NRC FORM 195 (2-76)

U.S. NUCLEAR REGULATORY COMMISSION

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

DOCKET NUMBER: 50-261

FILE NUMBER: INCIDENT REPORT

TO: Mr Moseley

FROM: Carolina Pwr & Light Co, Raleigh, NC, E E Utley

DATE OF DOCUMENT: 3-26-76

DATE RECEIVED: 3-29-76

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PROP

INPUT FORM

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DESCRIPTION

Ltr trans the following:

ENCLOSURE

Licensee Event Report #76-06 on 3-12-76 concerning failure of the Westinghouse safety analysis to account for effect of steam generator tube plugging..........

PLANT NAME: Robinson

NOTE: IF PERSONNEL EXPOSURE IS INVOLVED SEND DIRECTLY TO KREGER/J. COLLINS

SAFETY — FOR ACTION/INFORMATION — ENVIRO 3-31-76 ehf

BRANCH CHIEF:	Reid	
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LIC. ASST:	Ingram	
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ACRS 16 CYS ~~HOLDING~~/SENT TO LA		

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LPDR: Hartsville, SC
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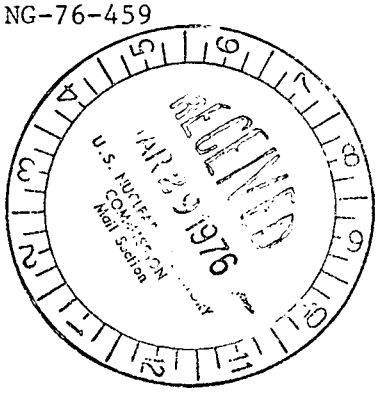
CONTROL NUMBER: 3121

NRC FORM 195 (2-76)

March 26, 1976

File: NG-3513 (R) Serial: NG-76-459



Mr. Norman C. Moseley, Director
U. S. Nuclear Regulatory Commission
Region II, Suite 818
230 Peachtree Street, N.W.
Atlanta, Georgia 30303

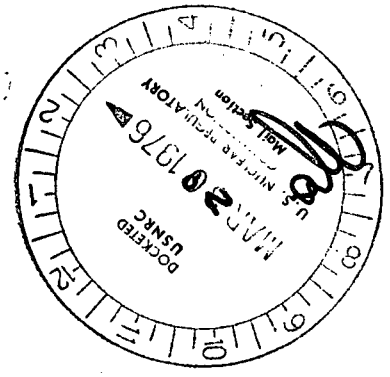
Dear Mr. Moseley:

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET 50-261
LICENSE NO. DPR-23
LICENSEE EVENT REPORT 76-06

In accordance with Section 6.9.2.a of the Technical Specifications for H. B. Robinson Steam Electric Plant, Unit No. 2, the attached Licensee Event Report is submitted. This report fulfills the requirement for a written report within fourteen (14) days of a reportable occurrence and is in accordance with the format set forth in Regulatory Guide 1.16, Revision 4.

Yours very truly,

E. E. Utley
Vice President
Bulk Power Supply



CSB:jwk
Attachments

cc: Messrs. J. G. Davis
W. G. McDonald
R. W. Reid

3121

Supplemental Information for
Reportable Occurrence 76-6

1. Report No. 50-261/76-6

2a. Report Date: March 17, 1976

2b. Occurrence Date: March 12, 1976

3. Facility: H. B. Robinson SEG Plant
Hartsville, South Carolina 29550

4. Identification of Occurrence:

The LOCA safety analysis by Westinghouse failed to account for the effect of steam generator tube plugging on blowdown and reflood. This constitutes a reportable occurrence as defined by Technical Specification 6.9.2.a.9.

5. Conditions Prior to Occurrence:

The unit was operating at full power with approximately 2600 MWD/MTU burnup on Cycle 4.

6. Description of Occurrence:

On March 12, 1976, Carolina Power & Light was notified by Westinghouse of a reevaluation of the LOCA analysis that could possibly affect the peak clad temperature calculations. The Plant Nuclear Safety Committee met to evaluate the Westinghouse notification and determine what action should be taken with respect to plant operations. It was decided that the limiting value for F_Q should be reduced temporarily pending further investigation of the reevaluation. The limiting value of F_Q was reduced from 2.30 to 2.26 in accordance with Westinghouse recommendations and will be maintained at this value until further studies of the steam generator plugging effects are completed.

7. Designation of Apparent Cause of Occurrence:

The occurrence resulted from a failure by Westinghouse to properly account for the additional restriction in the steam generators from tube plugging operations in their performance of the Appendix K ECCS analyses for Robinson. Due to the recent plugging of a large number of tubes in a similar unit, a sensitivity study was performed with the March 15, 1975, approved ECCS model to determine the effect on various plant parameters. The initial study assumed that a total of 30% of the tubes were plugged. This resulted in an increase in the calculated peak clad temperature (PCT) of approximately 300°F. Using this preliminary analysis, Westinghouse recommended an adjustment of 10°F in PCT for each percent of tubes plugged. H. B. Robinson has approximately 3% of its tubes plugged.

In order to maintain the peak clad temperature below 2200°F, Westinghouse recommended a reduction of 0.04 in the limiting value of F_Q. As a conservative measure Carolina Power & Light has temporarily reduced to this value pending further investigation. An Exxon analysis which also did not account for the effects of plugged steam generator tubes had predicted a PCT of 2066°F for their fuel during Cycle 4, but a Westinghouse analysis, applicable to their fuel in Cycle 4, had predicted 2200°F. Although both the Westinghouse and the Exxon analyses were performed for the uprated power level of 2300 MWt, the results have been conservatively applied to the current operation at 2200 MWt due to possible effects of fuel rod bowing. Due to the mixed core in Robinson Unit 2, the most limiting value was chosen for evaluation. The sensitivity study resulted in a peak clad temperature in excess of 2200°F in the Westinghouse fuel and prompted the reduction in the F_Q limit.

8. Analysis of the Occurrence:

This occurrence did not affect the present operating conditions at Robinson since the current measured value of F_Q including all uncertainties and LOCA penalties is 1.757, (24% less than the Technical Specification Limit). At no time throughout the remaining portion of this cycle is F_Q expected to exceed 2.26, since the maximum value is achieved at beginning of life and thereafter burns to a lower value during the normal base loaded conditions that Robinson operates under.

9. Corrective Action:

The immediate correction action was to reduce the limiting value of F_Q. Future action depends upon the followup investigation by Westinghouse on this subject. Carolina Power & Light plans no further restrictions. It is believed that the "30%" analysis is a conservative analysis, since most plants now operating have between 0 and 5% of the tubes plugged.

10. Failure Data:

No previous occurrences of this nature have occurred at Robinson.

LICENSEE EVENT REPORT

CONTROL BLOCK: (1–6)

[PLEASE PRINT ALL REQUIRED INFORMATION]

01	LICENSEE NAME (7–14)	LICENSE NUMBER (15–25)	LICENSE TYPE (26–30)	EVENT TYPE (31–32)
	SCHBR2	00-00000-00	41110	01

01 CON'T	CATEGORY (57–58)	REPORT TYPE (59)	REPORT SOURCE (60)	DOCKET NUMBER (61–68)	EVENT DATE (69–74)	REPORT DATE (75–80)
		T	L	050-0261	031276	032676

EVENT DESCRIPTION

02 A reevaluation of the LOCA analysis by Westinghouse, indicating possible
03 inaccuracies in the prediction of peak clad temperature. No previous occurrences
04 have been experienced. CPL reduced the limiting value of F_Q from 2.30 to 2.26
05 according to Westinghouse suggestion as a temporary action.
06 (HBR 2 RO 76-6)

07	SYSTEM CODE (10)	CAUSE CODE (11)	COMPONENT CODE (12–17)	PRIME COMPONENT SUPPLIER (43)	COMPONENT MANUFACTURER (44–47)	VIOLATION (48)
	ZZ	F	ZZZZZZ	Z	Z999	Y

CAUSE DESCRIPTION

08 An oversight by Westinghouse of the effect of steam generator tube plugging
09 on the LOCA analysis. CPL reduced F_Q Limit as a temporary action pending
10 further investigation.

11	FACILITY STATUS (9)	% POWER (10–12)	OTHER STATUS (13–44)	METHOD OF DISCOVERY (45)	DISCOVERY DESCRIPTION (46–80)
	E	100	N/A	D	Notified by Westinghouse

12	FORM OF ACTIVITY RELEASED (9)	CONTENT OF RELEASE (10)	AMOUNT OF ACTIVITY (11–44)	LOCATION OF RELEASE (45–80)
	Z	Z	N/A	N/A

PERSONNEL EXPOSURES

13	NUMBER (9–11)	TYPE (12)	DESCRIPTION (13–80)
	000	Z	N/A

PERSONNEL INJURIES

14	NUMBER (9–11)	DESCRIPTION (12–80)
	000	N/A

OFFSITE CONSEQUENCES

15 N/A

LOSS OR DAMAGE TO FACILITY

16	TYPE (9)	DESCRIPTION (10–80)
	Z	N/A

PUBLICITY

17 N/A

ADDITIONAL FACTORS

18 N/A

19 N/A

NAME: J. B. McGuire PHONE: 803 332 1351

GPO 881-667