

Attachment 2  
Technical Specifications Changes

TABLE 3.7-2

STEAM LINE SAFETY VALVES PER LOOP

<u>VALVE NUMBER</u>	<u>LIFT SETTING (<math>\pm 3\%</math>)*</u>	<u>ORIFICE SIZE</u>
a. SV-MS 101 A, B, C	1085 psig	16 in <sup>2</sup>
b. SV-MS 102 A, B, C	1095 psig	16 in <sup>2</sup>
c. SV-MS 103 A, B, C	1110 psig	16 in <sup>2</sup>
d. SV-MS 104 A, B, C	1120 psig	16 in <sup>2</sup>
e. SV-MS 105 A, B, C	1135 psig	16 in <sup>2</sup>

\*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure. All steam line safety valves shall be returned to an "as left" lift setting of their nominal lift setting  $\pm 1\%$ .

## PLANT SYSTEMS

### BASES

---

Where:

- SP = reduced reactor trip setpoint in percent of RATED THERMAL POWER
- V = maximum number of inoperable safety valves per steam line
- U = maximum number of inoperable safety valves per operating steam line
- 109 = Power Range Neutron Flux-High Trip Setpoint for 3 loop operation
- 71 = Maximum percent of RATED THERMAL POWER permissible by P-8 Setpoint for 2 loop operation with stop valves closed
- 66 = Maximum percent of RATED THERMAL POWER permissible by P-8 setpoint for 2 loop operation with stop valves open
- X = Total relieving capacity of all safety valves per steam line in lbs/hour = 4,275,420
- Y = Maximum relieving capacity of any one safety valve in lbs/hour = 855,084

#### 3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss of off-site power.

The original design basis of the AFW system provided for two motor driven AFW pumps (AFWP) each capable of delivering 340 gpm and a single turbine driven AFW pump capable of delivering 700 gpm to the steam generators during accident conditions. The design basis accidents for the AFW system are the loss of normal feedwater (LONF), the loss of offsite power (LOOP), which are ANS Condition II events, and the main feedline break (MFLB), which is an ANS Condition IV event.

Current analyses of the design basis accidents for the AFW system have shown that the applicable accident analysis acceptance criteria are met, including the effects of a single active failure of any AFWP to start, if each AFWP is capable of delivering  $\geq 300$  gpm to its respective steam generator at the safety valve set pressure (including the effects of setpoint drift).

## PLANT SYSTEMS

### BASES

Surveillance testing of the AFWPs is performed in accordance with the requirements of ASME Boiler and Pressure Vessel Code Section XI for inservice testing of ASME Code Class 1, 2, and 3 pumps and valves. Periodic tests to verify that each pump develops adequate discharge pressure and flow as defined in the ASME Code are designed to assess the operability of the pumps against their design performance characteristics. Calculations have shown that successful performance of these tests demonstrates that the current AFW system design, including pumps, valves, piping, etc. meets the performance requirements for AFW flow delivery established by the design basis accident analyses with adequate margins to accommodate measurement and test uncertainties.

This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

#### 3/4.7.1.3 EMERGENCY CONDENSATE STORAGE TANK

The OPERABILITY of the emergency condensate storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 8 hours with steam discharge to the atmosphere concurrent with total loss of off-site power. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

#### 3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 GPM primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.

#### 3/4.7.1.5 MAIN STEAM TRIP VALVES

The OPERABILITY of the main steam trip valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and 2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the main steam trip valves within the closure times of the surveillance requirements are consistent with the assumptions used in the accident analyses.

TABLE 3.7-2

STEAM LINE SAFETY VALVES PER LOOP

<u>VALVE NUMBER</u>	<u>LIFT SETTING (+ 3%)*</u>	<u>ORIFICE SIZE</u>
a. SV-MS 201 A, B, C	1085 psig	16 in <sup>2</sup>
b. SV-MS 202 A, B, C	1095 psig	16 in <sup>2</sup>
c. SV-MS 203 A, B, C	1110 psig	16 in <sup>2</sup>
d. SV-MS 204 A, B, C	1120 psig	16 in <sup>2</sup>
e. SV-MS 205 . B, C	1135 psig	16 in <sup>2</sup>

\*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure. All steam line safety valves shall be returned to an "as left" lift setting of their nominal lift setting  $\pm 1\%$ .

## PLANT SYSTEMS

### BASES

---

For 2 loop operations with stop valves open

$$SP = \frac{(X) - (Y)(U)}{X} \times 66$$

Where:

SP = reduced reactor trip setpoint in percent of RATED THERMAL POWER

V = maximum number of inoperable safety valves per steam line

U = maximum number of inoperable safety valves per operating steam line

109 = Power Range Neutron Flux-High Trip Setpoint for 3 loop operation

71 = Maximum percent of RATED THERMAL POWER permissible by P-8 Setpoint for 2 loop operation with stop valves closed

66 = Maximum percent of RATED THERMAL POWER permissible by P-8 setpoint for 2 loop operation with stop valves open

X = Total relieving capacity of all safety valves per steam line in lbs/hour = 4,275,420

Y = Maximum relieving capacity of any one safety valve in lbs/hour = 855,084

### 3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss of off-site power.

The original design basis of the AFW system provided for two motor driven AFW pumps (AFWP) each capable of delivering 340 gpm and a single turbine driven AFW pump capable of delivering 700 gpm to the steam generators during accident conditions. The design basis accidents for the AFW system are the loss of normal feedwater (LONF), the loss of offsite power (LOOP), which are ANS Condition II events, and the main feedline break (MFLB), which is an ANS Condition IV event.

Current analyses of the design basis accidents for the AFW system have shown that the applicable accident analysis acceptance criteria are met, including the effects of a single active failure of any AFWP to start, if each AFWP is capable of delivering  $\geq 300$  gpm to its respective steam generator at the safety valve set pressure (including the effects of setpoint drift).

## PLANT SYSTEMS

### BASES

---

Surveillance testing of the AFWPs is performed in accordance with the requirements of ASME Boiler and Pressure Vessel Code Section XI for inservice testing of ASME Code Class 1, 2, and 3 pumps and valves. Periodic tests to verify that each pump develops adequate discharge pressure and flow as defined in the ASME Code are designed to assess the operability of the pumps against their design performance characteristics. Calculations have shown that successful performance of these tests demonstrates that the current AFW system design, including pumps, valves, piping, etc. meets the performance requirements for AFW flow delivery established by the design basis accident analyses with adequate margins to accommodate measurement and test uncertainties.

This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

#### 3/4.7.1.3 EMERGENCY CONDENSATE STORAGE TANK

The OPERABILITY of the emergency condensate storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 8 hours with steam discharge to the atmosphere concurrent with total loss of off-site power. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

#### 3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 GPM primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.

#### 3/4.7.1.5 MAIN STEAM TRIP VALVES

The OPERABILITY of the main steam trip valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and 2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the main steam trip valves within the closure times of the surveillance requirements are consistent with the assumptions used in the accident analyses.

**Attachment 3**  
**Significant Hazards Consideration**



## SIGNIFICANT HAZARDS CONSIDERATION

The main steam safety valves (MSSV) provide overpressure protection for the main steam system, and are designed to limit pressure transients to less than 110% of the system design pressure. Table 3.7-2 of the North Anna Unit 1 and 2 Technical Specifications currently specifies a 1% "as-found" and 1% "as-left" tolerance on the lift setpoint pressure of the installed valves. A safety evaluation has been performed which supports increasing the MSSV lift setpoint tolerance to 3% for the "as-found" condition. The "as-left" setpoint tolerance will remain at 1%.

Because the increased MSSV lift setpoint tolerance could result in increased auxiliary feedwater (AFW) system backpressure and therefore, in a reduced AFW delivered flow rate, credit has been taken for flow margin in existing safety analyses to support a reduction of the assumed delivered AFW system flow rate from 340 gpm to 300 gpm. The basis statement for TS 3/4.7.1.2 is being modified to reflect this revised delivered flow rate, expand the discussion on pump surveillance testing, and clarify the basis statement.

Virginia Electric and Power Company has reviewed the Technical Specifications changes against the criteria of 10 CFR 50.92 and has concluded that the changes do not pose a significant hazards consideration. Specifically, operation of North Anna Power Station in accordance with the Technical Specification changes will not:

1. Involve a significant increase in the probability or consequence of an accident previously evaluated. Affected safety related parameters were analyzed for the proposed change. It was determined that the primary and secondary pressure safety limits would not be exceeded in the most limiting overpressure transients (Loss of Load and the Locked Rotor Events) with the main steam safety valve lift setpoint tolerances increased to 3%. Analyses of the Main Feedline Break, Loss of Normal Feedwater, and Loss of Offsite Power transients demonstrate that the revised assumed AFW system delivered flow rate with a 3% MSSV setpoint tolerance continues to ensure that analysis acceptance criteria are met. The existing overtemperature  $\Delta T$  trip setpoints continue to provide bounding core thermal limit protection. The increased setpoint tolerance will not result in an inadvertent opening of the main steam safety valves.
  
2. Create the possibility of a new or different kind of accident from any accident previously identified because the proposed changes to the Technical Specifications do not involve any alterations to the physical plant which would introduce any new or unique operational modes or accident precursors. Only the allowable tolerances about the existing setpoints will be changed. A reduction in the assumed AFW system delivered flow rate creates no accidents of a new or different kind.
  
3. Involve a significant reduction in a margin of safety. It was determined that the most limiting overpressure transients do not result in a maximum pressure in excess of the overpressure safety limit. As well, deliverable AFW system flow rates remain in excess

of those assumed in licensing basis accidents. Therefore, the margin of safety is unchanged by the proposed increase in the safety valve setpoint tolerances.

Virginia Electric and Power Company concludes that the activities associated with these proposed Technical Specification changes satisfy the no significant hazards consideration criteria of 10 CFR 50.92 and, accordingly, a no significant hazards consideration finding is justified.