

YANKEE WT80

TWX TIMEOMING

TWX 157

TIME 2:30 PM

DATE MAY 16, 1972

PROPOSED CHANGE NO. 100

1972 MAY 16 PM 3 18

U.S. ATOMIC ENERGY COMM.  
TWX UNIT

TO: UNITED STATES ATOMIC ENERGY COMMISSION

WASHINGTON, D.C. 20545

ATTENTION: DIVISION OF REACTOR LICENSING

REFERENCE: LICENSE NO. DPR-3 \DOCKET NO. 50-29\

DEAR SIR:

PURSUANT TO SECTION 50-29 OF THE COMMISSION'S REGULATIONS, YANKEE ATOMIC ELECTRIC COMPANY HEREBY REQUESTS AUTHORIZATION TO MAKE THE FOLLOWING CHANGES

PROPOSED CHANGES: REFERENCE IS MADE TO SECTION 400 OF THE LICENSE APPLICATION, SAFETY ANALYSIS, PARTICULARLY PAGE 400\2 AND TO PARAGRAPH D.2.D OF THE TECHNICAL SPECIFICATIONS ATTACHED AS APPENDIX A TO THE LICENSE AND AS AMENDED IN PROPOSED CHANGE NO. 99. WE PROPOSE THE FOLLOWING:

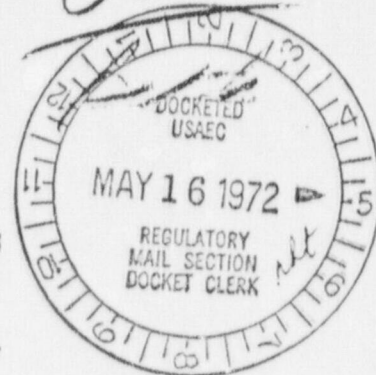
"OPERATION OF THE YANKEE REACTOR AT REDUCED OUTPUT, INCREASED SURVEILLANCE AND OPERATING RESTRICTIONS, A HIGHER MAIN COOLANT BORON CONCENTRATION, REDUCED MAIN COOLANT AVERAGE TEMPERATURE AND 23 OF THE 24 CONTROL RODS CAPABLE OF DROPPING IN LESS THAN 2.4 SECONDS."

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POOR QUALITY PAGES

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REASON FOR CHANGEN DURING THE CONTROL ROD EXERCISE AND DROP TIME TESTING PROGRAM, DIFFICULTY WAS ENCOUNTERED WITH CONTROL ROD NO. 18, LOCATED IN SHUTDOWN GROUP D. A DETAILED TEST PROGRAM WAS CONDUCTED. RESULTS OF THE TEST PROGRAM REVEALED THAT CONTROL ROD NO. 18 CAN BE WITHDRAWN FROM THE CORE, BUT DOES NOT PROPERLY DROP INTO THE CORE. DUE TO THIS FACT, YANKEE HAS CHOSEN TO COMPENSATE FOR THE SHUTDOWN REQUIREMENTS OF CONTROL ROD NO. 18 BY ADDING THE EQUIVALENT OF THE CALCULATED  $1-1/2\Delta$  K/K WORTH OF THE MOST WORTHY CONTROL ROD AS FOLLOWS\

1. REDUCING PLANT OUTPUT

PLANT OUTPUT SHALL BE LIMITED TO 83\ OF FULL POWER.

2. INCREASING THE MAIN COOLANT BORON CONCENTRATION AND INCREASING THE CONTROL ROD WITHDRAWAL PROGRAM

FIGURE 103-5 ALLOWS THE PLANT TO ACHIEVE CRITICALITY WITH CONTROL ROD GROUP B AT 50 INCHES. THIS RESTRICTION HAS BEEN INCREASED TO ALLOW CRITICALITY WITH CONTROL ROD GROUP A 35 INCHES \SEE ATTACHED REVISED FIGURE\ TO ACCOMPLISH THIS AND ADD A PORTION OF THE REQUIRED SHUTDOWN, THE MAIN COOLANT BORON CONCENTRATION HAS BEEN INCREASED TO APPROXIMATELY 2350 PPM AT ZERO POWER. A REANALYSIS OF THE BORON DILUTION ACCIDENT AT 2400 PPM AND FULL POWER HAS BEEN COMPLETED. THE FULL POWER BORON DILUTION REACTIVITY ADDITION RATE DURING FOUR LOOP OPERATION INCREASES FROM  $9.4 \times 10^{-6}$  DELTA K/K PER SECOND AT 2000 PPM TO  $11.3 \times 10^{-6}$  DELTA K/K PER SECOND AT 2400 PPM. REFERRING TO FIGURE 401-1, IT IS SEEN THAT THE MINIMUM DNB RATIO DURING THE TRANSIENT ACTUALLY IMPROVES, GOING FROM 1.61 TO 1.66. FOR THREE LOOP OPERATION THE REACTIVITY ADDITION RATE DURING A BORON DILUTION INCIDENT INCREASES FROM  $10.7 \times 10^{-6}$  DELTA K/K PER SECOND TO  $12.3 \times 10^{-6}$  DELTA K/K PER SECOND. FROM FIGURE

ROD NO. 18, LOCATED IN SHUTDOWN GROUP D. A DETAILED TEST PROGRAM WAS CONDUCTED. RESULTS OF THE TEST PROGRAM REVEALED THAT CONTROL ROD NO. 18 CAN BE WITHDRAWN FROM THE CORE, BUT DOES NOT PROPERLY DROP INTO THE CORE. DUE TO THIS FACT, YANKEE HAS CHOSEN TO COMPENSATE FOR THE SHUTDOWN REQUIREMENTS OF CONTROL ROD NO. 18 BY ADDING THE EQUIVALENT OF THE CALCULATED  $1-1/2\Delta$  K/K WORTH OF THE MOST WORTHY CONTROL ROD AS FOLLOWS\

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PLANT OUTPUT SHALL BE LIMITED TO 83\ OF FULL POWER.

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BORON DILUTION INCIDENT DURING OTHER CONDITIONS NEED NOT BE CONSIDERED SINCE THE INITIAL CONDITIONS DO NOT CHANGE.

3. REDUCING THE OPERATING AVERAGE TEMPERATURE

THE MAIN COOLANT AVERAGE TEMPERATURE IS REDUCED FROM 530 DEGREE F TO 514 DEGREE F.

4. INCREASING THE SURVEILLANCE PROGRAM

A. EXERCISE - THE NORMAL CONTROL ROD EXERCISE PROGRAM SHALL BE CONTINUED.

B. CONTROL ROD DROPS - THE PLANT WILL BE TAKEN OFF THE LINE AND CONTROL ROD DROP TIMES MEASURED AS FOLLOWS\

AN THE FIRST WEEKEND AFTER FIVE EQUIVALENT FULL POWER DAYS.

BN THEN THE FIRST WEEKEND AFTER NINETEEN EQUIVALENT FULL POWER DAYS.

C\ THE RESULTS OF THE DROP TIMES SHALL BE ANALYZED FOR SUBSTANTIAL CHANGES OR INCREASES IN THE TREND. IF ANALYSES OF THE DATA REVEAL THAT ADDITIONAL CONTROL ROD DIFFICULTIES ARE DEVELOPING THE U.S.A.E.C. SHALL BE NOTIFIED.

DN IF NO SUBSTANTIAL CHANGES OR TRENDS ARE OBSERVED, CONTROL ROD DROP TIMES SHALL BE OBTAINED WITHIN EVERY SIXTY DAYS THEREAFTER.

VII, VIII, IX AND X HAS BEEN COMPLETED. THE RESULTS OF THE CONTROL ROD DROP TIME REVIEW INDICATES THAT ONLY A SLIGHT TREND IN TIME CAN BE OBSERVED ON THE AVERAGE CONTROL ROD DROP TIMES FOR EACH CORE.

CORE                      AVG. DROP TIME - SUMMATION 24 DROP TIMES

VI	1.51	24
VII	1.53	
VIII	1.56	
IX	1.59	
X	1.79	

AS A RESULT OF THE DETAILED REVIEW OF CONTROL ROD DROP TIMES, THE REVIEW OF CORE X ACCIDENT ANALYSES AND THE PROPOSED MODE OF OPERATION, IT IS OUR OPINION THAT THE PLANT CAN BE SAFELY OPERATED AT THE PROPOSED REDUCED POWER LEVEL FOR THE DURATION OF CORE X.

SAFETY CONSIDERATIONS\ IN OUR OPINION, THE PROPOSED CHANGE DOES NOT PRESENT SIGNIFICANT HAZARD CONSIDERATIONS NOT DESCRIBED OR IMPLICIT IN THE LICENSE APPLICATION AS AMENDED.

SCHEDULE OF CHANGES THIS CHANGE WILL BE PUT INTO EFFECT UPON RECEIPT OF YOUR APPROVAL. THE PLANT REFUELING AND LOW POWER START-UP TEST PROGRAM HAVE BEEN COMPLETED. THE PLANT AWAITS APPROVAL ON THIS MATTER IN ORDER TO PROCEED WITH POWER OPERATION.

DONALD E. VANDENBURGH, VICE PRESIDENT, YANKEE ATOMIC ELECTRIC CO.

THE END ---

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