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 50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251  
 AUTH. NAME AUTHOR AFFILIATION  
 UHRIG, R.E. Florida Power & Light Co.  
 RECIP. NAME RECIPIENT AFFILIATION  
 EISENHUT, D.G. Division of Licensing

SUBJECT: Forwards response to NRC concerns discussed in 830815 telcon  
 re Tech Spec changes to F delta H limit. Impact of change  
 limited to expected cycle-wise power distribution  
 differences.

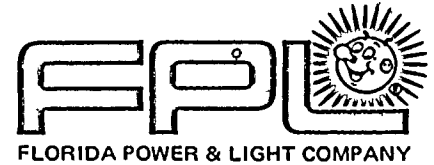
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October 4, 1983  
L-83-507

Office of Nuclear Reactor Regulation  
Attention: Mr. Darrell G. Eisenhut, Director  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Eisenhut:

Re: Turkey Point Units 3 & 4  
Docket Nos. 50-250 & 50-251  
Clarification to F H/FQ  
Technical Specification Changes

Attachment I contains FPL's responses to concerns discussed with your staff on an August 15, 1983 telecon. If there are any further concerns please contact us.

Very truly yours,

Robert E. Uhrig  
Vice President  
Advanced Systems & Technology

REU/SAV/cab

Attachment

cc: J. P. O'Reilly, Region II  
Harold F. Reis, Esquire

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## ATTACHMENT 1

### Question 1:

How does the CAOC power distribution control strategy apply to a PWR with an increased F delta H limit of  $1.62 (1 + 0.3 (1-P))$ ?

### Response:

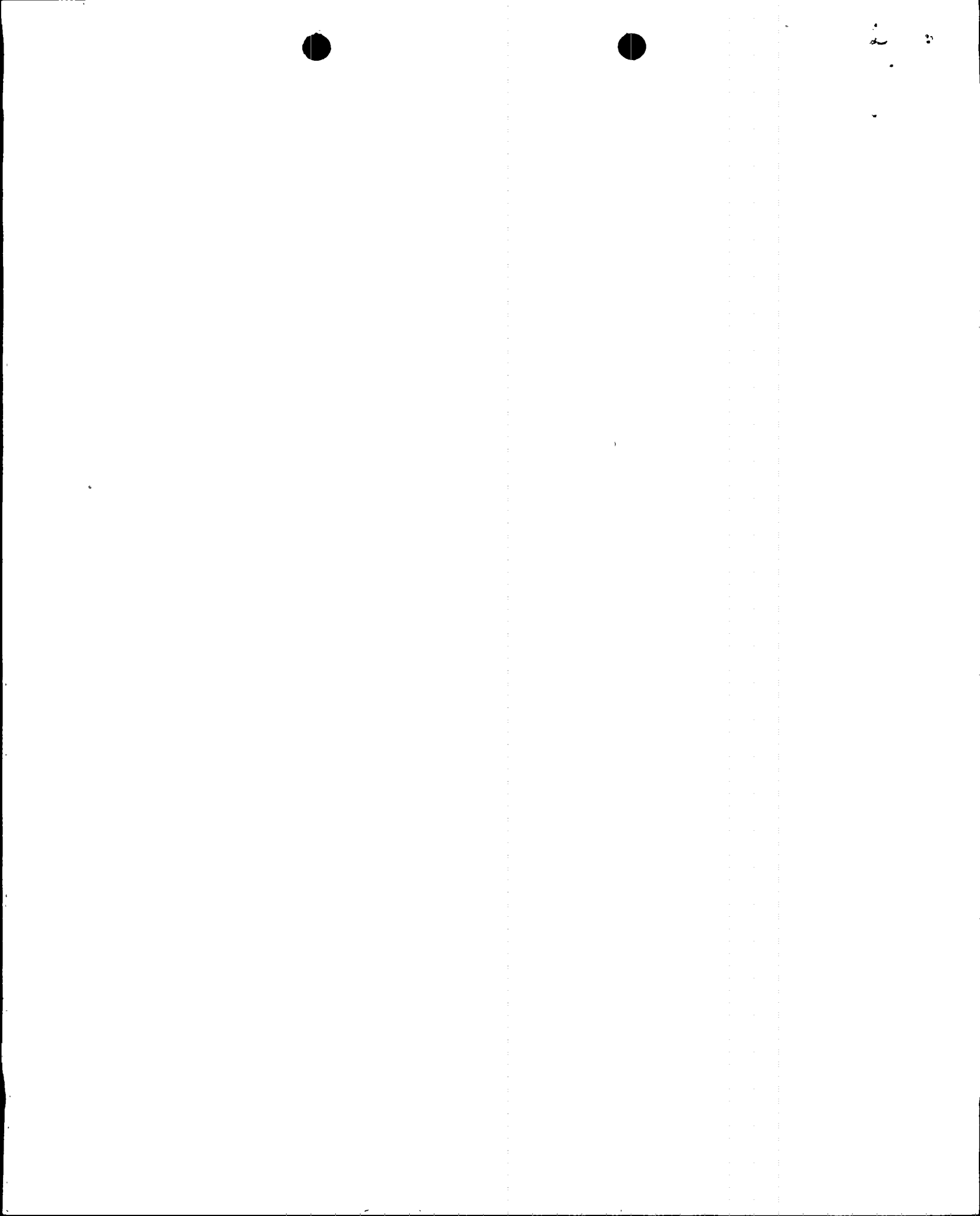
The CAOC operating strategy in effect at Turkey Point will continue to provide the same level of protection with an increased F-delta-H limit as in previous cycles with a lower F-delta-H limit as discussed in Reference 1. The primary focus of the CAOC operating strategy is directed at assurance that  $F_{Q(N)}(Z)$  is bounded within the limits defined by the LOCA analysis. As discussed in References 1 and 2, the FAC analysis is used to provide assurance that a given core design will not exceed the LOCA FQ limit for load follow maneuvers allowed within the plant technical specifications.

The FAC analysis methodology as described in References 1 and 2 continues to apply for PWR cores with elevated F-delta-H limits. Reference 1 specifies the conditions under which the verification that the LOCA FQ limit is generically assured and no calculations need be performed. These conditions are:

1. The allowed  $\Delta I$  band is no wider than  $\pm 5\% \Delta I$ .
2. The LOCA FQ limit is greater than or equal to 2.32.
3. The F-delta-H limit is  $F_{\Delta H}^N < 1.55 (1 + 0.2 (1-P))$ .

The proposed technical specification changes fall outside of the conditions specified above. Therefore, the FAC analysis has been and will continue to be performed to assure that the FQ limit is not exceeded by the methodology defined in Ref. 1 for upcoming reloads at Turkey Point. The results of the FAC analysis for the Turkey Point Unit 3, Cycle 9 core are attached to this discussion. The attached analysis and future analysis have been or will be performed as outlined in Reference 2.

The FAC analysis utilizes a 1D/3D synthesis of 1D axial simulated load follow power shapes and 3D elevation dependent radial peaking factors. The 1D simulation is sensitive to burnup distribution, control rod insertion limits, core power density, CVCS capability, and load follow strategy of the reactor under study. Very localized radial peaking ( $F_{xy}$ ) has no effect on the core average axial power distribution  $P(Z)$  but directly impacts the total heat flux peaking factor, FQ. The proposed F-delta-H limit increase will be accounted for in the  $F_{xy}(Z)$  which is used in the analyses. FAC analyses with the increased F-delta-H limit are performed with methods consistent with Reference 2.



Question 2:

What is the impact on operating cycles of changing the F-delta-H and FQ limits?

Response:

This has no impact on current operating cycles because they were designed with the lower limits.

Question 3:

What is the impact of the proposed F-delta-H limit increase on the current Baseload and Radial Burndown technical specifications?

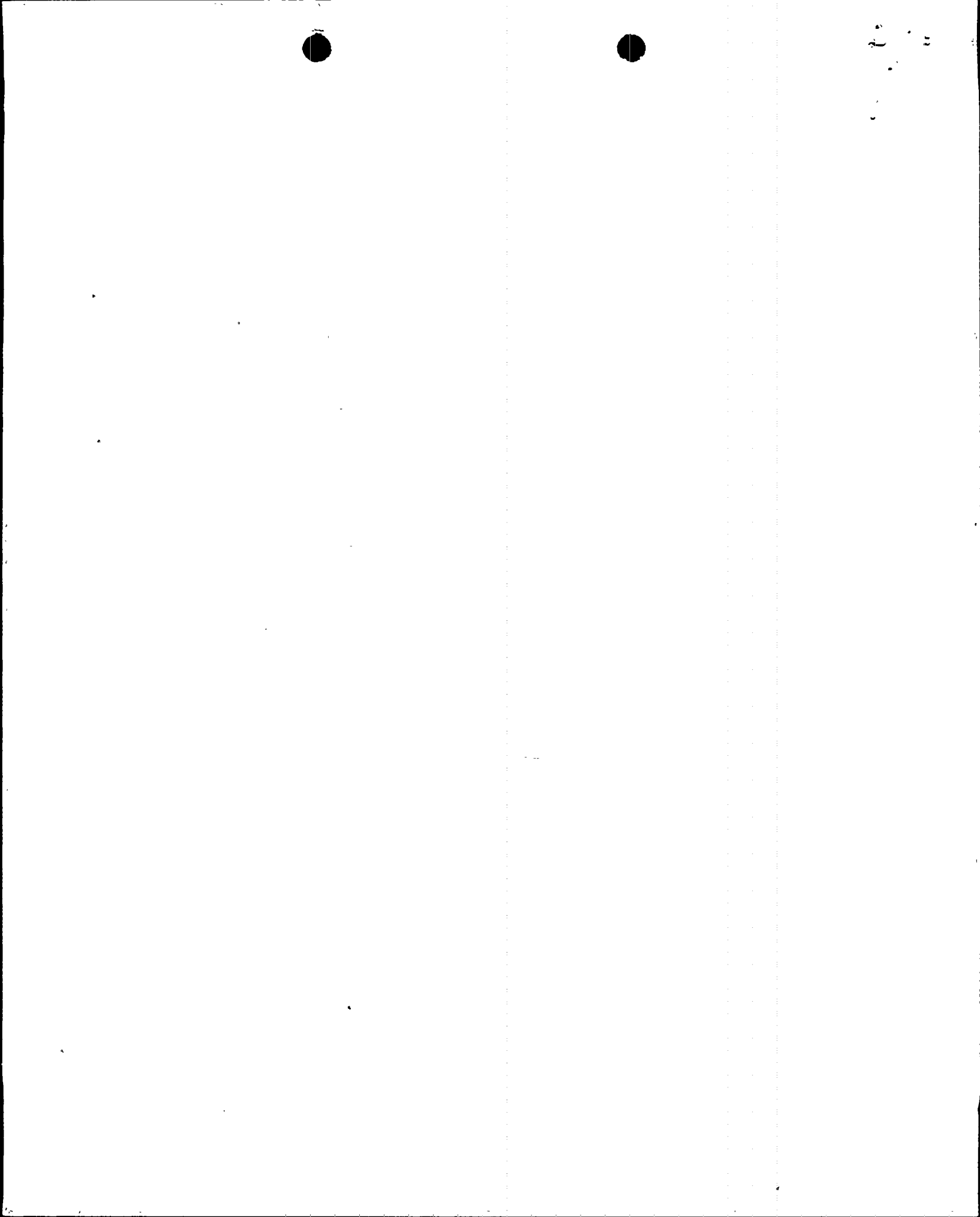
Response:

The surveillance function of the current Baseload and Radial Burndown technical specifications are unaffected by the proposed technical specification changes. The methodology that provides input to the INCORE measurement system remains unchanged. Therefore, the impact of this proposed technical specification change is limited to expected cycle-wise power distribution differences. Further, because the methodology utilized in generating the INCORE measurement constants and the application of these measurement constants to process moveable detector flux traces remains unchanged, the measurement uncertainties associated with power distribution measurement are unaffected. The stated FQ and F-delta-H limits in these technical specifications will be changed to reflect the higher limits.



REFERENCES

1. Morita, T., et al, "Power Distribution Control and Load Follow Procedures," WCAP-8385 (Proprietary) and WCAP-8403 (Non-Proprietary), September 1974.
2. Borderlon, F. M., et al, "Westinghouse Reload Safety Evaluation Methodology", WCAP-9272 (Proprietary), March 1978.



TURKEY POINT UNIT 3, CYCLE 9

FAC ENVELOPE

