

S/RVs  
3.4.4

## 3.4 REACTOR COOLANT SYSTEM (RCS)

## 3.4.4 Safety/Relief Valves (S/RVs)

LCO 3.4.4 The safety function of seven S/RVs shall be OPERABLE,

AND

The relief function of six additional S/RVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

## ACTIONS

| CONDITION                                 | REQUIRED ACTION   | COMPLETION TIME |
|---|-------------------|-----------------|
| A. One or more required S/RVs inoperable. | A.1 Be in MODE 3. | 12 hours        |
|   | <u>AND</u>        |                 |
|   | A.2 Be in MODE 4. | 36 hours        |

## SURVEILLANCE REQUIREMENTS

| SURVEILLANCE |   |                 | FREQUENCY  |
|--------------|---|-----------------|--|
| SR 3.4.4.1   | Verify the safety function lift setpoints of the required S/RVs are as follows: |                 | In accordance with the inservice Testing Program |
|              |   |                 |  |
|              |   |                 |  |
|              |   |                 |  |
|              |   |                 |  |
|              | Number of S/RVs   | Setpoint (psig) |  |
|              | 8   | 1165 ± 11.6     | 34.9   |
|              | 6   | 1180 ± 11.8     | 35.4   |
|              | 6   | 1190 ± 11.9     | 35.7   |

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BASES (continued)

APPLICABLE  
SAFETY ANALYSES

The overpressure protection system must accommodate the most severe pressure transient. Evaluations have determined that the most severe transient is the closure of all main steam isolation valves (MSIVs) followed by reactor scram on high neutron flux (i.e., failure of the direct scram associated with MSIV position) (Ref. 2). For the purpose of the analyses, six of the S/RVs are assumed to operate in the relief mode, and seven in the safety mode. The analysis results demonstrate that the design S/RV capacity is capable of maintaining reactor pressure below the ASME Code limit of 110% of vessel design pressure (110% x 1250 psig = 1375 psig). This LCO helps to ensure that the acceptance limit of 1375 psig is met during the design basis event.

Reference 3 discusses additional events that are expected to actuate the S/RVs. From an overpressure standpoint, the design basis events are bounded by the MSIV closure with flux scram event described above.

S/RVs satisfy Criterion 3 of the NRC Policy Statement.

LCO

The safety function of seven S/RVs is required to be OPERABLE in the safety mode, and an additional six S/RVs (other than the seven S/RVs that satisfy the safety function) must be OPERABLE in the relief mode. The requirements of this LCO are applicable only to the capability of the S/RVs to mechanically open to relieve excess pressure. In Reference 2, an evaluation was performed to establish the parametric relationship between the peak vessel pressure and the number of OPERABLE S/RVs. The results show that with a minimum of seven S/RVs in the safety mode and six S/RVs in the relief mode OPERABLE, the ASME Code limit of 1375 psig is not exceeded.

The S/RV setpoints are established to ensure the ASME Code limit on peak reactor pressure is satisfied. The ASME Code specifications require the lowest safety valve be set at or below vessel design pressure (1250 psig) and the highest safety valve be set so the total accumulated pressure does not exceed 110% of the design pressure for conditions. The transient evaluations in Reference 3 are based on these setpoints, but also include the additional uncertainties of  $\pm 3\%$  of the nominal setpoint to account for potential setpoint drift to provide an added degree of conservatism.

3%

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