

REACTOR COOLANT SYSTEM

3/4.4.2 SAFETY VALVES

LIMITING CONDITION FOR OPERATION

3.4.2 At least, the following reactor coolant system code safety valves and safety-relief valves shall be operable with lift settings within $\pm 1\%$ of the indicated pressures.

- (2)* Safety valves @ (1240) psig
- (3) Safety-relief valves @ (1100) psig
- (3) Safety-relief valves @ (1090) psig
- (3) Safety-relief valves @ (1080) psig

APPLICABILITY: With Average Coolant Temperature $> 212^{\circ}\text{F}$ or the Mode Switch in Run, or Startup/Hot Standby.

ACTION:

With one or more reactor coolant system code safety valve(s) or a safety-relief valve(s) inoperable either restore the valve(s) to operable status within 15 minutes or be shutdown within 12 hours and reduce Average Coolant Temperature to $\leq 212^{\circ}\text{F}$ within the next 24 hours.

SURVEILLANCE REQUIREMENTS

4.4.2.1 In addition to the applicable ASME Boiler and Pressure Vessel Code, Section XI requirements, each safety-relief valve shall be demonstrated operable:

- a. At least once per 24 hours, by verifying bellows integrity through instrument indication.
- b. Until March 1, 1979, at least once per 18 months by:
 - 1. Manually opening each remotely operated safety-relief valve with the reactor at or below 5% rated power and at nominal operating pressure, and verifying that either:
 - a. The turbine bypass valve(s) indicate a compensating valve movement, or
 - b. The reactor coolant system pressure decreases by an amount equivalent to the valve pressure relieving capacity for the test conditions.

*Does not include installed spare safety valves.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

2. Conducting a visual inspection of the safety-relief valve line restraints in the torus to verify structural integrity for continued operation.
- c. After March 1, 1979, by performance of the following test program:
1. Manually opening each remotely operated safety-relief valve in accordance with the test schedule of Table 4.4-10 with the reactor at or below 5% rated power and a steam at nominal operating pressure and verifying that either:
 - a. The turbine bypass valve(s) indicate a compensating valve movement, or
 - b. The reactor coolant system pressure decreases by an amount equivalent to the valve pressure relieving capacity for the test conditions.
 2. The initial Next Required Test Interval of Table 4.4-10 shall be determined by the number of remotely operated relief and safety-relief valves found inoperable from September 1, 1977 to March 1, 1979.
 3. The initial valve tests of Table 4.4-10 shall be completed by, the earlier of:
 - a. The completion of the next refueling outage occurring after March 1, 1979, or
 - b. The time period defined by March 1, 1979 plus the initial test interval, determined above.
 4. At least once per 18 months, by conducting a visual inspection of the safety-relief valve line restraints in the torus to verify structural integrity for continued operation.

4.4.2.2 Each safety valve and the safety valve function of each safety-relief valve shall be demonstrated operable per the requirements of the ASME Boiler and Pressure Vessel Code () Edition and Addenda through ().

TABLE 4.4-10

REMOTELY OPERATED RELIEF AND SAFETY-RELIEF VALVE TEST SCHEDULE

NUMBER OF REMOTELY OPERATED RELIEF AND SAFETY-RELIEF VALVES
FOUND INOPERABLE DURING TESTING OR TEST INTERVAL**

NEXT REQUIRED
TEST INTERVAL*

0
1
2
≥ 3

18 months + 25%
184 days + 25%
92 days + 25%
31 days + 25%

* The required test interval shall not be lengthened more than one step at a time. Early tests may be performed prior to entering the "next required test interval" (i.e., in advance of the nominal time less the negative 25% tolerance band). Early tests may be used as a new reference point for tests of the same interval, however, they are not acceptable for lengthening the test interval.

**Setpoint drift is not considered to be a valve failure for the purposes of this test schedule.

3/4.4 REACTOR COOLANT SYSTEM

BASES

3/4.4.2 SAFETY VALVES

The reactor coolant system safety valves operate to prevent the reactor coolant system from being pressurized above the Safety Limit of _____ psig. Each safety valve is designed to relieve _____ lbs per hour at the valve set point. The system is designed to meet the ASME Boiler and Pressure Vessel Code requirements that the nuclear system relief valves shall function to prevent opening of the safety valves. Although the safety valve function is not expected to be required under the most limiting transient, an inoperable valve requires shutdown in order to comply with ASME Code requirements.

The testing frequency applicable to the relief valve function of the safety-relief valves is provided to ensure operability and demonstrate reliability of the valves. The required testing interval varies with observed valve failures. The number of inoperable valves found during both operation and testing of these valves determines the time interval for the next required test of these valves. Early tests may be performed prior to entering the next required test interval (i.e., in advance of the nominal time less the negative 25% tolerance band). Early tests may be used as a new reference point for tests of the same time interval, however, they are not acceptable for lengthening the test interval since they were not performed within the $\pm 25\%$ tolerance band as required by Table 4.4-10.

Demonstration of the safety valves' lift settings will occur only during shutdown and will be performed in accordance with the provisions of Section XI of the ASME Boiler and Pressure Vessel Code.

EMERGENCY CORE COOLING SYSTEMS

AUTOMATIC DEPRESSURIZATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.5.2 The Automatic Depressurization System (ADS) shall be OPERABLE with at least (6)* OPERABLE ADS valves.

APPLICABILITY: With Average Coolant Temperature > 212°F or the Mode Switch in Run, or Startup/Hot Standby.

ACTION:

- a. With one of the above required ADS valves inoperable, operation may continue provided the actuation logic of the remaining ADS valves is operable and the CSS and LPCI systems are operable, and the HPCI system is demonstrated operable within 4 hours; restore the inoperable ADS valve to operable status within 14 days or be shutdown within 12 hours and reduce the Average Coolant Temperature to $\leq 212^{\circ}\text{F}$ within the following 24 hours.
- b. With two or more of the above required ADS valves inoperable, be shutdown within 12 hours and reduce the Average Coolant Temperature to $\leq 212^{\circ}\text{F}$ within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.5.2 In addition to the applicable ASME Boiler and Pressure Vessel Code, Section XI requirements, the ADS shall be demonstrated operable:

- a. At least once per 18 months by performance of a system functional test which includes simulated automatic actuation through the automatic depressurization sequence, but excluding valve actuation.
- b. Until March 1, 1979, at least once per 18 months by:
 1. Manually opening each ADS valve with the reactor at or below 5% rated power and at nominal operating pressure and verifying that either:
 - a. The turbine bypass valve(s) indicate a compensating valve movement, or
 - b. The reactor coolant system pressure decreases by an amount equivalent to the valve pressure relieving capacity for the test conditions.

*Number of ADS valves to be consistent with ECCS analysis.

EMERGENCY CORE COOLING SYSTEMS

AUTOMATIC DEPRESSURIZATION SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

2. Conducting a visual inspection of the safety-relief and relief valve line restraints in the torus to verify structural integrity for continued operation.
- c. After March 1, 1979, by performance of the following test program:
1. Manually opening each ADS valve in accordance with the test schedule of Table 4.4-10 with the reactor at or below 5% rated power and at nominal operating pressure and verifying that either:
 - a. The turbine bypass valve(s) indicate a compensating valve movement, or
 - b. The reactor coolant system pressure decreases by an amount equivalent to the valve pressure relieving capacity for the test conditions.
 2. The initial Next Required Test Interval of Table 4.4-10 shall be determined by the number of remotely operated relief and safety-relief valves found inoperable from September 1, 1977 to March 1, 1979.
 3. The initial valve tests of Table 4.4-10 shall be completed by, the earlier of:
 - a. The completion of the next refueling outage occurring after March 1, 1979, or
 - b. The time period defined by March 1, 1979 plus the initial test interval, determined above.
 4. At least once per 18 months by conducting a visual inspection of the safety-relief and relief valve line restraints in the torus to verify structural integrity for continued operation.

3/4.5 EMERGENCY CORE COOLING SYSTEM

BASES

3/4.5.2 AUTOMATIC DEPRESSURIZATION SYSTEM (ADS)

Upon failure of the HPCIS to function properly after a small break loss-of-coolant accident, the ADS automatically causes the safety-relief valves to open, depressurizing the reactor so that flow from the low pressure 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 (150) psig even though low pressure cooling systems provide adequate core cooling up to (350) psig.

ADS automatically controls (7) safety-relief valves although the safety analysis only takes credit for (6). Therefore it is appropriate to permit (one) valve to be out-of-service without materially reducing system reliability.

The testing frequency applicable to ADS valves is provided to ensure operability and demonstrate reliability of the valves. The required testing interval varies with observed valve failures. The number of inoperable valves found during both operation and testing of these valves determines the time interval for the next required test of these valves. Early tests may be performed prior to entering the next required test interval (i.e., in advance of the nominal time less the negative 25% tolerance band). Early tests may be used as a new reference point for tests of the same time interval, however, they are not acceptable for lengthening the test interval since they were not performed within the $\pm 25\%$ tolerance band as required by Table 4.4-10.