Docket No. 50-423
B14614

Attachment 1

Millstone Nuclear Power Station, Unit No. 3

Proposed Revision to Technical Specifications
Reactor Trip System Interlocks

Marked-up Pages of Technical Specifications

September 1993

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
16. Turbine Trip					
a. Low Fluid Oil Pressure	N.A.	N.A.	N.A.	≥ 500 psig	≥ 450 psig
b. Turbine Stop Valve Closure	N.A.	N.A.	N.A.	≥ 1% open	≥ 1% open
17. Safety Injection Input from ESF	N.A.	N.A.	N.A.	N.A.	N.A.
18. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	N.A.	N.A.	N.A.	≥ 1×10^{-10} amp	≥ 6×10^{-11} amp
b. Low Power Reactor Trips Block, P-7					
1) P-10 input (Note 5)	N.A.	N.A.	N.A.	≤ ~~10~~ 11% of RTP**	≤ 12.1% of RTP**
2) P-13 input	N.A.	N.A.	N.A.	≤ 10% RTP** Turbine Impulse Pressure Equivalent	≤ 12.1% RTP** Turbine Impulse Pressure Equivalent
c. Power Range Neutron Flux, P-8					
1) Four Loops Operating	N.A.	N.A.	N.A.	≤ 37.5% of RTP**	≤ 39.6% of RTP**
2) Three Loops Operating	N.A.	N.A.	N.A.	≤ 37.5% of RTP**	≤ 39.6% of RTP**

**RTP = RATED THERMAL POWER

March 11, 1991

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
d. Power Range Neutron Flux, P-9	N.A.	N.A.	N.A.	≤ 51% of RTP**	≤ 53.1% of RTP**
e. Power Range Neutron Flux, P-10 (Note 6)	N.A.	N.A.	N.A	≥ ~~10~~ 9% of RTP**	≥ 7.9% of RTP**
19. Reactor Trip Breakers	N.A.	N.A.	N.A	N.A.	N.A.
20. Automatic Trip and Interlock Logic	N.A.	N.A.	N.A.	N.A.	N.A.
21. Three Loop Operation Bypass Circuitry	N.A.	N.A.	N.A.	N.A.	N.A

**RTP = RATED THERMAL POWER

TABLE 2.2-1 (Continued)

TABLE NOTATIONS (Continued)

NOTE 3: (Continued)

K_6 = 0.00180/°F for T > T" and K_6 = 0 for T ≤ T",

T = As defined in Note 1,

T" = Indicated T_{avg} at RATED THERMAL POWER (Calibration temperature for ΔT instrumentation, ≤ 587.1°F),

S = As defined in Note 1, and

$f_2(\Delta I)$ = 0 for all ΔI.

NOTE 4: The channel's maximum Trip Setpoint shall not exceed its computed Trip Setpoint by more than 2.7% ΔT span.

Note 5: The setpoint is for increasing power

Note 6: The setpoint is for decreasing power.

Reactor Trip System Interlocks (Continued)

P-8 On increasing power, P-8 automatically enables Reactor trips on low flow in one or more reactor coolant loops. On decreasing power, the P-8 automatically blocks the above listed trips.

P-9 On increasing power, P-9 automatically enables Reactor trip on Turbine trip. On decreasing power, P-9 automatically blocks Reactor trip on Turbine trip.

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P-10 On increasing power, P-10 allows the manual block of the Intermediate Range trip and the Low Setpoint Power Range trip; and automatically blocks the Source Range trip and deenergizes the Source Range high voltage power. On decreasing power, the Intermediate Range trip and the Low Setpoint Power Range trip are automatically reactivated. Provides input to P-7.

P-13 Provides input to P-7.

Three Loop Operation Bypass Circuitry

The Three Loop Operation Bypass Circuitry reactor trip ensures that a sufficient number and the correct combination of trip circuits remain available to provide necessary protection and mitigation capability during three loop operation. Should more than two channels in one train or two dissimilar channels in two trains be bypassed, a reactor trip will occur. In this manner, it is ensured that sufficient protective features remain to mitigate the consequences of analyzed transients.

INSERT A'

P-10 On increasing power, P-10 provides input to P-7 to ensure that Reactor Trips on low flow in more than one reactor coolant loop, reactor coolant pump low shaft speed, pressurizer low pressure and pressurizer high level are active when power reaches 11%. It also allows the manual block of the Intermediate Range trip and the Low Setpoint Power Range trip; and automatically blocks the Source Range trip and deenergizes the Source Range high voltage power.

On decreasing power, P-10 resets to automatically reactivate the Intermediate Range trip and the Low Setpoint Power Range trip before power drops below 9%. It also provides input to reset P-7.

Attachment 2

Millstone Nuclear Power Station, Unit No. 3

Proposed Revision to Technical Specifications
Reactor Trip System Interlocks

Retyped Pages of Technical Specifications

September 1993

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
16. Turbine Trip					
a. Low Fluid Oil Pressure	N.A.	N.A.	N.A.	≥ 500 psig	≥ 450 psig
b. Turbine Stop Valve Closure	N.A.	N.A.	N.A.	≥ 1% open	≥ 1% open
17. Safety Injection Input from ESF	N.A.	N.A.	N.A.	N.A.	N.A.
18. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	N.A.	N.A.	N.A.	≥ 1 x 10^{-10} amp	≥ 6 x 10^{-11} amp
b. Low Power Reactor Trips Block, P-7					
1) P-10 input (Note 5)	N.A.	N.A.	N.A.	≤ 11% of RTP**	≤ 12.1% of RTP**
2) P-13 input	N.A.	N.A.	N.A.	≤ 10% RTP** Turbine Impulse Pressure Equivalent	≤ 12.1% RTP** Turbine Impulse Pressure Equivalent
c. Power Range Neutron Flux, P-8					
1) Four Loops Operating	N.A.	N.A.	N.A.	≤ 37.5% of RTP**	≤ 39.6% of RTP**
2) Three Loops Operating	N.A.	N.A.	N.A.	≤ 37.5% of RTP**	≤ 39.6% of RTP**

**RTP = RATED THERMAL POWER

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
d. Power Range Neutron Flux, P-9	N.A.	N.A.	N.A.	≤ 51% of RTP**	≤ 53.1% of RTP**
e. Power Range Neutron Flux, P-10 (Note 6)	N.A.	N.A.	N.A	≥ 9% of RTP**	≥ 7.9% of RTP**
19. Reactor Trip Breakers	N.A.	N.A.	N.A	N.A.	N.A.
20. Automatic Trip and Interlock Logic	N.A.	N.A.	N.A.	N.A.	N.A.
21. Three Loop Operation Bypass Circuitry	N.A.	N.A.	N.A.	N.A.	N.A

**RTP = RATED THERMAL POWER

Table 2.2-1 (Continued)

TABLE NOTATIONS (Continued)

NOTE 3: (Continued)

K_6	=	0.00180/°F for T > T" and K_6 = 0 for T ≤ T",
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T"	=	Indicated T_{avg} at RATED THERMAL POWER (Calibration temperature for ΔT instrumentation, ≤ 587.1°F),
S	=	As defined in Note 1, and
$f_2(\Delta I)$	=	0 for all ΔI.

NOTE 4: The channel's maximum Trip Setpoint shall not exceed its computed Trip Setpoint by more than 2.7% ΔT span.

NOTE 5: Setpoint is for increasing power.

NOTE 6: Setpoint is for decreasing power.

Reactor Trip System Interlocks (Continued)

P-8 On increasing power, P-8 automatically enables Reactor trips on low flow in one or more reactor coolant loops. On decreasing power, the P-8 automatically blocks the above listed trips.

P-9 On increasing power, P-9 automatically enables Reactor trip on Turbine trip. On decreasing power, P-9 automatically blocks Reactor trip on Turbine trip.

P-10 On increasing power, P-10 provides input to P-7 to ensure that Reactor Trips on low flow in more than one reactor coolant loop, reactor coolant pump low shaft speed, pressurizer low pressure and pressurizer high level are active when power reaches 11%. It also allows the manual block of the Intermediate Range trip and the Low Setpoint Power Range trip; and automatically blocks the Source Range trip and deenergizes the Source Range high voltage power.

On decreasing power, P-10 resets to automatically reactivate the Intermediate Range trip and the Low Setpoint Power Range trip before power drops below 9%. It also provides input to reset P-7.

P-13 Provides input to P-7.

Three Loop Operation Bypass Circuitry

The Three Loop Operation Bypass Circuitry reactor trip ensures that a sufficient number and the correct combination of trip circuits remain available to provide necessary protection and mitigation capability during three loop operation. Should more than two channels in one train or two dissimilar channels in two trains be bypassed, a reactor trip will occur. In this manner, it is ensured that sufficient protective features remain to mitigate the consequences of analyzed transients.