SAFETY EVALUATION

Re: Turkey Point Units 3 & 4
Docket No. 50-250 and 50-251
Radial Burndown and Base Load Operation

I. Introduction

The present Technical Specifications provide for axial power distribution controls, which are given in terms of flux difference limitations and control bank insertion limits. These controls are designed to minimize the effects of xenon redistribution on the axial power distribution during load-follow maneuvers by limiting the power to a turnon power fraction, P_T. This turnon power fraction depends on the analytically predicted maximum $[F_Q]_P$, generated by determining $F_Q(Z)$ for a series of load follow maneuvers consistent with axial offset control to a $\pm 5\%$ band about the target flux difference.

This safety evaluation supports two alternative methods for determining an increase in the turnon power fraction to a redefined maximum relative power. The first method, Radial Burndown operation, is based upon utilizing a measured $F_{XY}(Z)$ from a full core flux map in conjunction with the analytically determined $F_Z(Z)$. The $F_Q(Z)$ calculated by this method, with the appropriate uncertainties applied, is used to determine a maximum relative power, P_{RB}. The second method, Base Load operation, takes credit for the fact that the severity of the shapes which need to be analyzed is significantly reduced relative to load follow operation. The $F_Q(Z)$ determined by this method also utilizes a full core flux map in the determination of a maximum relative power, P_{BL}.

II. Evaluation

1. Radial Burndown Operation

A multi-case elevation-dependent peaking factor analysis (approved by the NRC in Reference 1) or a several case subset analysis is performed to determine the turnon power fraction P_T.

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Before the relative power is permitted to increase the above P_T, the maximum relative power permitted under Radial Burndown operation, P_{RB}, is determined from a full core flux map and the function $F_Z(Z)$ as defined below.

(a,c)

[ ]

The above description constitutes a straightforward application of previously developed and approved Westinghouse methodology (Reference 2). The conservative definition of $F_Z(Z)$ coupled with the requirements of the Radial Burndown Technical Specification ensures that $[F_Q(Z)]^{Meas}_{RB}$ conservatively bounds the power distributions that can occur under Radial Burndown operation.

2. <u>Base Load Operation</u>

Similarly, as in the case of Radial Burndown operation, the relative power is permitted to increase above P_T if the following conditions are satisfied. The indicated flux difference must be held to ± 2 or $\pm 3\% \Delta I$ about the target axial offset and relative power must be between P_T and $P_T/1.05$ for 24 hours. The maximum relative power permitted under Base Load operation, P_{BL} is then determined from a full core flux map and the function W(Z) as defined below. Therefore, as a minimum, power swings between $P_T/1.05$ and P_{BL} must be considered in generating the function W(Z). For conservatism, power swings between [ ](a,c). Table 1 provides a description of the several cases used to generate W(Z). Daily load follow is not permitted; however, to allow for some rod shadowing the 85% EOL cases are based upon a [ ](a,c) depletion. The function W(Z) is defined as:

(a,c)

[ ]

The above description constitutes a straightforward

application of previously developed and approved (W) methodology (Reference 2) to a tightly constrained operating regime. The conservative definition of W(Z) coupled with the restrictions required by Base Load Technical Specification ensures that $[F_Q(Z)]^{Meas}_{BL}$ conservatively bounds the power distributions that can occur under Base Load operation.

Reference 1: Vassallo to Eicheldinger letter 4/76.
Reference 2: WCAP-8385

III. Conclusion

Based on the considerations described above, (1) the proposed change does not increase the probability or consequences of accidents or malfunctions of equipment important to safety and does not reduce the margin of safety as defined in the basis for any technical specification, therefore, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

TABLE 1

[_] CASES[a,c] DEFINING BASE LOAD OPERATION

[ ] (a,c)

STATE OF FLORIDA)
) ss.
COUNTY OF DADE)

Robert E. Uhrig, being first duly sworn, deposes and says:

That he is a Vice President of Florida Power & Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this said document are true and correct to the best of his knowledge, information, and belief, and that he is authorized to execute the document on behalf of said Licensee.

Robert E. Uhrig

Robert E. Uhrig

Subscribed and sworn to before me this

14 day of May, 1981

Cheryl F. Fredrick

NOTARY PUBLIC, in and for the county of Dade, State of Florida

My commission expires: Notary Public, State of Florida at Large My Commission Expires October 30, 1983 Bonded thru Maynard Bonding Agency