

YANKEE ATOMIC ELECTRIC COMPANY



441 STUART STREET, BOSTON 16, MASSACHUSETTS

February 13, 1962

U. S. Atomic Energy Commission
Washington 25, D. C.

Attention: Division of Licensing and Regulation

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

Dear Sirs:

Pursuant to paragraph 3.A of License No. DPR-3, as amended, Yankee Atomic Electric Company hereby requests authorization to make the following change:

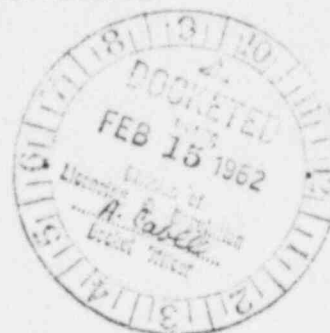
PROPOSED CHANGE: Reference is made to section 509 of the license application, "Routine and Continuing Plant Tests" and particularly to page 509:1 where, under "Routine Nuclear Tests", it is stated that measurements of power coefficient and temperature coefficient are to be made at intervals of 2,000 equivalent full power hours throughout core life. Such measurements have been made at the start of core life and at approximately 2,000, 4,000 and 6,000 equivalent full power hours. The current 2,000 hour interval is expected to end on February 23rd. In this proposed change we are requesting a temporary waiver of the requirement for the next periodic measurement of reactivity coefficients at approximately the 8,000 hour point in core life and asking that such measurements be deferred to the end of core life which we estimate to be at approximately 9,000 equivalent full power hours.

Reasons for Change: Throughout the life of Core I it has been our experience that whenever the reactor was shutdown or scrammed, or even a substantial load reduction was made, a reactivity loss of .3 to .5% has occurred on return to power. In most cases this reactivity was recovered in the course of several weeks of full power operation. The mechanism which causes this is thought to be some physical change in the oxide fuel or a change in the location of its fission isotopes.

Since December 25th, 1961, the reactor has been operating with all rod groups fully withdrawn. In order to extend core life we have reduced power and main coolant temperature, thereby taking advantage of the corresponding reactivity increase arising from the temperature and power coefficients. At this date the reactor is operating at 120 MW gross electrical with T_{ave} of approximately 485°F. In the coming weeks we intend to make step cutbacks in load as needed and thus postpone the shutdown for refueling until we reach approximately 85 MW gross electrical and T_{ave} of 450°F.

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U. S. Atomic Energy Commission
Attn: Div. of Lic. and Reg.

Proposed Change No. 19
February 13, 1962

Our reason for requesting this waiver of the periodic test requirement is that we expect that if we shut down the reactor in order to perform the tests a loss of reactivity would be experienced which might prevent returning to any substantial power level and which quite probably would prevent operation at a sufficiently high power level to recover the lost reactivity. This would result in a loss of 50--60 million kilowatthours of production from the first core,---a rather severe economic penalty.

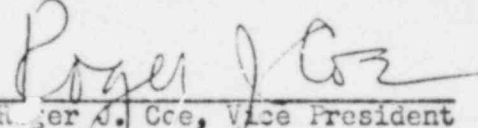
These periodic tests were originally specified because of the Commission's concern with the effect on reactivity coefficients of plutonium build-up in the core during its life. Four such measurements have now been made, one at the beginning of core life and three at intervals during core life, and they are reported on pages 4 and 5 of Operation Report No. 11 for the month of November 1961. In the case of moderator temperature coefficient, the measurement made at the beginning of core life showed $-3.10 \pm 0.07 \times 10^{-4} \Delta \rho / ^\circ F$ and all three subsequent readings were $-2.84 \times 10^{-4} \Delta \rho / ^\circ F$ with uncertainties in the range of $\pm .02$ to $.05 \times 10^{-4} \Delta \rho / ^\circ F$. Measurements of power coefficient were all in the range of $-.33$ to $-.38 \times 10^{-4} \Delta \rho / \text{MWT}$ with uncertainties of $\pm .13$ to $.17 \times 10^{-4} \Delta \rho / \text{MWT}$. In view of these test results, it is our conclusion that there is no significant effect on these coefficients because of plutonium build-up in the core.

Safety Considerations: In our opinion, the proposed change does not present significant hazards considerations not described or implicit in the license application, as amended to June 23, 1961, the date of issuance of Amendment No. 3 to License No. DPR-3, or as amended to the date hereof, and does not affect the accident analysis set forth in Section 4 of the license application.

The proposed change requires authorization by the Commission pursuant to paragraph 3.A of the license, since it involves a temporary waiver of a provision of section 509 of the license application which is incorporated by reference in the technical specifications. (See Paragraph D.2.i of Appendix A to License No. DPR-3.)

Respectfully submitted,

YANKEE ATOMIC ELECTRIC COMPANY


Roger J. Coe, Vice President

U. S. Atomic Energy Commission
Attn: Div. of Lic. and Reg.

Proposed Change No. 19
February 13, 1962

Commonwealth of Massachusetts
Suffolk, ss

February 13, 1962

Then personally appeared before me Roger J. Coe, who, being duly sworn did state that he is a Vice President of Yankee Atomic Electric Company, that he is duly authorized to execute and file the foregoing request in the name and on behalf of Yankee Atomic Electric Company, and that the statements therein are true to the best of his knowledge and belief.

Donald G. Allen

Donald G. Allen	Notary Public
My Commission Expires	Jan. 21, 1967

FROM: **Yankee Atomic Electric Company**
Boston 16, Massachusetts
(Roger J. Coe)

DATE OF DOCUMENT:
Feb. 13, 1962

DATE RECEIVED:
Feb. 15, 1962

NO.:
2041

LTR.

MEMO:

REPORT:

OTHER:

Proposed Change

TO: **U. S. Atomic Energy Commission**
Div. of Licensing & Regulation
Washington 25, D. C.

ORIG:

CC:

OTHER:

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ACTION NECESSARY ☐
NO ACTION NECESSARY ☐

CONCURRENCE ☐
COMMENT ☐

DATE ANSWERED:
BY:

CLASSIF.:
Unclassified

POST OFFICE

REG. NO:

FILE CODE: **50-29**

DESCRIPTION: (Must Be Unclassified)

REFERRED TO

DATE

RECEIVED BY

DATE

Proposed Change No. 19" req. a temporary
waiver of the requirement for the next
periodic measurement of reactivity co-
efficients at approx. the 8,000 hour

Dr. Bryan
w/file cy.
2-compliance
7-extras

2-15-62

(File folder not it files)

point in core life and asking that such
measurement be deferred to the end of
core life which they estimate to be at
approximately 9,000 equiv. full powers
hours. (notarised 2-13-62)

Edwards *2/3/8*
File

Issued

REMARKS: Mail Room Distribution:

- 1-1* 1-Helen Steele
1-Pub. Doc. Room (w/held pending
review)
1-1 2- OGC
1- formal file cy.

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U. S. ATOMIC ENERGY COMMISSION

MAIL CONTROL FORM FORM AEC-3265
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