be shut down while maintaining sufficient reactor vessel water level inventory until the vessel is depressurized. The HPCI system continues to operate until reactor vessel pressure is below the pressure at which Core Spray system operation or LPCI mode of the RHR system operation maintains core cooling.

The flow tests for the HPCI System are performed at two different pressure ranges such that the system capability to provide rated flow is tested at both the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the HPCI System diverts steam flow. Reactor steam pressure must be ≥ 950 psig to perform SR 4.5.A.3.a and ≤ 165 psig to perform SR 4.5.A.3.b. Adequate steam flow is represented by total steam flow $\geq 10^6$ lb/hr. Reactor startup, and pressure increase to ≤ 165 psig, is allowed prior to performing the low pressure surveillance test because the reactor pressure is low and the time allowed to satisfactorily perform the surveillance test is short. Therefore, reactor pressure may be raised above 150 psig, but ≤ 165 psig to perform this surveillance without entering an LCO for the HPCI System. The reactor pressure is allowed to be increased to normal operating pressure once the low pressure test has been satisfactorily completed since there would be no indication or reason to believe that HPCI is inoperable.

Sufficient time is needed after adequate pressure and flow are achieved to perform these tests. Therefore, SR 4.5.A.3.a and SR 4.5.A.3.b are modified by a note which states that the surveillances are not required to be performed until 12 hours after the reactor steam pressure and flow are adequate to perform the test.

With the HPCI system inoperable, adequate core cooling is assured by the operability of the redundant and diversified automatic depressurization system and both the Core Spray and LPCI systems. In addition, the reactor core isolation cooling (RCIC) system, a system for which no credit is taken in the safety analysis, will automatically provide makeup at reactor operating pressures on a reactor low water level condition. The HPCI out-of-service period of 14 days is based on the demonstrated operability of redundant and diversified low pressure core cooling systems and the RCIC system.

The surveillance requirements provide adequate assurance that the HPCI system will be operable when required. All active components are testable and full flow can be demonstrated by recirculation through a test loop during reactor operation. The pump discharge piping is maintained full to prevent water hammer damage and to provide cooling at the earliest moment.

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