

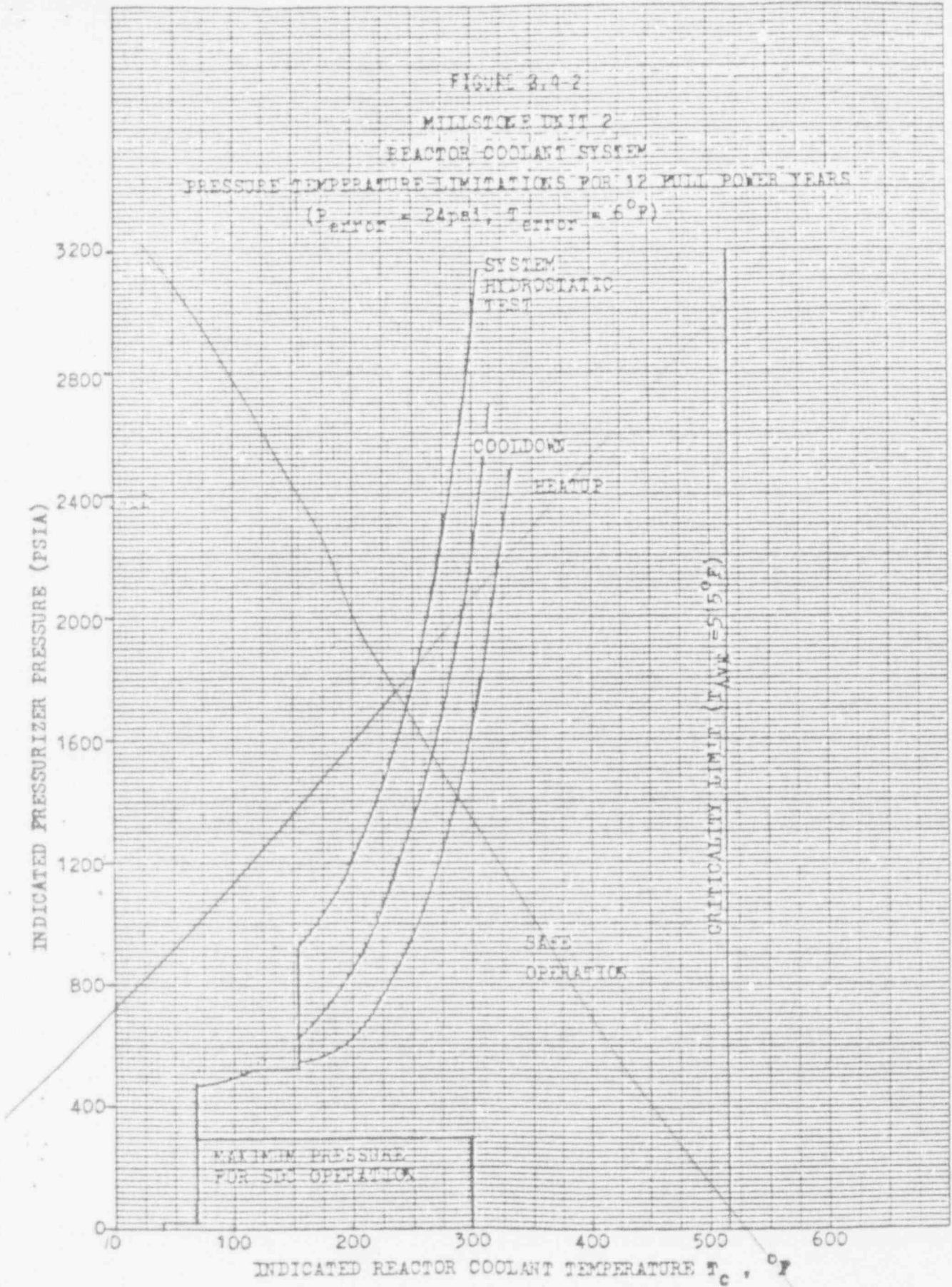
Docket No. 50-336
B14445

Attachment 1

Millstone Nuclear Power Station, Unit No. 2
Proposed Revision to Technical Specifications
Pressure/Temperature Limits
Marked Up Pages of Technical Specifications

June 1993

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REACTOR COOLANT SYSTEMBASES

The heatup and cooldown limit curves (Figure 3.4-2) are composite curves which were prepared by determining the most conservative case, with either the inside or outside wall controlling, for any heatup or cooldown rates of up to the maximums described in Section 3.4.9.1. The heatup and cooldown curves were prepared based upon the most limiting value of the predicted adjusted reference temperature at the end of the service period indicated on Figure 3.4-2.

The reactor vessel materials have been tested to determine their initial RT_{NDT} ; the results of these tests are shown in Table 4.6-1 of the Final Safety Analysis Report. Reactor operation and resultant fast neutron irradiation will cause an increase in the RT_{NDT} . Therefore, an adjusted reference temperature, based upon the fluence, can be predicted using the methods described in ~~SECY 82-065, "NRC Staff Evaluation of Pressurized Thermal Shock," November 1982. Because it is more conservative, this method was used rather than the proposed~~ Revision 2 to Regulatory Guide 1.99.

The heatup and cooldown limit curves shown on Figure 3.4-2 include predicted adjustments for this shift in RT_{NDT} at the end of the applicable service period, as well as adjustments for possible errors in the pressure and temperature sensing instruments.

10 CFR 50 APPENDIX H

The actual shift in RT_{NDT} of the vessel material will be established periodically during operation by removing and evaluating, in accordance with ~~ASTM E105-73~~, reactor vessel material irradiation surveillance specimens installed near the inside wall of the reactor vessel in the core area. Since the neutron spectra at the irradiation samples and vessel inside radius are essentially identical, the measured transition shift for a sample can be applied with confidence to the adjacent section of the reactor vessel. The heatup and cooldown curves must be recalculated when the ΔRT_{NDT} determined from the surveillance capsule is different from the calculated ΔRT_{NDT} for the equivalent capsule radiation exposure.

The pressure-temperature limit lines shown on Figure 3.4-2 for reactor criticality and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50 for reactor criticality and for inservice leak and hydrostatic testing.

The maximum RT_{NDT} for all reactor coolant system pressure-retaining materials, with the exception of the reactor pressure vessel, has been determined to be 50°F. The Lowest Service Temperature limit line shown on Figure 3.4-2 is based upon this RT_{NDT} since Article NB-2332 (Summer Addenda of 1972) of Section III of the ASME Boiler and Pressure Vessel Code requires the Lowest Service Temperature to the $RT_{NDT} + 100^\circ\text{F}$

Docket No. 50-336
B14445

Attachment 2

Millstone Nuclear Power Station, Unit No. 2

Proposed Revision to Technical Specifications
Pressure/Temperature Limits
Retyped Pages of Technical Specifications

June 1993

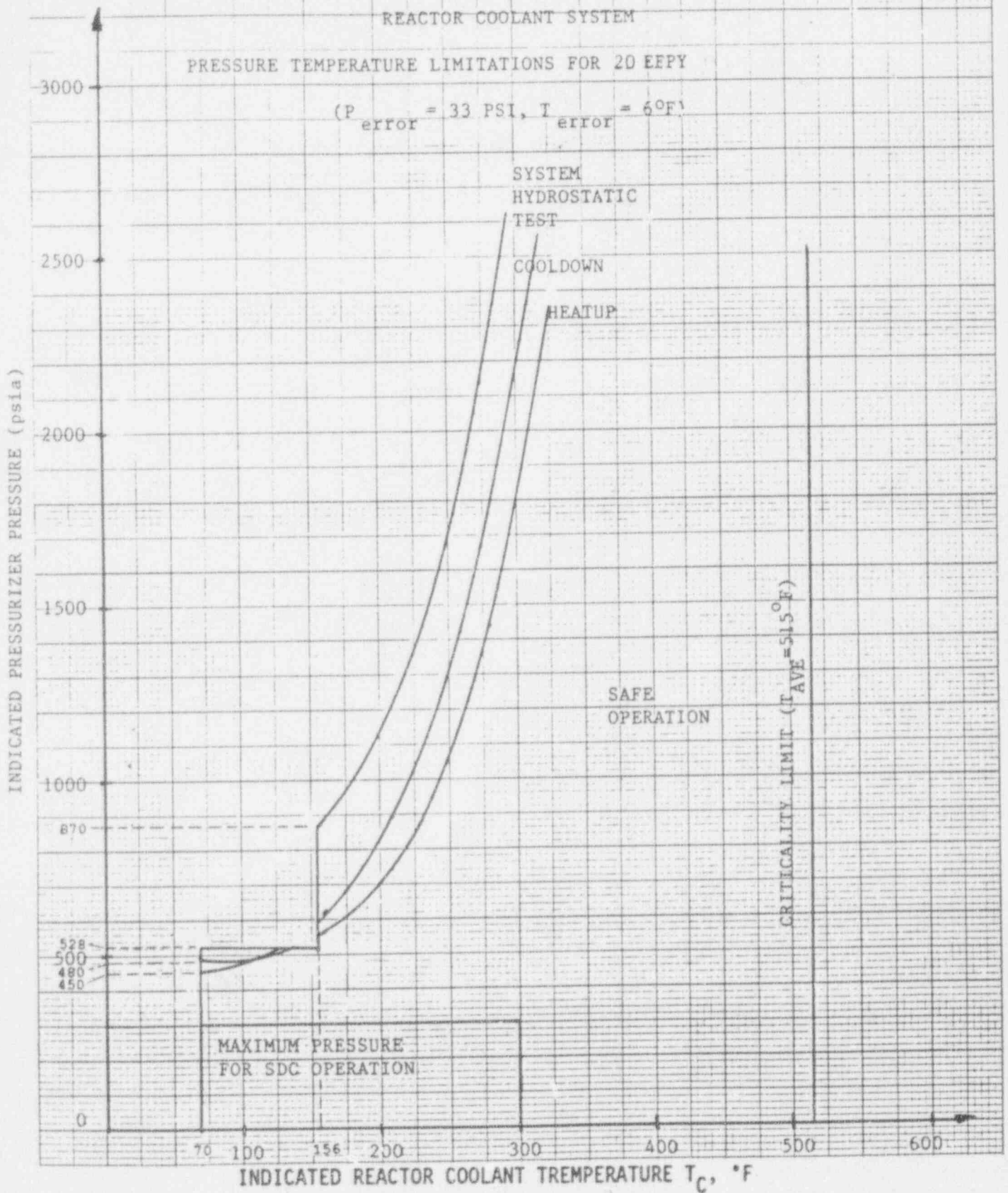
FIGURE 3.4-2

MILLSTONE UNIT 2

REACTOR COOLANT SYSTEM

PRESSURE TEMPERATURE LIMITATIONS FOR 20 EEPY

($P_{error} = 33 \text{ PSI}$, $T_{error} = 6^{\circ}\text{F}$)



REACTOR COOLANT SYSTEM

BASES

The heatup and cooldown limit curves (Figure 3.4-2) are composite curves which were prepared by determining the most conservative case, with either the inside or outside wall controlling, for any heatup or cooldown rates of up to the maximums described in Section 3.4.9.1. The heatup and cooldown curves were prepared based upon the most limiting value of the predicted adjusted reference temperature at the end of the service period indicated on Figure 3.4-2.

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The heatup and cooldown limit curves shown on Figure 3.4-2 include predicted adjustments for this shift RT_{NDT} at the end of the applicable service period, as well as adjustments for possible errors in the pressure and temperature sensing instruments.

The actual shift in RT_{NDT} of the vessel material will be established periodically during operation by removing and evaluating, in accordance with 10CFR50 Appendix H, reactor vessel material irradiation surveillance specimens installed near the inside wall of the reactor vessel in the core area. Since the neutron spectra at the irradiation samples and vessel inside radius are essentially identical, the measured transition shift for a sample can be applied with confidence to the adjacent section of the reactor vessel. The heatup and cooldown curves must be recalculated when the ΔRT_{NDT} determined from the surveillance capsule is different from the calculated ΔRT_{NDT} for the equivalent capsule radiation exposure.

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