REGULATORY REFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8502060153 DOC.DATE: 85/02/01 NOTARIZED: NO DOCKET # FACIL:50=250 Turkey Point Plant, Unit: 3, Florida Power and Light C 05000250 50=251 Turkey Point Plant, Unit: 4, Florida Power and Light C 05000251 AUTH.NAME AUTHOR AFFILIATION WILLIAMS,J.W. Florida Power & Light Co. RECIP.NAME RECIPIENT AFFILIATION VARGA,S.A. Operating Reactors Branch 1								
SUBJECT: Discusses Westinghouse reanalysis of proposed expansion of spent fuel storage facilities.Applicable requirements of OT position paper met w/o any controls.								
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FLORIDA POWER & LIGHT COMPANY

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Office of Nuclear Reactor Regulation Attention: Mr. Steven A. Varga, Chief Operating Reactors Branch #1 Division of Licensing U.S. Nuclear Regulatory Commission Washington, D.C. 20055

Dear Mr. Varga:

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Re: Turkey Point Units 3 & 4 Docket Nos. 50–250 & 50–251 Spent Fuel Storage Facility Expansion

In support of the FPL request to amend the facility operating licenses to permit expansion of the spent fuel storage facilities at Turkey Point Units 3 and 4, the rack vendor (Westinghouse) analyzed the spent fuel storage racks for overturning and sliding displacements due to earthquake loading for the cases of full, partially filled and empty fuel racks. The analysis results met and exceeded the stability criteria of the NRC "OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications." The results showed that the racks did not lift off the spent fuel pit embedment plates under seismic event conditions. This information was provided to you in FPL letter L-84-263, dated September 28, 1984.

Thereafter, in a letter dated October 19, 1984, Westinghouse informed FPL that administrative controls on fuel loading would be needed for those spent fuel racks whose outer rows overhang the support pads. Westinghouse stated that lifting of a rack could occur during a seismic event if the outer rows are fully loaded while the rest of the rack remains empty. Six (6) Region II racks with a one row overhang, one (1) Region I rack with a one row overhang and one (1) Region I rack with a two row overhang are affected.

Although not indicated in their October 19th letter, these controls were required to be consistent with an assumption made by Westinghouse in its analysis (i.e., that the overhanging rows would not be loaded while the rest of the rack was empty). Neither the preliminary seismic/structural analysis report nor the basis provided by Westinghouse for FPL's September 28th letter specified this assumption or identified the need for administrative controls. Consequently, at an October 24, 1984 meeting, FPL requested that Westinghouse provide clarification regarding the basis for its recommendations for controls. Westinghouse responded in a letter dated November 16, 1984 and received by FPL on November 27, 1984.

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Page 2 Office Of Nuclear Reactor Regulation Mr. Steven A. Varga

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The reanalysis shows that the applicable requirements of the OT position paper are met without any controls. The worst case loadings are 3 outboard rows (2 overhang rows plus the row above support pads) for a Region 1 module and 2 outboard rows (1 overhang row plus the row above support pads) for a Region 11 module while the rest of the module remains empty. For these loadings a more than adequate factor of safety against overturn is maintained. The following summarizes the results of the analysis:

- The factor of safety against overturn is 8 for Region I and 220 for Region II, with support pad liftoff of 0.18 inch and 0.01 inch, respectively, during a seismic event.
- The rack support pads will not slip off the embedment plate under any condition.
- The racks will not at any point contact other racks or the pool wall. A revised tabulation of displacements is shown in Table 1.
- Resulting pool floor loads and structural stresses are enveloped by the condition of a fully loaded rack.

It is requested that the NRC review the above information and concur that the reanalysis is acceptable. Until NRC concurrence is obtained, FPL will provide administrative controls on fuel placement in order to preclude the possibility of any liftoff, maintaining the validity of the analysis and results submitted in our September 28th letter. If you have any questions, please contact us.

Very truly yours,

Julieun

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

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TABLE IN RACK DISPLACEMENTS FOR AFFECTED FUEL RACKS

WORST CASE LOADINGS

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REGION I REGION II

SSE Seismic + Maximum Normal Thermal	SSE Seismic + Normal Thermal				
Max. Sliding Distance, µ = .2 (N-Linear Results)	∆s	in ·	.0001	0.007	
Max. Structural Defi., µ = .8 (N-Linear Results)	δ	in	.450	0.086	
Total Displacement One Rack $\Delta = \Delta s + \delta$	Δ	in	.4501	0.093	
SRSS Combined Displacement 2 Racks with only 1 sliding $\Delta_{max} = \sqrt{\dot{z}^2 + \delta^2}$	^A max	in .	.636	0.127	
Max. Normal Thermal Displacement	δΓ	in	-,088	0.087	
Max. Combined Thermal & Seismic Displacements	Z	in	.724	0.214	
$\overline{\Delta} = \delta_{\mu} + \Delta_{max}$					
Rack to Rack Gap (RI-RII)		in .	1.11	1.11	
Rack to Rock Gap (RI)		In .	2.55		
Rock to Rock Gop (RII)		in		.2.90	

*See response to Question 4a of FPL Letter L-84-263 dated September 28, 1984.

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REGULATORY STORMATION DISTRIBUTION SYSTEM (RIDS)

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Page 2 Office Of Nuclear Reactor Regulation Mr. Steven A. Varga

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William

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

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TABLE I+ RACK DISPLACEMENTS FOR AFFECTED FUEL RACKS

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REGION I REGION II

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SSE Selsmic + Maximum Normal Thermal	SSE Selsmic + Normal-Thermal				
Max. Sliding Distance, µ = .2 (N-Linear Results)	∆s	in	.0001	0.007	
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SRSS Combined Displacement 2 Racks with only 1 sliding $\Delta_{max} = \sqrt{\frac{2}{3}^2 + \frac{2}{5}^2}$	^A max	In ,	.636	0.127	
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$\overline{\Delta} = \delta_{\Gamma} + \Delta_{max}$					
Rock to Rock Gap (RI-RII)		in			
Rock to Rack Gap (Ri)		in .	2.55		
Rock to Rack Gap (RII)		`in		. ^{2.90}	

*See response to Question 4a of FPL Letter L-84-263 dated September 28, 1984.

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