TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

Functional Unit	Total Allowance (TA)	Z	S	Trip Setpoint	Allowable Value
5. TURBINE TRIP AND FEEDWATER ISOLATION					
a. Steam Generator Water Level - High-High	5.0	2.18	1.5	≤82.4% of narrow range instrument span	≤84.2% of narrow range instrument span
6. EMERGENCY FEEDWATER					
a. Manual	NA	NA	NA	NA	NA
b. Automatic Actuation Logic	NA	NA	NA	NA	NA
c. Steam Generator Water Level - Low-Low	12.0	9.18	1.5	≥12% of span from 0% to 30% RTP increasing linearly to ≥~~54.8~~ 30.0 % of span from 30% to 100% RTP	≥10.2% of span from 0% and 30% RTP increasing linearly to ≥~~44.1~~ 28.2 % of span from 30% to 100% RTP
d & f. Undervoltage - ESF Bus				≥5760 volts with a ≤0.25 second time delay	≥5652 volts with a ≤0.275 second time delay
				≥6576 volts with a ≤3.0 second time delay	≥6511 volts with a ≤3.3 second time delay

TABLE 2.2-1 (continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

Functional Unit	Total Allowance (TA)	Z	S	Trip Setpoint	Allowable Value
13. Steam Generator Water Level Low-Low	12.0	9.18	1.5	≥12% of span from 0 to 30% RTP increasing linearly to ≥~~54.9~~ 30.0% of span from 30% to 100% RTP	≥10.2% of span from 0 to 30% RTP increasing linearly to ≥~~63.1~~ 28.2% of span from 30% to 100% RTP
14. Steam/Feedwater Flow Mismatch Coincident With	16.0	13.24	1.5/ 1.5	≤40% of full steam flow at RTP	≤42.5% of full steam flow at RTP
Steam Generator Water Level Low-Low	12.0	9.18	1.5	≥12% of span from 0 to 30% RTP increasing linearly to ≥~~54.9~~ 30.0% of span from 30% to 100% RTP	≥10.2% of span from 0 to 30% RTP increasing linearly to ≥~~63.1~~ 28.2% of span from 30% to 100% RTP
15. Undervoltage - Reactor Coolant Pump	2.1	1.28	0.23	≥4830 volts	≥4760
16. Underfrequency - Reactor Coolant Pumps	7.5	0	0.1	≥57.5 Hz	≥57.1 Hz
17. Turbine Trip					
A. Low Trip System Pressure	NA	NA	NA	≥800 psig	≥750 psig
B. Turbine Stop Valve Closure	NA	NA	NA	≥1% open	≥1% open

RTP = RATED THERMAL POWER

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NOTATION

NOTE 1: OVERTEMPERATURE ΔT

$$\Delta T \left(\frac{1 + \tau_1 S}{1 + \tau_2 S}\right)\left(\frac{1}{1 + \tau_3 S}\right) \leq \Delta T_o \{K_1 - K_2 \frac{(1 + \tau_4 S)}{(1 + \tau_5 S)}[T \left(\frac{1}{1 + \tau_6 S}\right) - T'] + K_3(P - P') - f_1(\Delta I)\}$$

Where:

ΔT	=	Measured ΔT by RTD Manifold Instrumentation
$\frac{1 + \tau_1 S}{1 + \tau_2 S}$	=	Lead-lag compensator on measured ΔT
τ_1, τ_2	=	Time constants utilized in lead-lag controller for ΔT, τ_1 = 8 sec., τ_2 = 3 sec.
$\frac{1}{1 + \tau_3}$	=	Lag compensator on measured ΔT
τ_3	=	Time constants utilized in the lag compensator for ΔT, τ_3 = 0 secs.
ΔT_o	=	Indicated ΔT at RATED THERMAL POWER
K_1	=	1.090
K_2	=	0.01450
$\frac{1 + \tau_4 S}{1 + \tau_5 S}$	=	The function generated by the lead-lag controller for T_{avg} dynamic compensation
τ_4, & τ_5	=	Time constants utilized in the lead-lag controller for T_{avg}, τ_4 = ~~X~~ 28 secs., τ_5 = 4 secs.
T	=	Average temperature °F
$\frac{1}{1 + \tau_6 S}$	=	Lag compensator on measured T_{avg}
τ_6	=	Time constant utilized in the measured T_{avg} lag compensator, τ_6 = 0 secs.