

### 3/4.7 PLANT SYSTEMS

#### 3.4.7.1 TURBINE CYCLE

#### SAFETY VALVES

#### LIMITING CONDITION FOR OPERATION

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3.7.1.1 All main steam line code safety valves shall be OPERABLE with lift settings as specified in Table 4.7-1.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one or more required main steam line code safety valves per steam generator inoperable,
  1. Reduce THERMAL POWER within 4 hours to less than or equal to the applicable percent of RATED THERMAL POWER listed in Table 3.7-1, and
  2. Reduce the Power Level-High trip setpoint in accordance with Table 3.7-1 within 36 hours.

Otherwise, be in HOT STANDBY within the next 6 hours, and HOT SHUTDOWN within the following 6 hours.

- b. With more than four main steam line code safety valves on a single steam generator inoperable, be in HOT STANDBY within 6 hours, and HOT SHUTDOWN within the next 6 hours.

#### SURVEILLANCE REQUIREMENTS

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4.7.1.1 Each main steam line code safety valve shall be demonstrated OPERABLE, with lift settings as shown in Table 4.7-1, in accordance with Specification 4.0.5.

TABLE 3.7-1

MAXIMUM ALLOWABLE POWER LEVEL-HIGH TRIP SETPOINT WITH  
INOPERABLE MAIN STEAM LINE CODE SAFETY VALVES (MSSVs)

MINIMUM NUMBER OF MSSVs PER STEAM GENERATOR REQUIRED OPERABLE	MAXIMUM POWER (Percent of RATED THERMAL POWER)	MAXIMUM ALLOWABLE POWER LEVEL-HIGH TRIP SETPOINT (Percent of RATED THERMAL POWER)
8	100	106.6 (Ceiling)
7	85	94.6
6	75	84.6
5	60	69.6
4	45	54.6

## 3/4.7 PLANT SYSTEMS

### BASES

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#### 3/4.7.1 TURBINE CYCLE

##### 3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line code safety valves (MSSVs) ensures that the secondary system pressure will be limited to within 110% of the design pressure during the most severe anticipated system operational transient. The Loss of Electrical Load with Turbine Trip and the single main steam isolation valve (MSIV) closure event were evaluated at various power levels with a corresponding number of inoperable MSSVs. The limiting anticipated system operational transient is the closure of a single MSIV.

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Vessel Code, 1971 Edition. The total rated capacity of the main steam line code safety valves is  $12.7 \times 10^6$  lbs/hr. This is sufficient to relieve in excess of 100% steam flow at RATED THERMAL POWER.

The LCO requires all MSSVs to be OPERABLE. An alternative to restoring the inoperable MSSV(s) to OPERABLE status is to reduce power so that the available MSSV relieving capacity meets ASME Code requirements for the power level. POWER OPERATION is allowed with inoperable MSSVs as specified within the limitations of the ACTION requirements.

Less than the full number of OPERABLE MSSVs requires limitations on allowable THERMAL POWER and adjustment to the Power Level-High trip setpoint in accordance with ACTIONS a.1 and a.2. The 4 hours provided for ACTION a.1 is a reasonable time period to reduce power level and is based on the low probability of an event occurring during this period that would require activation of the MSSVs. ACTION a.2 provides for 36 hours to reduce the Power Level-High trip setpoint. This time for ACTION a.2 is based on a reasonable time to correct the MSSV inoperability, the time required to perform the power reduction, operating experience in resetting all channels of a protective function, and on the low probability of the occurrence of a transient that could result in steam generator overpressure during this period.

As described in Section 2.2.1 of the BASES, during a power reduction the Power Level-High trip setpoint automatically tracks THERMAL POWER downward so that it remains a fixed increment above the current power level, subject to a minimum value. Therefore, during short term reduced power evolutions e.g., MSSV testing, it is permissible to only reduce THERMAL POWER in accordance with ACTION a.1 (the protective function of ACTION a.2 is automatically provided due to the nature of the Power Level-High trip setpoint), provided that the MSSV testing can be completed within the 36 hours provided for ACTION a.2.

## 3/4.7 PLANT SYSTEMS

### BASES

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#### 3/4.7.1 TURBINE CYCLE

##### 3/4.7.1.1 SAFETY VALVES (Continued)

The OPERABILITY of the MSSVs is defined as the ability to open within the setpoint tolerances, relieve steam generator overpressure, and reset when pressure has been reduced. The lift setpoints for the MSSVs are listed in Table 4.7-1. This table allows a  $\pm 3\%$  setpoint tolerance (allowable value) on the lift setting for OPERABILITY to account for drift over a cycle. Each MSSV is demonstrated OPERABLE, with lift settings as shown in Table 4.7-1, in accordance with Specification 4.0.5. A footnote to Table 4.7-1 requires that the lift setting be restored to within  $\pm 1\%$  of the setpoint (trip setpoint) following testing to allow for drift. While the lift settings are being restored to a tolerance of  $\pm 1\%$ , the MSSV will remain operable with lift settings out of tolerance by as much as  $\pm 3\%$ .