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Docket No. 50-29

Yankee Atomic Electric Company  
ATTN: Mr. Donald E. Vandenburg  
Vice President  
20 Turnpike Road  
Westboro, Massachusetts 01581

Gentlemen:

Recent investigation of the performance of unpressurized fuel in some of the pressurized water reactors presently in operation have verified that separation of fuel pellets and collapse of the fuel cladding into the resulting void have either occurred or are in progress. In this regard, we advised you in a telephone conversation as early as June 15, 1972, of the fuel performance anomalies discovered at the R. E. Ginna Nuclear Power Plant during their refueling in May 1972. These anomalies involved approximately 4% of the fuel rods having collapsed sections of cladding up to 4 inches; approximately 6% of the fuel rods were bowed to some degree rather than being perfectly straight. The collapsed sections were found only in unpressurized fuel rods. During several recent telephone conversations with your staff, we further discussed with you the interim operating limitations that are already in effect for a number of pressurized water reactors currently operating with unpressurized fuel; and we indicated the possible need for similar limitations for the Yankee Nuclear Power Plant.

Because of previous control rod difficulties, you are presently required to operate the reactor at a power level not to exceed 83% of full power until you shut down the reactor not later than October 31, 1972, for replacement of the control rods. You have reported that the peak linear power as obtained from your evaluations of in-core flux traverses during Core X operation at the reduced power level has not exceeded 7 kW/ft. You also have reported that the total primary to secondary leakage in the steam generators has not exceeded 2 gallons per day.

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We understand that you plan to return the reactor to 600 MWt (full power) after completion of the control rod installation and upon resumption of reactor operation. There is insufficient evidence that the Yankee unpressurized zircaloy clad fuel is not susceptible to void formation and possible clad collapse. Therefore, we request that you provide the necessary information to justify reactor operation with Core X at 600 MWt. You should consider restrictions on the average and the linear power in the fuel assemblies, on the total primary to secondary leakage in the steam generator, and on the rate of change of power level, taking into account all phenomena revealed by the Ginna investigation, including radial shrinkage and axial gaps in pressurized fuel rods as well as unpressurized fuel rods. You also should reexamine transients and accidents in the Safety Analysis Report and establish any additional limits required for operating the reactor, before resuming operation at the end of the outage for control rod replacement.

Sincerely,

15/

Donald J. Skovholt  
Assistant Director  
for Operating Reactors  
Directorate of Licensing

SEE ATTACHED YELLOW FOR OTHER CONCURRENCES

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