

YANKEE ATOMIC ELECTRIC COMPANY2.C.2.1
FYR 83-1

1671 Worcester Road, Framingham, Massachusetts 01701

January 3, 1983

United States Nuclear Regulatory Commission
Washington, D. C. 20555Attention: Mr. Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing

References: (a) License No. DPR-3 (Docket No. 50-29)

Subject: Yankee Probabilistic Safety Study

Dear Sir:

Enclosed is a copy of the Yankee Nuclear Power Station Probabilistic Safety Study [six (6) volumes]. This study was performed by Energy Incorporated and Yankee Atomic Electric Company to provide additional insight into the design and operation of the plant and to utilize the latest analytical tools in support of the decision making process. An Executive Summary of the Probabilistic Safety Study is attached to this letter.

The results of the study indicate that the likelihood of core melt and subsequent adverse public health effects is substantially lower than assessed in the WASH-1400 study. The best-estimate mean core melt frequency is about one in 500,000 years [$2(10)^{-6}$ per year], with 5% and 95% confidence levels of one in 10 million years [$1(10)^{-7}$ per year], and one in 100,000 years [$1(10)^{-5}$ per year]. Even using conservative assumptions - e.g., Appendix K based success criteria, the mean core melt frequency is less than $2(10)^{-5}$ per year with 5% and 95% confidence levels of $4(10)^{-6}$ per year and $5(10)^{-5}$ per year. The best-estimate individual fatality risk is about a factor of 50,000 less than NRC safety goals; using conservative assumptions about a factor of 2,600 less. Furthermore, Yankee results when compared to more recent probabilistic studies for other plants show that the Yankee Nuclear Power Station has a lower likelihood of core melt and lower overall risk to the public.

This study and the tools developed in support of this study will provide Yankee with an ongoing resource for performing personnel training, evaluating plant modifications internally and in response to NRC inquiry, evaluating Technical Specification changes, and enhancing operational and emergency procedures. Yankee is continuing to evaluate the current study findings and is formulating plans for integrating these techniques into the overall decision making process.

A001

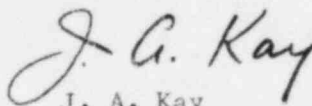
United States Nuclear Regulatory Commission
Attention: Mr. Dennis M. Crutchfield

January 3, 1983
Page 2

Should you have any questions or desire additional copies of the study,
please contact us.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

A handwritten signature in cursive script that reads "J. A. Kay".

J. A. Kay
Senior Engineer - Licensing

JAK/dd

Enclosure