

Enclosure



ENGINEERING OFFICE

TURNPIKE ROAD (RT. 9)  
WESTBORO, MASSACHUSETTS 01581  
617-366-9011

January 7, 1980

United States Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Office of Nuclear Reactor Regulation  
Darrell G. Eisenhut

- Reference:
- (1) License No. DPR-36 (Docket No. 50-309).
  - (2) NRC letter from D. G. Eisenhut to All Operating Light Water Reactors, dated November 9, 1979.
  - (3) NRC letter from D. G. Eisenhut to All Operating Light Water Reactors, dated November 27, 1979.
  - (4) Letter MYC-4303 from CE Power Systems to MYAPC, dated December 7, 1979.
  - (5) MYAPC Letter to USNRC dated December 5, 1979 (WMY-79-143).
  - (6) Draft Report, "Cladding Swelling and Rupture Models for LOCA Analysis", NUREG-0630, D. A. Powers and R. O. Meyer, November 8, 1979.

Dear Sir:

This letter is in response to your letters requesting confirmation that the information provided to you on our behalf by CE regarding fuel cladding swelling and rupture is correct<sup>(2,3)</sup>.

Combustion Engineering's responses in References 2 and 3 provide an evaluation of their total ECCS model in light of the NRC data presented to the fuel vendors at the November 1, 1979 meeting in Bethesda. Comparisons of their current and proposed alternate models for rupture strain and flow blockage with the NRC draft correlations show them to underpredict the NRC draft correlations especially for low temperature ramp rate conditions. CE contends, however, that all CE design plants could demonstrate peak clad temperature below 2200°F without any decrease in Linear Heat Generation Rates using the NRC draft correlations. In a letter to MYAPC on December 4, 1979<sup>(4)</sup>, CE suggested that a plant-specific or enveloping analysis should be performed to support continuous operation of CE plants.

8003280407

January 7, 1980

Maine Yankee will complete Cycle 4 operation and shut down for refueling on January 11, 1980. The Cycle 5 core will incorporate for the first time 72 fresh assemblies manufactured by Exxon Nuclear Company. The licensing analyses for this reload have been performed by Yankee Atomic Electric Company. Therefore, YAEC has evaluated the effects of the new clad swelling and rupture data on Maine Yankee Cycle 5 performance utilizing our own analytical methods.

YAEC-1202, which is an attachment to Reference 5, provides a description of the methods used and the results of various LOCA analyses performed to support MY Cycle 5 operation. Break spectrum analyses as well as burnup and axial power shape sensitivity studies were performed to establish Cycle 5 Linear Heat Generation Rate limits. A clad swelling and rupture sensitivity study was also included in this report. For this study, the worst break identified in the break spectrum study (1.0 DECLS) was reanalyzed utilizing the NRC draft correlations<sup>(6)</sup> in place of the licensed models. The use of the NRC draft correlations resulted in a lower PCT than originally obtained.

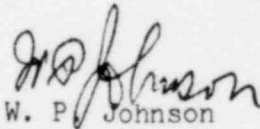
To further respond to the concerns raised in the November 1 meeting, all the exposure dependent points analyzed in Reference 5 were re-examined. Two burnup points and 1 axial power shape point for the Exxon Fuel and 5 burnup points and 2 axial power shape points for the exposed C-E fuel were reanalyzed incorporating the NRC draft correlations. Nine of the ten points thus re-analyzed showed a reduction in the PCTs. Only one case, representing Exxon fuel at 25 effective full power days exposure showed an increase in the PCT. For this case the peak clad temperature was calculated to be below 2200°F value.

The Exxon fuel assemblies are very similar in design to the CE assemblies and there are no appreciable anticipated differences in Cycle 4 and Cycle 5 operation. Several limiting and representative points have been satisfactorily reanalyzed for CE fuel as described above. Our present analyses, therefore, indicate not only compliance for Cycle 5 operation but serve to demonstrate the same for previous Cycle 4 operation.

We trust this information is satisfactory; however, if you have any further questions, please contact us.

Respectfully submitted,

MAINE YANKEE ATOMIC POWER COMPANY

  
W. P. Johnson  
Vice President

AuH/mrt