

TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. Manual Reactor Trip	Not Applicable	Not Applicable
2. Power Range, Neutron Flux	Low Setpoint - $\leq 25\%$ of RATED THERMAL POWER High Setpoint - $\leq 109\%$ of RATED THERMAL POWER	Low Setpoint - $\leq 26\frac{1}{2}\%$ of RATED THERMAL POWER High Setpoint - $\leq 110\%$ of RATED THERMAL POWER
3. Power Range, Neutron Flux, High Positive Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds	$\leq 5.5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
4. Power Range, Neutron Flux, High Negative Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds	$\leq 5.5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
5. Intermediate Range, Neutron Flux	$\leq 25\%$ of RATED THERMAL POWER	$\leq 30\%$ of RATED THERMAL POWER
6. Source Range, Neutron Flux	$\leq 10^5$ counts per second	$\leq 1.3 \times 10^5$ counts per second
7. Overtemperature ΔT	See Note 1	See Note 3
8. Overpower ΔT	See Note 2	See Note 4
9. Pressurizer Pressure--Low	≥ 1065 psig	≥ 1055 psig
10. Pressurizer Pressure--High	≤ 2305 psig	≤ 2395 psig
11. Pressurizer Water Level--High	$\leq 92\%$ of Instrument span	$\leq 93\%$ of Instrument span
12. Loss of Flow	$\geq 90\%$ of design flow per loop*	$\geq 89.1\%$ of design flow per loop*

*Design flow is 91,600 gpm per loop.

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TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NOTATION (Continued)

Note 2: Overpower $\Delta T \leq \Delta T_0 [K_4 - K_5 \left[\frac{\tau_3 S}{1 + \tau_3 S} \right] T - K_6 (T - T^*) - f_2(\Delta I)]$

where: ΔT_0 = Extrapolated ΔT at DESIGN THERMAL POWER

T = Average temperature, °F

T^* = Indicated T_{avg} at DESIGN THERMAL POWER 577.1°F

K_4 = 1.009

K_5 = 0.0177/°F for increasing average temperature and 0 for decreasing average temperature

K_6 = 0.0011 for $T > T^*$; $K_6 = 0$ for $T \leq T^*$

$\frac{\tau_3 S}{1 + \tau_3 S}$ = The function generated by the rate lag controller for T_{avg} dynamic compensation

τ_3 = Time constant utilized in the rate lag controller for T_{avg}
 $\tau_3 = 10$ secs.

S = Laplace transform operator

$f_2(\Delta I)$ = $f_1(\Delta I)$ as defined in Note 1 above.

Note 3: The channel's maximum trip point shall not exceed its computed trip point by more than 2.5 percent

Note 4: The channel's maximum trip point shall not exceed its computed trip point by more than 3.4 percent.

TABLE 3.2-1

DND PARAMETERS

<u>PARAMETER</u>	<u>LIMITS</u>		
	<u>4 Loops In Operation at RATED THERMAL POWER</u>	<u>4 Loops In Operation at DESIGN THERMAL POWER</u>	<u>3 Loops In Operation at RATED THERMAL POWER</u>
Reactor Coolant System T_{avg}	$\leq 570.4^{\circ}F$	$\leq 579.7^{\circ}F$	$\leq 570.5^{\circ}F$
Pressurizer Pressure	$\geq 2220 \text{ psia}^*$	$\geq 2220 \text{ psia}^*$	$\geq 2220 \text{ psia}^*$
Reactor Coolant System Total Flow Rate	$\geq 1.386 \times 10^6 \text{ lbs/hr}$	$\geq 1.386 \times 10^6 \text{ lbs/hr}$	$\geq 0.9917 \times 10^6 \text{ lbs/hr}$

*Limit not applicable during either a THERMAL POWER ramp increase in excess of 5 percent RATED THERMAL POWER per minute or a THERMAL POWER step increase in excess of 10 percent RATED THERMAL POWER.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
f. Steam Flow in Two Steam Lines-High				1, 2, 3 ^{II}	
Four Loops Operating	2/steam line	1/steam line any 2 steam lines	1/steam line		14
Three Loops Operating	2/operating steam line	1 ^{III} /any operating steam line	1/operating steam line		15
COINCIDENT WITH EITHER					
T _{avg} --Low-Low				1, 2, 3 ^{II} **	
Four Loops Operating	1 T _{avg} /loop	2 T _{avg} any loops	1 T _{avg} any 3 loops		14
Three Loops Operating	1 T _{avg} / operating loop	1 ^{III} T _{avg} in any operating loop	1 T _{avg} in any two operating loops		15

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TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
COINCIDENT WITH EITHER T _{avg} --Low-Low				1, 2, 3 ^{II} **	
Four Loops Operating	1 T _{avg} /loop	2 T _{avg} any loops	1 T _{avg} any 3 loops		14
Three Loops Operating	1 T _{avg} /oper- ating loop	1 ^{III} T _{avg} in any operating loop	1 T _{avg} in any two operating loops		15
OR, COINCIDENT WITH Steam Line Pressure- Low				1, 2, 3 ^{II}	
Four Loops Operating	1 pressure/ loop	2 pressures any loops	1 pressure any 3 loops		14
Three Loops Operating	1 pressure/ operating loop	1 ^{III} pressure in any oper- ating loop	1 pressure in any 2 oper- ating loops		15
5. TURBINE TRIP & FEEDWATER ISOLATION					
a. Steam Generator Water Level-- High-High	3/loop	2/loop in any oper- ating loop	2/loop in each oper- ating loop	1, 2, 3	14

TAGLE NOTATION

- # Trip function may be bypassed in this MODE below P-11.
- ## Trip function may be bypassed in this MODE below P-12.
- ### The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.
- *The provisions of Specification 3.0.4 are not applicable.
- **Rod drop testing in accordance with specification 4.1.3.3, Rod Position Indication Calibration, and hot zero power physics testing may proceed prior to the correction of RTD Calibration Curves for cross-calibration results at the beginning of cycle.

ACTION STATEMENTS

- ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 1 hour for surveillance testing per Specification 4.3.2.1.1.
- ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels:
 - a. Below P-11 or P-12, place the inoperable channel in the tripped condition within 1 hour; restore the inoperable channel to OPERABLE status within 24 hours after exceeding P-11 or P-12; otherwise be in at least HOT STANDBY within the following 6 hours.
 - b. Above P-11 and P-12, place the inoperable channel in the tripped condition within 1 hour; operation may continue until performance of the next required CHANNEL FUNCTIONAL TEST.
- ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.
- ACTION 16 - With the number of OPERABLE Channels one less than the Total Number of Channels:
 - a. Below P-11 or P-12, place the inoperable channel in the bypass condition; restore the inoperable channel to OPERABLE status within 24 hours after exceeding P-11 or P-12; otherwise be in at least HOT SHUTDOWN within the following 12 hours.

Attachment 3 to AEP:NRC:0942D

REQUEST FOR WITHHOLDING PROPRIETARY
INFORMATION ASSOCIATED WITH
RdF RTD SAFETY EVALUATION
IN ATTACHMENT 1

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