United States Nuclear Regulatory Commission
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
RE-TYPED BASIS PAGES

Basis

At the conditions of the RCS temperature (T_{avg}) greater than 350°F or the reactor critical, the power-operated relief valves (PORVs) provide an RCS pressure boundary and automatic RCS pressure relief to minimize challenges to the safety valves.

Providing an RCS pressure boundary is the safety-related function of the PORVs at the conditions noted above. The capability of the PORV to perform its function of providing an RCS pressure boundary requires that the PORV or its associated block valve is closed. The automatic RCS pressure control function of the PORVs is not a safety-related function at the conditions noted above. The automatic pressure control function limits the number of challenges to the safety valves, while the safety valves perform the safety function of RCS overpressure protection. Therefore, the automatic RCS pressure control function of the PORVs does not have to be available for the PORVs to be OPERABLE.

Each PORV has a remotely operated block valve to provide a positive shutoff capability should a relief valve become inoperable. Operation with the block valves open is preferred. This allows the PORVs to perform automatic RCS pressure relief should the RCS pressure actuation setpoint be reached. However, operation with the block valve closed to isolate PORV leakage is permissible since automatic RCS pressure relief is not a safety-related function of the PORVs.

The ability to operate with the block valve(s) closed with power maintained to the block valve(s) is only intended to permit operation of the plant for a limited period of time not to exceed the next refueling outage so that maintenance can be performed on the PORVs to eliminate the leakage condition. Power is maintained to the block valve(s) so that it is operable and may be

subsequently opened to allow the PORV to be used to control reactor coolant system pressure. Closure of the block valve(s) establishes reactor coolant pressure boundary integrity for a PORV that has leakage resulting in excessive RCS leakage. (Reactor coolant pressure boundary integrity takes priority over the capability of the PORV to mitigate an overpressure event.) The PORVs should normally be available for automatic mitigation of overpressure events and should be returned to OPERABLE status prior to exceeding cold shutdown following the associated refueling outage.

The OPERABILITY of the PORVs and block valves at the conditions noted above is based on their being capable of performing the following functions:

1. Maintaining the RCS pressure boundary,

2. Manual closing of a block valve to isolate a stuck open PORV and,

3. Manual closing of a block valve to isolate a PORV with excessive seat leakage.

A PORV is defined as leaking with up to and including one (1) gpm of seat leakage, but is not inoperable and is not experiencing "excessive" seat leakage as identified within Specification 3.1.1.5.a. With leakage up to and including ten (10) gpm, the PORV would be considered to have "excessive" seat leakage and would be subject to the compensatory actions described within Specification 3.1.1.5.a. This condition would continue to require block valve testing on a 92 day interval as required by Surveillance Requirement 4.2.4.2. Finally, with PORV leakage exceeding ten (10) gpm, the PORV is considered inoperable in accordance with Specifications 3.1.1.5.b. and c., and block valve testing is not required.

4.5.2.2 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 a continuity check. In