Docket No. 50-423
B15719

Attachment 1

Millstone Nuclear Power Station, Unit No. 3

Proposed Revision to Technical Specifications
Tables 2.2-1 and 3.3-4

Marked-up Pages

May 1996

TABLE 2.2-1 (Continued)

TABLE NOTATIONS

NOTE 1: OVERTEMPERATURE ΔT

$$\Delta T \left(\frac{1 + \tau_1 S}{1 + \tau_2 S}\right)\left(\frac{1}{1 + \tau_3 S}\right) \leq \Delta T_0 \left\{K_1 - K_2 \left(\frac{1 + \tau_4 S}{1 + \tau_5 S}\right)\left[T \left(\frac{1}{1 + \tau_6 S}\right) - T'\right] + K_3 (P - P') - f_1(\Delta I)\right\}$$

Where:

- ΔT = Measured ΔT by Reactor Coolant System 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 compensator for ΔT, $\tau_1 \geq 8$ s, $\tau_2 \leq 3$ s;
- $\frac{1}{1 + \tau_3 S}$ = Lag compensator on measured ΔT;
- τ_3 = Time constants utilized in the lag compensator for ΔT, $\tau_3 = 0$ s;
- ΔT_0 = Indicated ΔT at RATED THERMAL POWER;
- K_1 = 1.20 (Four Loops Operating); 1.20 (Three Loops Operating);
- K_2 = 0.02456;
- $\frac{1 + \tau_4 S}{1 + \tau_5 S}$ = The function generated by the lead-lag compensator for T_{avg} dynamic compensation;
- τ_4, τ_5 = Time constants utilized in the lead-lag compensator for T_{avg}, $\tau_4 \geq 20$ s, $\tau_5 \leq 4$ s;
- 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, $\tau_6 = 0$ s;

TABLE 2.2-1 (Continued)

TABLE NOTATIONS (Continued)

NOTE 3: OVERPOWER $\Delta^{\circ}T$

$$\Delta T \frac{(1 + \tau_1 S)}{(1 + \tau_2 S)} \left(\frac{1}{(1 + \tau_3 S)} \right) \leq \Delta T_0 \left(K_4 - K_5 \left(\frac{\tau_7 S}{(1 + \tau_7 S)} \right) \left(\frac{1}{(1 + \tau_6 S)} \right) T - K_6 \left[T \left(\frac{1}{(1 + \tau_6 S)} \right) - T'' \right] - f_2 (\Delta I) \right)$$

Where:

- ΔT = As defined in Note 1,
- $\frac{1 + \tau_1 S}{1 + \tau_2 S}$ = As defined in Note 1,
- τ_1, τ_2 = As defined in Note 1,
- $\frac{1}{1 + \tau_3 S}$ = As defined in Note 1,
- τ_3 = As defined in Note 1,
- ΔT_0 = As defined in Note 1,
- K_4 = 1.09,
- K_5 = 0.02/°F for increasing average temperature and 0 for decreasing average temperature,
- $\frac{\tau_7 S}{1 + \tau_7 S}$ = The function generated by the rate-lag compensator for T_{avg} dynamic compensation,
- τ_7 = Time constants utilized in the rate-lag compensator for T_{avg}, $\tau_7 \geq 10$ s,
- $\frac{1}{1 + \tau_6 S}$ = As defined in Note 1,
- τ_6 = As defined in Note 1,

TABLE 3.3-4 (Continued)

TABLE NOTATIONS

*Time constants utilized in the lead-lag controller for Steam Line Pressure-Low are $\tau_1 \geq 50$ seconds and $\tau_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values.

**The time constant utilized in the rate-lag controller for Steam Line Pressure-Negative Rate-High is ~~less~~ GREATER than or equal to 50 seconds. CHANNEL CALIBRATION shall ensure that this time constant is adjusted to this value.

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Attachment 2

Millstone Nuclear Power Station, Unit No. 3

Proposed Revision to Technical Specifications
Tables 2.2-1 and 3.3-4

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TABLE NOTATIONS

NOTE 1: OVERTEMPERATURE ΔT

$$\Delta T \left(\frac{1 + \tau_1 S}{1 + \tau_2 S}\right)\left(\frac{1}{1 + \tau_3 S}\right) \leq \Delta T_0 \left(K_1 - K_2 \frac{(1 + \tau_4 S)}{(1 + \tau_5 S)}\left[T\left(\frac{1}{1 + \tau_6 S}\right) - T'\right] + K_3 (P - P') - f_1(\Delta I)\right)$$

Where:

- ΔT = Measured ΔT by Reactor Coolant System 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 compensator for ΔT, $\tau_1 \geq 8$ s, $\tau_2 \leq 3$ s; |
- $\frac{1}{1 + \tau_3 S}$ = Lag compensator on measured ΔT;
- τ_3 = Time constants utilized in the lag compensator for ΔT, $\tau_3 = 0$ s;
- ΔT_0 = Indicated ΔT at RATED THERMAL POWER;
- K_1 = 1.20 (Four Loops Operating); 1.20 (Three Loops Operating);
- K_2 = 0.02456;
- $\frac{1 + \tau_4 S}{1 + \tau_5 S}$ = The function generated by the lead-lag compensator for T_{avg} dynamic compensation;
- τ_4, τ_5 = Time constants utilized in the lead-lag compensator for T_{avg}, $\tau_4 \geq 20$ s, $\tau_5 \leq 4$ s; |
- 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, $\tau_6 = 0$ s;

TABLE NOTATIONS (Continued)

NOTE 3: OVERPOWER ΔT

$$\Delta T \frac{(1 + \tau_1 S)}{(1 + \tau_2 S)} \left(\frac{1}{1 + \tau_3 S} \right) \leq \Delta T_0 \left(K_4 - K_5 \frac{\tau_7 S}{(1 + \tau_7 S)} \right) \left(\frac{1}{1 + \tau_6 S} \right) T - K_6 \left[T \left(\frac{1}{1 + \tau_6 S} \right) - T'' \right] - f_2 (\Delta I) \right)$$

Where: ΔT = As defined in Note 1,

$\frac{1 + \tau_1 S}{1 + \tau_2 S}$ = As defined in Note 1,

τ_1, τ_2 = As defined in Note 1,

$\frac{1}{1 + \tau_3 S}$ = As defined in Note 1,

τ_3 = As defined in Note 1,

ΔT_0 = As defined in Note 1,

K_4 = 1.09,

K_5 = 0.02/°F for increasing average temperature and 0 for decreasing average temperature,

$\frac{\tau_7 S}{1 + \tau_7 S}$ = The function generated by the rate-lag compensator for T_{avg} dynamic compensation,

τ_7 = Time constants utilized in the rate-lag compensator for T_{avg}, $\tau_7 \geq 10$ s,

$\frac{1}{1 + \tau_6 S}$ = As defined in Note 1,

τ_6 = As defined in Note 1,

TABLE 3.3-4 (Continued)

TABLE NOTATIONS

* Time constants utilized in the lead-lag controller for Steam Line Pressure-Low are $\tau_1 \geq 50$ seconds and $\tau_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values.

** The time constant utilized in the rate-lag controller for Steam Line Pressure-Negative Rate-High is greater than or equal to 50 seconds. CHANNEL CALIBRATION shall ensure that this time constant is adjusted to this value.