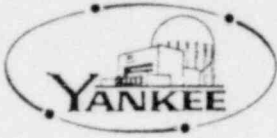


YANKEE ATOMIC ELECTRIC COMPANY



20 Turnpike Road Westborough, Massachusetts 01581

September 18, 1974

United States Atomic Energy Commission
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Attention: Director, Regulatory Operations

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

Dear Sir:

Yankee Atomic Electric Company submits the attached Unusual Occurrence Report relative to discrepancies between calculated and measured control rod worths for Core XI.

Supplemental information shall be forwarded on a timely basis to provide a complete report.

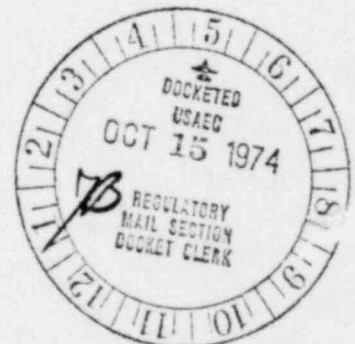
We trust you will find this information satisfactory; however, should you desire additional information feel free to contact us.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

L. H. Heider
Manager of Operations

GCA/kg
Attachment



8010840 692

5

12137

UNUSUAL OCCURRENCE REPORT

Pursuant to our Technical Specifications and Regulatory Guide 1.1.6, Rev. 1, Yankee Atomic Electric Company submits the following unusual occurrence report.

On August 18, 1974, the analysis of Core XI start-up-physics measurements of control rod worths was completed, and indicated that measured control rod worths were less than the values reported in Sections 103 Nuclear Design, and 409 Steam Line Rupture Accident, of the FHSR as modified by Amendment No. 9. Measured control rod worths were obtained with the aid of the Westinghouse reactivity computer and were confirmed by analysis of end point critical boron concentrations.

A review of the accident and transient analyses in the license, as modified by Amendment No. 9, has been conducted. The review has shown that the measured control rod worths exceed the worths used in the analyses of all events except a Steam Line Rupture. In addition, peaking factors as measured by the in-core instrumentation are below the design values used in the accident analyses. Thus these analyses are still applicable to the core, with the exception of the Steam Line Rupture.

For the Steam Line Rupture accident, the measured rod worths are less than the values used in the analysis by no more than 0.9% $\Delta\rho$. The review of this analysis indicated that even with the measured rod worths, the core will not return to critical during the course of the accident as long as the all-rods-out, full power concentration of boron is not less than 400 ppm. (For lower concentrations, the moderator temperature coefficient of reactivity may become sufficiently negative so that the cooldown accompanying the accident introduces enough positive reactivity to return the core to criticality.)

Thus plant operation can proceed at full power down to an all-rods-out boron concentration of 400 ppm without re-analysis of any accidents. This boron concentration will not be reached for at least six months. Plant operation below 400 ppm all-rods-out critical boron will be addressed in a later report.

Investigations to determine the cause of the control rod worth discrepancies are being conducted and will be reported prior to December 1, 1974.

AEC DISTRIBUTION FOR PART 50 DOCKET MATERIAL
(TEMPORARY FORM)

CONTROL NO: 10137

FILE: _____

FROM: Yankee Atomic Elec. Co. Westborough, Mass. 01581 Mr. L.H. Heider		DATE OF DOC 9-18-74	DATE REC'D 10-9-74	LTR X	TWX	RPT	OTHER
TO: AEC		ORIG 1 signed	CC	OTHER	SENT AEC PDR <u>XXX</u>		SENT LOCAL PDR _____
CLASS	UNCLASS XXX	PROP INFO	INPUT	NO CYS REC'D 1	DOCKET NO: 50-29		

DESCRIPTION: Ltr trans the following....	ENCLOSURES: Abnormal Occurrence Report....on 8-18-74 concerning.....control rod worth discrepancies..... (1 cy encl rec'd) ACKNOWLEDGED
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PLANT NAME: Yankee Rowe

FOR ACTION/INFORMATION 10-15-74 JB

BUTLER (L) W/ Copies	SCHWENCER (L) W/ Copies	ZIEMANN (L) W/ Copies	REGAN (E) W/ Copies
CLARK (L) W/ Copies	STOLZ (L) W/ Copies	DICKER (E) W/ Copies	LEAR (L) W/ Copies
PARR (L) W/ Copies	VASSALLO (L) W/ Copies	KNIGHTON (E) W/ Copies	W/ Copies
KNIEL (L) W/ Copies	✓ PURPLE (L) W/ Copies	YOUNGBLOOD (E) W/ Copies	W/ Copies

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✓ AEC PDR		GRIMES		BRAITMAN
✓ OGC, ROOM P-506A	✓ SCHROEDER	GAMMILL	DIGGS (L)	SALTZMAN
✓ MUNTZING/STAFF	✓ MACCARY	KASTNER	GEARIN (L)	B. HURT
✓ CASE	✓ KNIGHT	BALLARD	GOULBOURNE (L)	
GIAMBUSSO	✓ PAWLICKI	SPANGLER	KREUTZER (E)	PLANS
BOYD	✓ SHAO		LEE (L)	MCDONALD
MOORE (L) (BWR)	✓ STELLO	ENVIRO	MAIGRET (L)	CHAPMAN
DEYOUNG (L) (PWR)	✓ HOUSTON	MULLER	REED (E)	DUBE w/input
SKOVHOLT (L)	✓ NOVAK	DICKER	SERVICE (L)	E. COUPE
GOLLER (L)	✓ ROSS	KNIGHTON	✓ SHEPPARD (L)	
P. COLLINS	✓ IPPOLITO	YOUNGBLOOD	SLATER (E)	✓ D. THOMPSON (2)
DENISE	✓ TEDESCO	REGAN	SMITH (L)	✓ KLECKER
✓ REG OPR	✓ LONG	PROJECT LDR	TEETS (L)	✓ EISENHUT
FILE & REGION (3)	✓ LAINAS		WILLIAMS (E)	
✓ MORRIS	✓ BENAROYA	HARLESS	WILSON (L)	
✓ STEELE	✓ VOLIMER			

EXTERNAL DISTRIBUTION

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✓ 1 - TIC (ABERNATHY) (1)(2)(10)	1 - ASLBP (E/W Bldg, Rm 529)	1 - BROOKHAVEN NAT LAB
✓ 1 - NSIC (BUCHANAN)	1 - W. PENNINGTON, Rm E-201 GT	1 - G. ULRIKSON, ORNL
1 - ASLB	1 - B&M SWINEBROAD, Rm E-201 GT	1 - AGMED (RUTH GUSSMAN) Rm B-127 GT
1 - Newton Anderson	1 - CONSULTANTS	1 - R. D. MUELLER, Rm E-201 GT
✓ 5 - ACRS HOLDING Sent to Sheppard 10-15-74	NEWMARK/BLUME/AGBABIAN	