

TABLE 3.7-1

**MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT WITH
INOPERABLE STEAM LINE SAFETY VALVES DURING 3 LOOP OPERATION**

Maximum Number of Inoperable Safety Valves on Each Operating Steam Generator	Maximum Allowable Power Range Neutron Flux High Setpoint (Percent of RATED THERMAL POWER)
1 ⁽¹⁾	58 ⁽¹⁾
2	41
3	24

Notes: 1. With one inoperable safety valve in only one operating steam generator, the Maximum Allowable Power Range Neutron Flux High Setpoint may be increased to 81% of RATED THERMAL POWER provided the predicted Moderator Temperature Coefficient is negative (< 0 pcm/°F) at hot zero power assuming all rods out and no xenon.

TABLE 3.7-2

STEAM LINE SAFETY VALVES PER LOOP

S/G A	S/G B	S/G C	Lift Setting *	Orifice Size
XVS-2806A	XVS-2806F	XVS-2806K	1176 psig \pm 1%	4.515 In dia/16 sq in
XVS-2806B	XVS-2806G	XVS-2806L	1190 psig \pm 3%	4.515 In dia/16 sq in
XVS-2806C	XVS-2806H	XVS-2806M	1205 psig \pm 3%	4.515 In dia/16 sq in
XVS-2806D	XVS-2806I	XVS-2806N	1220 psig \pm 3%	4.515 In dia/16 sq in
XVS-2806E	XVS-2806J	XVS-2806P	1235 psig \pm 3%	4.515 In dia/16 sq in

* The Lift Setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

3/4.7 PLANT SYSTEMS

BASES

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line code safety valves ensures that the secondary system pressure will be limited to within 110% (1305 psig) of its design pressure of 1185 psig during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Code, 1971 Edition. The total relieving capacity for all valves on all of the steam lines is sufficient to limit secondary side pressure to within 110% of design at 100% RATED THERMAL POWER. A minimum of 2 OPERABLE safety valves per steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-1.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in secondary system steam flow and THERMAL POWER required by the reduced reactor trip settings of the Power Range Neutron Flux channels. The reactor trip setpoint reductions are based on the plant safety analysis or are conservatively derived on the following bases, implementing Westinghouse NSAL 94-01 Methodology:

$$SP = Hi \phi - \xi = \left(\frac{100\%}{Q} \right) \frac{w_s \cdot h_{fg} \cdot N}{K} - \xi$$

Where:

SP = Reduced Reactor Trip Setpoint [% RATED THERMAL POWER (RTP)]

Hi ϕ = Safety Analysis Power Range High Neutron Flux Trip Setpoint (% RTP)

ξ = Power Range Neutron Flux Channel Uncertainty (% RTP)

Q = RTP plus Reactor Coolant Pump Heat (Mwt)

W_s = Minimum total steam flow rate capability of the operable main steam line code safety valves on any one steam generator at the highest MSSV opening pressure including allowances for setpoint tolerance and accumulation (lb/sec)

h_{fg} = Heat of vaporization for steam at the highest main steam line code safety valve operating pressure including allowances for setpoint tolerance and accumulation (Btu/lb)

N = Number of Loops in Plant

K = Conversion factor, 947.82 $\frac{\text{(Btu/sec)}}{\text{Mwt}}$