5D/GRQ
RG 019-011

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
500C Chestnut Street Tower II

APR 5 1979

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS U.S. NRC

APR 12 1979

Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Docketing and Service Branch

Dear Sir:

In accordance with provisions for public review and comment indicated in the Federal Register on June 12, 1974, the Tennessee Valley Authority (TVA) is pleased to provide the enclosed comments on the following regulatory guides:

Regulatory Guide 1.9 (Revision 1)	- "Selection, Design, and Qualification of Diesel-Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants"

104

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APRIL 5, 1979.

ENCLOSURE

Tennessee Valley Authority's
Comments on Regulatory Guides
1.9 (Revision 1), 1.72 (Revision 2),
1.125 (Revision 1) and 1.144

A. Regulatory Guide 1.9 (Revision 1)

1. Page 1.9-2, Paragraph 3 of Section B, line 5--In reference to ". . . a starting current of five to ten times . . .," we believe the factor "ten" should be changed to "eight" because a starting current of ten times full load current is excessive for motors used in nuclear safety systems.

2. Page 1.9-2, Section C.1--In calculating motor drive ratings for use in sizing diesel generators, section C.1 states that motor efficiencies of 90 percent or less should be used. The power factor (PF) should also be used in calculations (a conservative value would be 0.85) since the motor drive rating in kVa is given by: kVa = (HP x 0.746)/(Eff x PF).

1530 169

D

PROFESSOR KERR: Excuse me. Since we are at that point and since one of our consultants suggests we may want to explore the technical basis for 40 degrees F and 60 degrees F that appear in this, maybe this is the time to explore the basis for those.

MR. RANDALL: Fine. This is one of the changes that I would call a relaxation of requirements.

I am reaching for a diagram of the pressure temperature limits. Since we don't have a blackboard, let me pass this out. The first part of paragraph 3 is the same as it has been for many years, and the effect of it is to say for non-critical operation, you calculate pressure temperature limits according to the code. That's what paragraph 2 above says; according to the code, Appendix G.

Then, in 1972, when we wrote the regulation the first time, we said for critical operation, particularly for the procedures that are undertaken in the control room to go critical, during that period we want more margin, and the number of 40 degrees was chosen.

The rationale for that is somewhat arbitrary. I believe we thought of numbers like 30 degrees and 60 degrees but those have implications in the brittle fracture business, the fracture control diagram that the research lab promotes.

ATTACHMENT E

We didn't want to confuse it with that so we simply picked 40 degrees as a temperature that gave a significant improvement in the pressure we could tolerate, yet didn't crowd them too hard with regard to startup limits. It is sort of a traditional number we have operated with for the last five years.

Now if you look on this diagram, General Electric Company said that the second part of our requirement, which reads "nor lower than the minimum permissible temperature for the in-service hydrostatic pressure test," that defines the vertical line that you see on this sketch I handed out. The vertical line on the right side of the cross-hatched area.

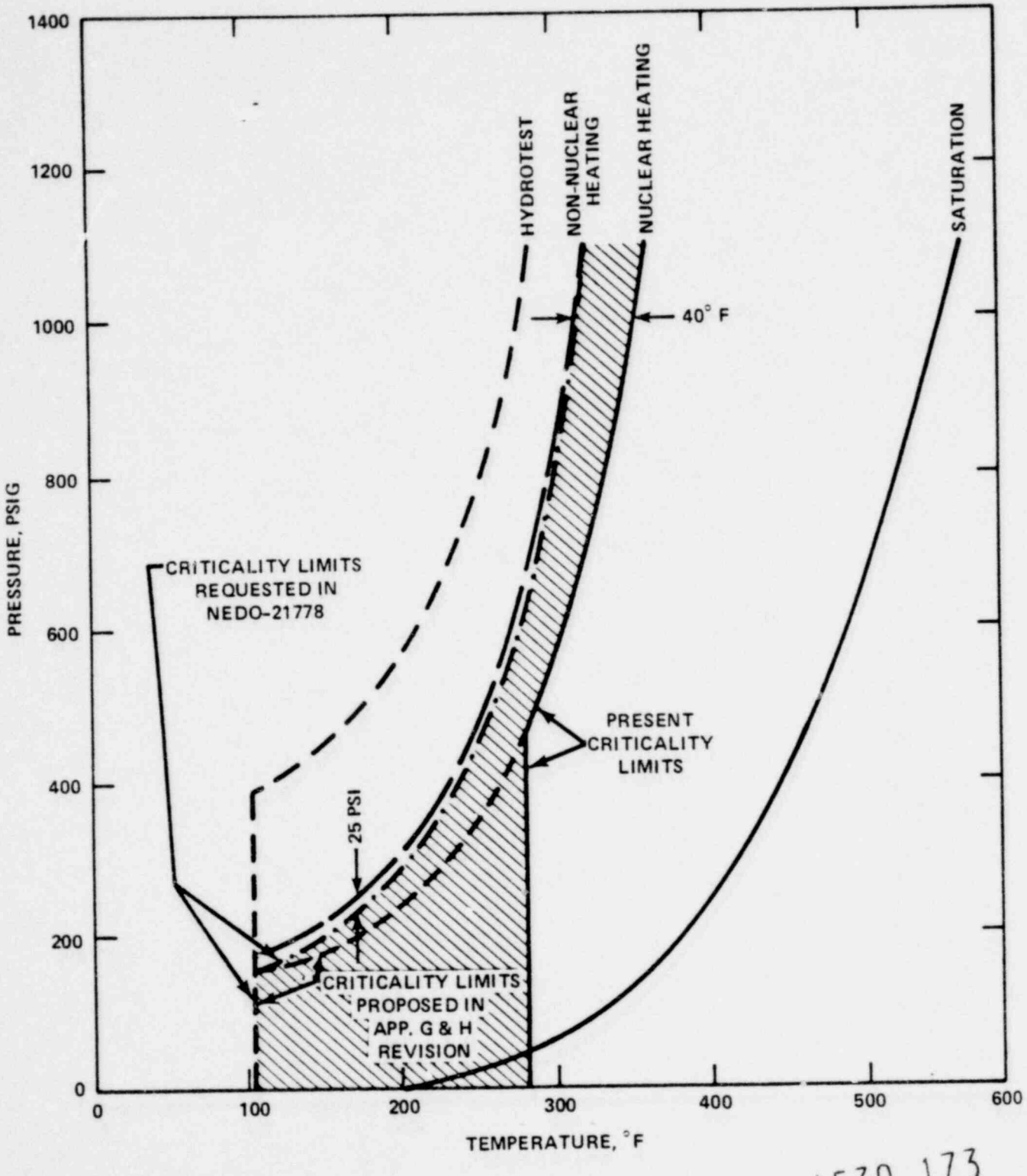
It was chosen because that's the temperature at which the last hydro test would have been run under normal conditions and it gives boiling water reactors a problem when they have had quite a lot of radiation damage, as this diagram illustrates, because they can't get much pump heat in the BWR where the only heat there is on the pumps has a difference in water level from the normal level to the pump, and until they get steam pressure on top of that, they don't have much suction heat so they can't get much pump heat, so it takes a long time to warm up.

They said: "Couldn't you give us relief on this limit?" They submitted a topical report, NEDO-21778. After reviewing that, we said yes and moved that limit down to essentially room temperature.

The criterian for picking that draws on another p[illegible]t

of the problem; namely, to make sure that the high-stress areas where the flange bolts bend the shell are sufficiently warm and that 60 degrees is a traditional fracture analysis diagram margin for reaching stress near the yield. There is no radiation damage in this area.

We rewrote that paragraph to make sure that it was clear they could use the lower limit in the BWR only when water level was in the normal range. We are convinced, after discussions with the systems people at some length, that the possibility of a pressure pulse down at this temperature being reached while they are going through the startup procedures was essentially nil, so we could give them that relief.



1530 173

FIGURE 1.

PRESSURE-TEMPERATURE LIMITS AT END OF LIFE FOR SOME BWR's
(FROM FIGURE 2-1 OF NEDO-21778)

ATTACHMENT E