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EISENHUT,D.G. Division of Licensing

SUBJECT: Provides addl info re optimized fuel assembly Tech Specs. Zion analysis of guide tube wear applicable to facilities.

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FLORIDA POWER & LIGHT COMPANY

November 16, 1983
L-83-561

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
Additional Information on
Optimized Fuel Assembly

Based on discussions with the staff the following information is being provided for NRC's review of the Optimized Fuel Assembly technical specifications:

1) The accidents analyzed in the FSAR which could potentially be affected by the OFA reload have been reviewed. The increase in rod drop time from 1.8 to 2.4 seconds (to dash pot) could affect the "fast" transients for which the protection system trips the reactor within a few seconds. The evaluation showed that all accidents and transients except the loss of flow, locked rotor and rod ejection accidents are insignificantly affected by the increased rod drop time. These three accidents were reanalyzed to account for the increased rod drop time.

   For the loss of reactor coolant flow accident with the 2.4 second scram time, the flow coastdown, nuclear power, heat flux and DNBR ratio vs time curves were very similar to the case with the 1.8 seconds scram time. The minimum DNBR of approximately 1.74 occurred at 3.6 seconds.

   The locked rotor accident was reanalyzed and the figures for core flow coastdown, nuclear power, reactor coolant pressure and fuel clad temperature were similar to the previous ones. Less than 10% of the fuel rods exhibited a DNBR less than 1.56. The peak clad temperature was 1953°, well below the acceptable limit of 2700°F

   When the rod ejection accident was reanalyzed the changes in the maximum fuel center temperature, clad average temperature, fuel enthalpy and fuel centerline melt were very small, as can be seen from Table 1.

   The results of the reanalysis for all three accidents showed that the safety limits and criteria are satisfied with the OFA.

2) The seismic analysis and conclusions for a mixed core for Zion are also applicable for PTP 3 and 4. The generic analysis performed envelopes Zion, Turkey Point and D.C. Cook plants for 15 X 15 OFA fuel assemblies.

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3) The Zion analysis of guide tube wear is applicable to Turkey Point Units 3 & 4. The analysis shows favorable results for the small diameter guide tubes in the 15 X 15 OFA assemblies as compared with standard assembly guide tubes. Since the guide tube wear evaluation shows that wear will be influenced by the gap between the inner guide tube and the outer Rodlet of the control rod assembly, the decrease in the inner diameter of the guide tube is expected to reduce wear induced vibration.

4) Based on current projections for Cycle 10 and 11 fuel loadings, enrichments and number of assemblies, the Turkey Point Unit 3, Cycle 9 OFA fuel is expected to average a burnup of 36,000 MWD/MTU. Further, we do not expect to exceed an average 38,000 MWD/MTU with subsequent fuel cycle operations.

If there are any questions on this subject please contact us.

Very truly yours,

J. W. Williams, Jr.
Vice President
Nuclear Energy

JWW/SAV/cab

Attachment

TABLE I

	PTP 3 Cycle 8		PTP 3 Cycle 9			
	Scram Time 1.8 Sec.		Scram Time 2.4 Sec.			
	BOC**		BOC		EOC	
Power	0%	102%	0%	102%	0%	102%
Maximum Fuel Center Temp (°F)	2565	5185	2626	Melt*	3319	4687
Maximum Clad Average Temp (°F)	1624	2367	1634	2397	2026	2066
Maximum Fuel Enthalpy Cal/gm	84.0	177.0	88.0	181.0	116.9	152.6
Maximum Fuel Centerline Melt (%)	0	<10	0	<10	0	0

* Less than 10% of fuel melt at fuel rod hot spot

** EOC not reanalyzed for Turkey Point Unit 3 Cycle 8