NRC FORM 195 (2-76)

U.S. NUCLEAR REGULATORY COMMISS

DOCKET NUMBER 50-250/251

FILE NUMBER

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

TO:	FROM:	DATE OF DOCUMENT
Mr. George Lear	Florida Power & Light Company Miami, Florida Robert E. Uhrig	1/3/78
		DATE RECEIVED 1/11/78

~~LETTER~~ ~~ORIGINAL~~ ☐COPY ☐NOTORIZED ~~UNCLASSIFIED~~	PROP	INPUT FORM	NUMBER OF COPIES RECEIVED
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DESCRIPTION

REACTOR VESSEL OVERPRESSURIZATION
DISTRIBUTION PER G. ZECH 10-21-76

(1-P)

PLANT NAME: Turkey Point Units 3 & 4
RJL 1/11/78

ENCLOSURE

Att. 1) Procedure for Evaluation of Maximum Setpoint Overshoot Heat Input Transients-

Att. 2) Supplement to the July 1977 Report - Pressure Mitigating Systems, Transient Analysis Results -

(2-P)+(1/4")

3 cys. OVERPRESSURE MITIGATING RPT. TO THOSE INDICATED ALL OTHER RECIEVE LTR AND ATTACHMENT

SAFETY	FOR ACTION/INFORMATION	
BRANCH CHIEF: (7)		
~~LIC. ASST:~~ 7 cys	LTR	LEAR
~~PROJECT MANAGER:~~ w/1	cy RPT.	

INTERNAL DISTRIBUTION

REG FILE w/RPT.		
~~NRC PDR~~		
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EXTERNAL DISTRIBUTION

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LPDR: w/RPT MIAMI FLA	
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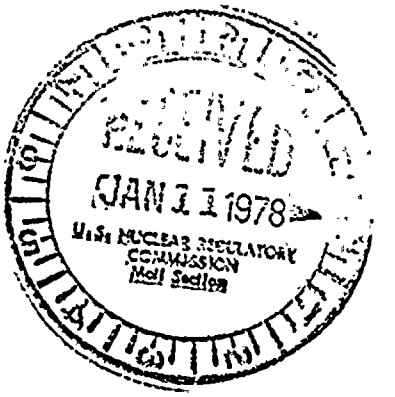
ACRS 16 CYS HOLDING/SENT ~~TO LA~~ CAT B	780110142

NRC FORM 195 (2-76)

FLORIDA POWER & LIGHT COMPANY

January 3, 1978
L-78-4

Office of Nuclear Reactor Regulation
Attention: Mr. George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555



Dear Mr. Lear:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 and 50-251
Overpressure Protection

In our October 18, 1977 (L-77-324) submittal on the Overpressure Mitigating System (OMS) for Turkey Point, setpoint selection for the pressurizer power operated relief valves (PORV's) was based upon a July 1977 Westinghouse analysis. The maximum setpoint overshoot for heat input transients was evaluated with a PORV setpoint of 500 psig, the only setpoint considered in the Westinghouse July analysis. A supplement to the July report has been prepared which permits us to evaluate the maximum setpoint overshoot with a PORV setpoint of 415 psig, the setpoint selected for Turkey Point for reactor coolant temperatures below 300 F. The supplement is attached.

The chosen PORV setpoint of 415 psig is 85 psi below the minimum NDT pressure of 500 psig. The maximum setpoint overshoot for heat input transients evaluated with a PORV setpoint of 415 psig increased from 14 psi at 100 F to 57 psi at 250 F. This is less than the margin to the minimum NDT pressure provided by the selected setpoint and confirms that the setpoint is conservative for heat input transients. The procedure for evaluating the setpoint overshoot is attached.

Very truly yours,

Robert E. Uhrig
Vice President

REU/MAS/lah

Attachments (2)

cc: James P. O'Reilly, Region II
Robert Lowenstein, Esquire

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PROCEDURE FOR EVALUATION OF MAXIMUM SETPOINT OVERSHOOT
HEAT INPUT TRANSIENTS

Turkey Point Units 3 and 4 parameters

RCS Volume 9343 ft.^{3} (FSAR Table 4.1-1)
S.G. Area 44,430 ft.^{2} (FSAR Table 4.1-4)
PORV opening time 2.0 sec. (Pre-op test 1000.16)
Selected PORV setpoint 415 psig (below 300 F RCS temp.)

Figure and example numbers refer to the September 1977 supplement to the July 1977 report provided by Westinghouse.

(1) Evaluate the effect of S.G. UA on pressure overshoot (ΔP) (Figures 14 thru 20).

$$\frac{\text{Turkey Point S.G. Area}}{\text{Reference S.G. Area}} = \frac{44{,}430 \text{ ft.}^2}{58{,}000 \text{ ft.}^2} = .766$$

Turkey Point UA = .766 Reference UA

Relief valve setpoint 400 psig, 3 second opening time:

Temp.	Figure 14 Vol. 6000 ft.^{3}	Figure 15 Vol. 13000 ft.^{3}
100°F	ΔP = 25 psi	ΔP = 16 psi
180°F	ΔP = 59 psi	ΔP = 51 psi
250°F	ΔP = 93 psi	ΔP = 72 psi

Relief valve setpoint 500 psig, 3 second opening time:

Temp.	Figure 16 Vol. 6000 ft.^{3}	Figure 17 Vol. 13000 ft.^{3}
100°F	ΔP = 23 psi	ΔP = 21 psi
180°F	ΔP = 74 psi	ΔP = 53 psi
250°F	ΔP = 109 psi	ΔP = 91 psi

(2) Evaluate the effect of RCS volume on pressure overshoot. By linear interpolation of results from (1) above (as in supplement example 4);
RCS volume 9343 ft.^{3}; 3 second opening time:

Temp.	Setpoint 400 psig	Setpoint 500 psig
100°F	ΔP = 21 psi	ΔP = 22 psi
180°F	ΔP = 55 psi	ΔP = 64 psi
250°F	ΔP = 83 psi	ΔP = 100 psi

(3) Evaluate the effect of relief valve setpoint on pressure overshoot.
By linear interpolation of results from (2) above; Relief valve setpoint 415 psig; RCS volume 9343 ft.^{3}; three second opening time:

Temp.	Pressure Overshoot
100°F	ΔP = 21 psi
180°F	ΔP = 57 psi
250°F	ΔP = 86 psi

(4) Evaluate the effect of valve opening time on pressure overshoot.
Figures 1 - 6 show pressure overshoot directly proportional to valve opening time.
Therefore, applying all Turkey Point parameters:

Temp.	Pressure Overshoot
100°F	ΔP = 14 psi
180°F	ΔP = 38 psi
250°F	ΔP = 57 psi