ATTACHMENT 2

Letter from C. R. Steinhardt (WPSC)

To

Document Control Desk (NRC)

Dated

April 30, 1996

Proposed Amendment 139

Affected TS Pages:
Page TS 3.1-6
Page TS B3.1-7
Figure TS 3.1-4

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b. Heatup and Cooldown Limit Curves for Normal Operation

1. The reactor coolant temperature and pressure and system heatup and cooldown rates (with the exception of the pressurizer) shall be limited in accordance with Figures TS 3.1-1, TS 3.1-2, and TS 3.1-4. Figures TS 3.1-1 and TS 3.1-2 are applicable for the service period of up to 20 effective full-power years. Figure TS 3.1-4 is applicable through the end of operating cycle 33 or 33.41 effective full-power years.

   A. Allowable combinations of pressure and temperature for specific temperature change rates are below and to the right of the limit lines shown. Limit lines for cooldown rates between those presented may be obtained by interpolation.

   B. Figures TS 3.1-1 and TS 3.1-2 define limits to assure prevention of non-ductile failure only. For normal operation other inherent plant characteristics, e.g., pump heat addition and pressurizer heater capacity may limit the heatup and cooldown rates that can be achieved over certain pressure-temperature ranges.

   C. Figure TS 3.1-4 defines limits to assure prevention of non-ductile failure applicable to low temperature overpressurization events only. Application of this curve is limited to evaluation of LTOP events whenever one or more of the RCS cold leg temperatures are less than or equal to the LTOP enabling temperature of 338°F.

2. The secondary side of the steam generator must not be pressurized > 200 psig if the temperature of the steam generator is < 70°F.

3. The pressurizer cooldown and heatup rates shall not exceed 200°F/hr and 100°F/hr, respectively. The spray shall not be used if the temperature difference between the pressurizer and the spray fluid is > 320°F.

A limit curve (Figure TS 3.1-4) for evaluation of low temperature overpressure protection (LTOP) events has been calculated using the methodology of Regulatory Guide 1.99, Revision 2, Position C.2. The derivation of the LTOP evaluation curve is consistent with Footnotes[15][16]. This curve is applicable for 33.41 effective full-power years of fluence (through the end of operating cycle 33). If a low temperature overpressure event occurred, the RCS pressure transient would be evaluated to the limits of this figure to verify the integrity of the reactor vessel. If these limits are not exceeded, vessel integrity is assured and a TS violation has not occurred.

Pressurizer Limits - (TS 3.1.b.3)

Although the pressurizer operates at temperature ranges above those for which there is reason for concern about brittle fracture, operating limits are provided to assure compatibility of operation with the fatigue analysis performed in accordance with Code requirements. In-plant testing and calculations have shown that a pressurizer heatup rate of 100°F/hr cannot be achieved with the installed equipment.

Low Temperature Overpressure Protection - (TS 3.1.b.4)

The low temperature overpressure protection system must be OPERABLE during startup and shutdown conditions below the enable temperature (i.e., low temperature) as defined in Branch Technical Position RSB 5-2. Based on the Kewaunee Appendix G pressure-temperature limits calculated through 20 effective full-power years, the LTOP System must be OPERABLE whenever one or more of the RCS cold leg temperatures are ≤ 338°F and the head is on the reactor vessel. The LTOP system is considered operable when all 4 valves on the RHR suction piping (valves RHR-1A, 1B, 2A, 2B) are open and valve RHR-33-1, the LTOP valve, is able to relieve RCS overpressure events without violating Figure TS 3.1-4.

The set pressure specified in TS 3.1.b.4 includes consideration for the opening pressure tolerance of ± 3% (± 15 psig) as defined in ASME Boiler and Pressure Vessel Code, Section III, Division 1, Subsection NC: Class 2 Components for Safety Relief Valves. The analysis of pressure transient conditions has demonstrated acceptable relieving capability at the upper tolerance limit of 515 psig.

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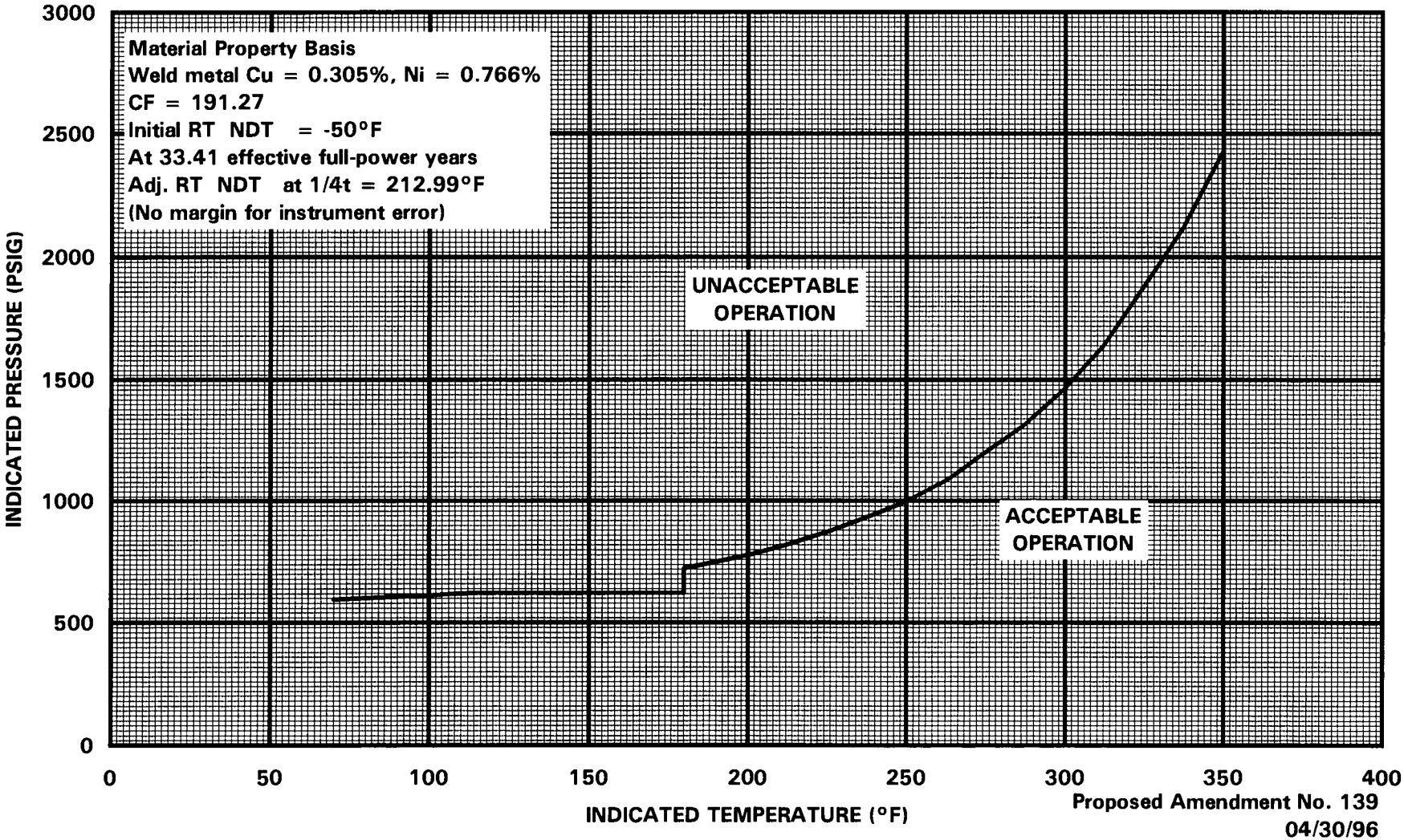
[15]NRC Regulatory Standard Review Plan Directorate of Licensing, Section 5.3.2, "Pressure-Temperature Limits," 1974

[16]ASME Boiler and Pressure Vessel Code, "Nuclear Power Plant Components" Section III/XI, 1989 Edition, Non-Mandatory Appendix G - "Fracture Toughness Criteria for Protection Against Failure."

FIGURE TS 3.1-4
LOW TEMPERATURE OVERPRESSURE PROTECTION CURVE
APPLICABLE FOR PERIODS UP TO END OF OPERATING CYCLE 33



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ATTACHMENT 3

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Tabulation of Discrete Pressure-Temperature Values

for

Evaluation of LTOP Events

Through Fuel Cycle 33

Tabnlation of Discrete Pressure-Temperature Values

for

Evaluation of LTOP Events

Throngh Fuel Cycle 33

Maximum Allowable Pressure(s) in Reactor Vessel Corresponding to Isothermal LTOP Events	
Temperature °F	Allowable Pressure PSIG
70	593.9
95	608.3
100	611.8
112	621.2
120	621.2
140	621.2
180	621.2
>180	722.8
250	998.6
263	1090.3
300	1466.4
350	2431.4