

MAY 18 1972

Docket No. 50-29

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

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

Gentlemen:

This refers to your Proposed Change No. 100, dated May 16, 1972, and supplemental information contained in your teletype of May 18, 1972, requesting authorization of a change in the Technical Specifications appended to License No. DPR-3 for the Yankee reactor. The proposed change would modify the control rod withdrawal program to allow operating the reactor with one of the 24 control rods inoperable.

The information you have submitted indicates that during the Core X control rod drop testing program you determined that control rod No. 18 (located in the Shutdown Group D) exhibited erratic performance and you concluded that this rod must be considered to be inoperable. All other 23 control rods dropped in less than 2.4 seconds consistent with the value that you have used in the reanalyses of accidents for Core X operations.

To meet the specified shutdown margin with control rod No. 18 inoperable, you propose the revised control rod withdrawal program shown on Figure 103-5 in Proposed Change No. 100. This program requires full withdrawal of Control Rod Group B (compared with the presently specified 50 inches withdrawal limit); it also requires 35 inches withdrawal of Control Group A for allowing the reactor to attain criticality. The additional control rod withdrawals are provided to offset the shutdown reactivity assumed to be unavailable from the inoperable control rod No. 18. You have also determined that the additional control rod withdrawal must be compensated by adding more boron to the reactor coolant to an increased boron concentration of about 2350 ppm at zero power.

We have reviewed the information you have submitted on your evaluation of the safety considerations associated with the change in the control rod withdrawal program, including the effects on accidents analyzed previously. Additional control rod withdrawal essentially improves

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the hot channel factors as determined previously in the thermal and hydraulic analysis for Core X. We have therefore concluded that the change in the control rod insertion limits will not decrease the Core X margins of the hot channel factors or the DNB ratios. The added control rod withdrawal in conjunction with the needed increase in the boron concentration will result in operational restriction on reactor power at about 83% of licensed power and consequent decrease of the reactor coolant average temperature from 530°F to 514°F. This will result in an increase of important margins of safety. Further increase of boron in the reactor coolant and the increase in control rod withdrawal would affect only the boron dilution accident assumed to occur when the reactor is at full power. Your reanalysis of this accident shows that the increase in the reactivity addition during the accident that results in an increase of the DNB ratio for operation with 4 loops and a decrease of the DNB ratio from 1.92 to 1.88. We conclude that this decrease is not significant compared with the required DNB ratio of 1.3.

We have also reviewed the control rod drop times of selected rods, measured during startup testing of Cores VI through X. We have concluded that these data do not reveal a significant trend of deterioration of control rod performance over a number of years. However, to assure continued confidence in the ability of the control rods to perform the intended function when needed you will increase the control rod surveillance program in addition to continuing the required rod exercises during reactor operation. During periods of May 27-28, June 10-11 and July 1-2, 1972, you will perform rod drop testing of the 23 control rods with the reactor in the hot standby condition. An increase in the measured drop time of any rod of more than 0.3 second compared with the highest drop time measured during the 3 consecutive test drops during Core X startup testing shall be cause to suspect abnormal deterioration in the performance of this rod. Yankee shall promptly notify the Commission, investigate the rod performance deterioration and submit a report on the findings. To meet limiting conditions for operation, the measured drop time of any rod shall not exceed 2.4 seconds. Within 30 days following the control rod drop testing on July 1-2, 1972, Yankee will submit a proposed program for continued routine control rod surveillance. In addition, Yankee will perform rod drop testing during July 29-30, 1972, and every fourth weekend thereafter, unless a revised schedule has been approved by the Commission prior to that time. We conclude that the proposed plan for control rod surveillance is acceptable.

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We have concluded that the proposed change does not involve significant hazards considerations not described or implicit in the Final Safety Analysis Report, and that the health and safety of the public will not be endangered by operation of the Yankee reactor in the manner proposed.

Accordingly, pursuant to Section 50.59 of 10 CFR Part 50, the control rod withdrawal program is changed as indicated in the attached Figure 103-5.

Sincerely,

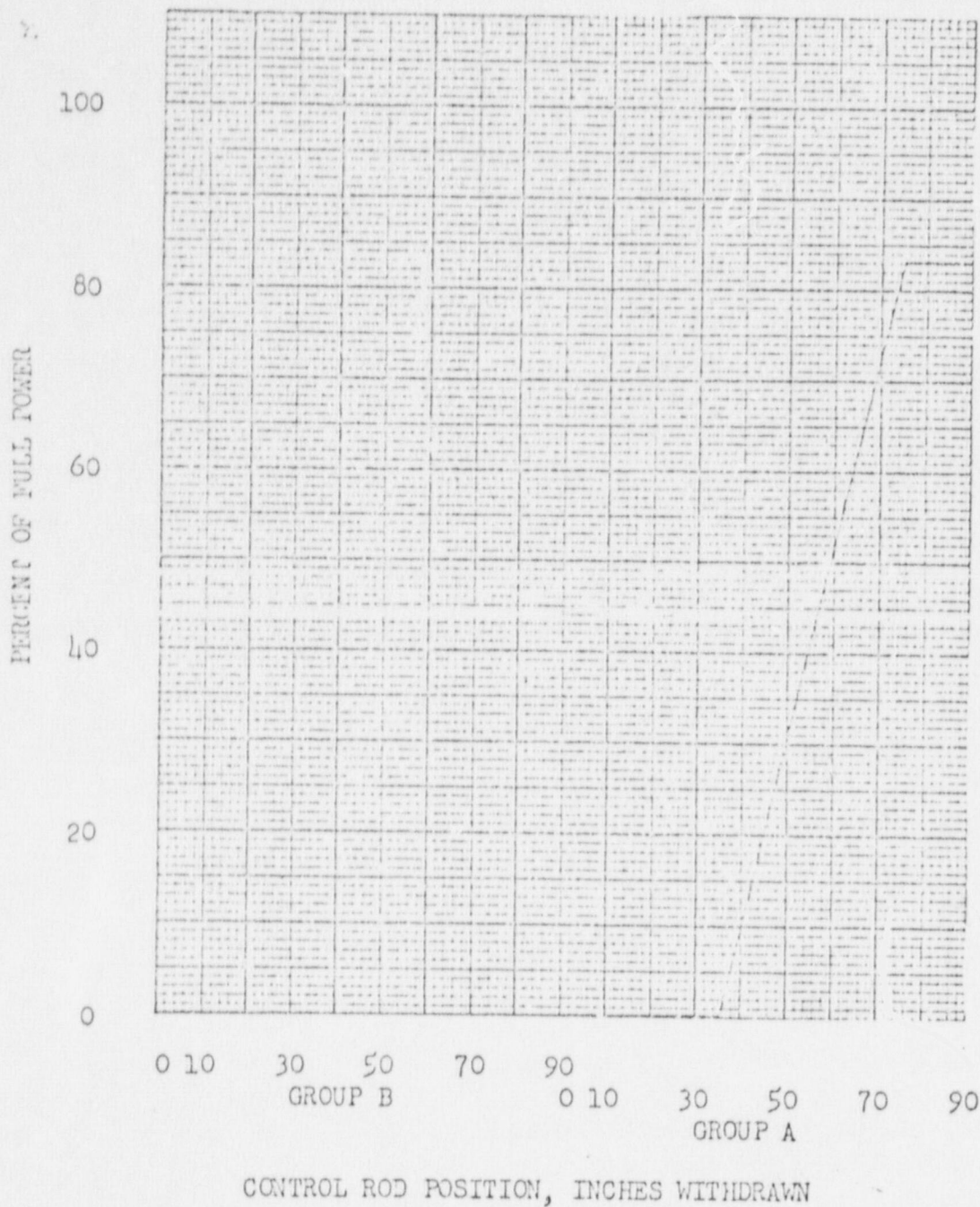
/s/

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

Enclosure:
Figure 103-5

cc: C. Duane Blinn, Esquire
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YANKEE NUCLEAR
POWER STATION

ROD GROUP POSITION VS. POWER LEVEL

FIGURE
103-5