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FROM: Florida Power & Light Co. Miami, Fla Robert E. Uhrig		DATE OF DOC 3-13-75	DATE REC'D 3-17-75	LTR xxx	TWX	RPT	OTHER
TO: Mr. Edson G. Case		ORIG 1-signed	CC	OTHER	SENT AEC PDR _____ SENT LOCAL PDR _____		
CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D 1	DOCKET NO: 50-250 & <u>50-251</u>		

DESCRIPTION:  
  
Ltr ref WASH-1270 .... furn requested info concerning ATWS trans the following:

PLANT NAME: Turkey Point #3 & 4

ENCLOSURES:  
  
ATWS Analysis for Turkey Point No. 3 & 4  
....

**ACKNOWLEDGED  
DO NOT REMOVE**

FOR ACTION/INFORMATION 3-19-75 JGB

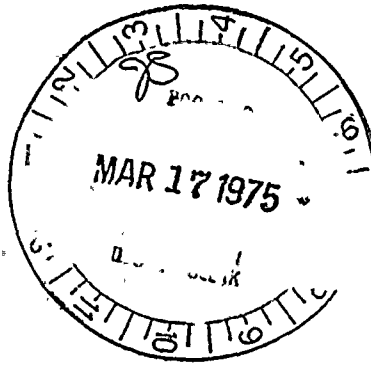
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- to Lic Asst.



FLORIDA POWER &amp; LIGHT COMPANY

March 13, 1975  
L-75-129

Regulatory

File Cy.

Mr. Edson G. Case, Acting Director  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Mr. Case:

Re: Turkey Point Plant Units 3 & 4  
Docket Nos. 50-250 & 50-251  
ATWT Analysis

The AEC technical report WASH-1270 requests that all plants falling under Section IC, Category 1, of the Regulatory Staff ATWT position submit analyses of the consequences of ATWT events. Florida Power & Light Company, in compliance with this request, wishes to advise you that we are referencing the Westinghouse topical report, WCAP-8404, "Anticipated Transient Without Trip Analysis for Westinghouse PWR's With 44 Series Steam Generators", September, 1974, as the analysis applicable to Turkey Point Units 3 & 4. The method of analysis, models and computer codes as well as other pertinent information are presented in the Westinghouse topical report, WCAP-8330, "Westinghouse Anticipated Transients Without Trip Analysis", August, 1974, which we are also referencing as applicable to Turkey Point Units 3 & 4 in these areas. Appendix B of WCAP-8330 (post ATWT shutdown) demonstrates the capability of the Westinghouse NSSS to achieve a safe shutdown by operator action following the most limiting ATWT event. Appendices D and E demonstrate that peak containment pressure and radiological consequences of an ATWT are within acceptable limits..

We have reviewed the subject reports and have determined that the analyses and parameters listed in WCAP-8404 for the three loop plant represent the Turkey Point Units 3 & 4 with the following qualifications:

1. As shown in Table 1, the reactivity insertion rate for Turkey Point Units 3 & 4 can be as high as 0.46%  $\Delta k/k$ , while the analysis of the Rod Withdrawal at Power for

2837



a three loop plant in WCAP-8404 was performed for an insertion rate of 0.3%  $\Delta k/k$ . However, the Turkey Point Units 3 & 4 parameter is bound by a sensitivity study in WCAP-8404 which showed that even with a reactivity insertion rate of 0.5%  $\Delta k/k$  a satisfactory DNB ratio and an acceptable peak primary system pressure would be obtained. Additional sensitivity studies reported in WCAP-8404 show that other minor differences noted in Table 1, such as steam generator mass have a minimal effect on DNB margin or maximum reactor coolant system pressure.

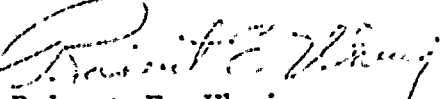
2. The auxiliary feedwater pumps for Turkey Point Units 3 & 4 are turbine driven instead of motor driven. As a result, Turkey Point Units 3 & 4 auxiliary feedwater reaches full flow in just under 180 seconds (instead of the 60 seconds assumed for the three loop reference case in WCAP-8404). The auxiliary feedwater flow rate for Turkey Point may be as low as 600 gpm (instead of 1200 gpm assumed in WCAP-8404). As a result, the analysis for Loss of Load, Loss of Feedwater and Loss of AC Power (Station Blackout) presented in WCAP-8404 do not conform to Turkey Point Units 3 & 4 conditions as in each case the assumption is made that auxiliary feedwater flow of 1200 gpm will begin after 60 seconds. To assure a valid evaluation, the reactor vendor (Westinghouse) was asked to perform an additional analysis of the Loss of Feedwater, the most severe of these transients, using input parameters specific to Turkey Point Units 3 & 4 operating at 2300 MW<sub>t</sub> and 2250 psia. This analysis is presented in the Appendix.

A comparison between the parameters used for the Turkey Point Units 3 & 4 Loss of Feedwater Analysis and those of the generic three loop plant analysis of WCAP-8404 is shown in Table 1. The table shows that the Turkey Point power operated relief valves have a larger steam flow capacity than the generic plant which compensates to some extent for the less favorable auxiliary feedwater characteristics. The result is a peak reactor coolant system pressure (including an 80 psi allowance for elevation and pump head) of 2991 psia for Turkey Point versus 2967 psia for the generic three loop plant analyzed in WCAP-8404 (p. 4-169). The conclusions for the Turkey Point Units as to the consequences of an ATWT are therefore identical to those for the generic study as summarized at the end of WCAP-8404. "The results of these studies show that in all reference cases, Reactor Coolant System peak pressure does not exceed 3000 psia, the minimum DNB ratio is not less than 1.0, and containment peak pressure does not exceed design pressure. No impairment of the Reactor Coolant System boundary integrity is expected based on these peak pressures. Since the core thermal performance, the volume of reactor coolant and secondary fluid released, and the containment pressure transient are all less severe for these ATWT events than for design basis conditions, the radiological consequences of these postulated ATWT events are well within the guideline values set forth in 10 CFR Part 100."

In addition to analyses of the plant to demonstrate the consequences of an ATWT, WASH-1270 requests that a review of the reactor protection system be performed to assess the system susceptibility to common mode failure. These analyses have been previously performed for the relay logic protection system by Westinghouse and are documented in WCAP-7486, "An Evaluation of Anticipated Operational Transients in Westinghouse PWR's", May, 1971.

In view of the results reported in WCAP-8404 and WCAP-7486 and the results of the plant specific analysis for the Loss of Feedwater ATWT for Turkey Point, and in recognition of the low likelihood of occurrence of these hypothetical ATWT events, we believe that no modifications of Turkey Point Units 3 & 4 are required to mitigate the consequences of an ATWT.

Very truly yours,



Robert E. Uhrig  
Vice President

REU:nch

cc: Mr. Jack R. Newman