POLICY ISSUE
(Information)

October 28, 1994

SECY-94-267

FOR: The Commissioners

FROM: James M. Taylor
Executive Director for Operations

SUBJECT: STATUS OF REACTOR PRESSURE VESSEL ISSUES

PURPOSE:

To provide an update of the status of plants with regard to Appendix G, "Fracture Toughness Requirements," to Part 50 of the Code of Federal Regulations (10 CFR) and 10 CFR 50.61, "Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events."

BACKGROUND:

In SECY-93-048, the staff of the Nuclear Regulatory Commission (NRC) stated that it was performing detailed reviews of licensee responses to Generic Letter (GL) 92-01, "Reactor Vessel Structural Integrity, 10 CFR 50.54(f)." As part of this review, the staff has assessed the upper-shelf energies (USEs), transition temperatures, and reference temperature for pressurized thermal shock $RT_{(PTS)}$ or adjusted reference temperatures (ARTs) for all domestic commercial nuclear power plants. Appendix G to 10 CFR Part 50 requires licensees (1) to operate their reactor vessels with pressure-temperature limits that are dependent on the amount of increase in the transition temperature resulting from neutron radiation, and (2) to maintain the Charpy USE throughout the life of the vessel of no less than 41 Joules (50 ft-lb), unless it is demonstrated that lower values of USE will provide margins of safety against fracture equivalent to those required by Appendix G of the American Society of Mechanical Engineers Boiler and Pressure Vessel Codes (ASME) Code. The analyses submitted by licensees to demonstrate margins of safety equivalent to those required by Appendix G of the ASME Code are called equivalent margins analyses. The increase in the transition temperatures affects the RT_{PTS} values for pressurized water reactors (PWRs) that are calculated in accordance with 10 CFR 50.61 and the ART that is calculated in determining the pressure-temperature limits for both PWRs and boiling water reactors (BWRs).

NOTE: TO BE MADE PUBLICLY AVAILABLE IN 10 WORKING DAYS FROM THE DATE OF THIS PAPER

Contact:
B. Elliot, NRR/DE/EMCB
504-2709

Plant Name: Palisades

Docket Number: 50-255

NSSS Vendor: Combustion Engineering

Vessel Manufacturer: Combustion Engineering

Edition of ASME Code for Design: Winter 1965 Addenda to 1965 ASME Code

Date of Commercial Operation: December 31, 1971

Date of License Expiration: March 14, 2007

RT_{pts} for the Limiting Beltline Material:

Limiting Beltline Material: Axial welds, heat W5214
ID Fluence at EOL: 1.91E19 n/cm^2
Initial RT_{NDT}: -56°F
Method of Determining Chemistry Factor: Chemistry data per Paragraph C.1.1 of RG 1.99, Rev. 2
Increase in RT_{NDT} at EOL: 265°F
Margin: 66°F
RT_{pts} at EOL: 275°F
Date at which PTS Screening Limit will be exceeded: 2004

USE for the Limiting Beltline Material:

Limiting Beltline Material: Plate D-3804-1, heat C-1308
1/4T Fluence at EOL: 1.615E19 n/cm^2
Initial USE: 72 ft-lb
Percent Drop at EOL: 31%
USE at EOL: 50 ft-lb
Date USE Screening Limit will be Exceeded: After EOL
Bases for Accepting the USE at EOL: Chemistry data per Paragraph C.1.2 of RG 1.99, Rev. 2

REFERENCES:

July 3, 1992, letter from G. B. Slade (CPCo) to USNRC Document Control Desk, Subject: Palisades Plant--Reactor Vessel Structural Integrity--Response to Generic Letter 92-01, Revision 1

February 23, 1994, letter from D.W. Rogers (CPCo) to USNRC

August 31, 1990, letter from G.B. Slade (CPCo) to USNRC

July 12, 1994, letter from A. Hsia (NRC) to CPCo