

SOUTH CAROLINA ELECTRIC & GAS COMPANY

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COLUMBIA, S. C. 29218

May 14, 1982

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

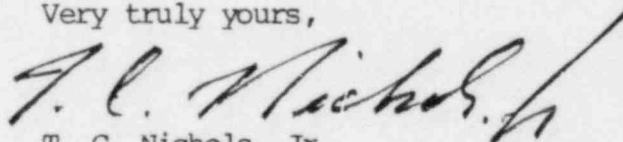
Subject: Virgil C. Summer Nuclear Station
Docket No. 50/395
Cold Overpressurization Protection
System

Dear Mr. Denton:

In Amendment 31 of the Virgil C. Summer Nuclear Station Final Safety Analysis Report a setpoint curve for the pressurizer power operated relief valve (PORV) was provided. This curve applies when the PORVs are being used for cold overpressurization protection. The curve has been revised to reflect the results of an updated setpoint program. Selection of the setpoints was based on consideration of Appendix G reactor vessel NDT limits to 10 effective full power years (EFPY) of plant operation. Subsequent analysis of irradiated material specimens after 10 EFPY of plant operation will determine the need for any further setpoint refinements.

A copy of the affected FSAR and Technical Specification pages are attached. The FSAR changes will be incorporated on the next FSAR amendment. If you have any questions, please let us know.

Very truly yours,



T. C. Nichols, Jr.
Senior Vice President
Power Operation

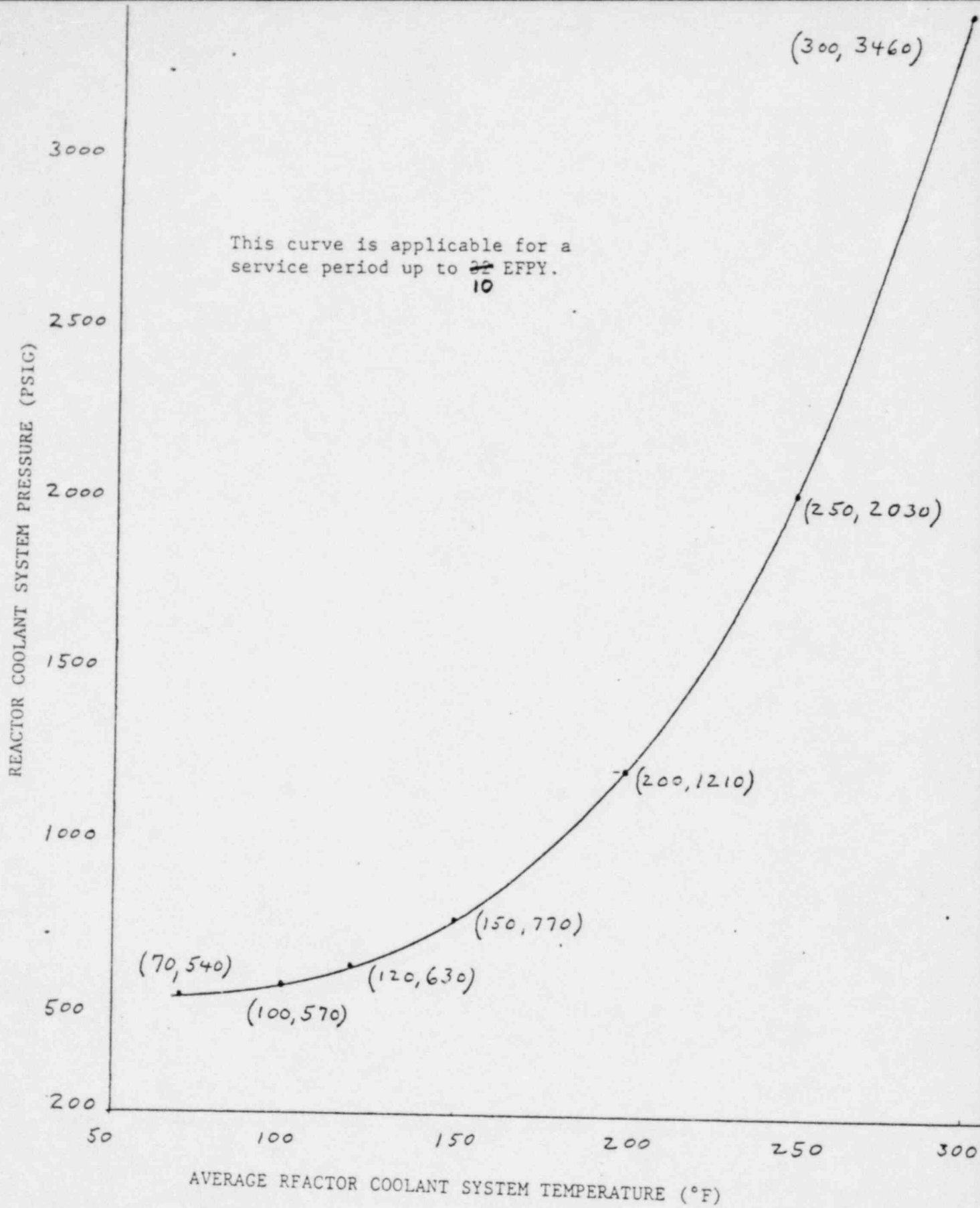
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Mr. Harold R. Denton
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cc: V. C. Summer (w/o attach.)
G. H. Fischer (w/o attach.)
H. N. Cyrus
T. C. Nichols, Jr. (w/o attach.)
M. B. Whitaker, Jr.
J. P. O'Reilly
H. T. Babb
D. A. Nauman
C. L. Ligon (NSRC)
W. A. Williams, Jr.
R. B. Clary
O. S. Bradham
A. R. Koon
M. N. Browne
G. J. Braddick
J. L. Skolds
J. B. Knotts, Jr.
B. A. Bursey
NPCF
File



5.2.2.5.2 Evaluation of Low Temperature Overpressure Transients

Pressure Transient Analyses

ASME Section III, Appendix G, establishes guidelines and limits for RCS Pressure primarily for low temperature conditions ($\leq 350^{\circ}\text{F}$). The relief system discussed in 5.2.2.5 satisfies these conditions as discussed in the following paragraphs.

Transient analyses were performed to establish a PORV lift setpoint program for the Overpressure Mitigating System (OMS) to be applied during shutdown operation of the plant. This program maintains reactor coolant system pressure within acceptable limits following all credible overpressurization incidents occurring in the plant during low temperature, water solid operation.

The mass input transient analysis was performed assuming the most severe event involving a single centrifugal charging pump. Specifically, a loss of air incident is postulated, whereby the flow control valve on the charging line fails open and, simultaneously, the flow control valve on the letdown line fails closed.

The heat input mechanism considered for analysis involved a RCS pump startup in one loop with a water solid condition and temperature asymmetry in the reactor coolant system, whereby the steam generators were at a higher temperature than the remainder of the system. A 50°F mismatch ^{was assumed to} existed between the RCS (250°F) and the secondary side of the steam generators (300°F). (At lower temperatures, the mass input case is the limiting transient condition.)

Both analyses took into account the single failure criteria and therefore, the operation of one PORV in the OMS was assumed to be available for pressure relief. The above events have been evaluated against the allowable pressure/temperature limits established in Figures 5.2-13 and 5.2-14. The evaluation of the transient results conclude that the allowable limits will not be exceeded and therefore will not constitute an impairment to vessel integrity and plant safety.