Florida Power
CORPORATION

June 21, 1990
3F0690-05

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Subject: Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72
Technical Specification Change Request No. 175
Revision 1, Supplement 1
Spent Fuel Pool Storage Capacity

Dear Sir:

Florida Power Corporation's (FPC) October 31, 1989 letter submitted Technical Specification Change Request No. 175 requesting an increase in the capacity of spent fuel storage pool "B". The "B" pool currently has 120 locations and after the rerack it will have 815 locations, for a net increase of 695. Section 5.1.5 of that letter stated in part:

> "section 2.2.4.2 contains a description of the following considerations: ...whether there will be any significant increase in the amount of heat release to the environment. As discussed in section 2.2.4.2, the proposed increase in storage capacity will result in an insignificant impact on the environment."

This letter is submitting information to support the above statement.

The effect of increasing Crystal River 3 (CR-3) storage capacity is shown in the attachment to this letter. A base case (Table 1) was calculated using the current spent fuel pool configuration (120 locations in "B" pool and 542 locations in "A" pool for a total of 662 assemblies). The following assumptions were used: a complete core off load to the pools at three days; a two year refueling

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cycle; a seventy-six (76) assembly reload batch size; and an irradiation period of 1650 days. The decay heat load was calculated using ANS 5.1-1979 "Decay Heat Power in Light Water Reactors". The heat load generated by the current 662 assemblies is 8.359 Megawatt Thermal (Mwt). The second case (Table 2) involved the 695 additional assemblies after rerack.

Using the same assumptions mentioned above, the heat load generated by the additional 695 assemblies discharged over 10 years is only 0.47 Mwt. Summing this value to the base value of 8.859 Mwt gives a total heat load discharged to the environment of 9.329 Mwt.

The maximum heat discharged from the plant occurs during normal plant operations. Assuming a plant efficiency of 34% and a licensed power level of 2544 (Mwt), the heat discharged to the environment is 1679 Mwt. Thus, the total heat discharged from the 695 additional assemblies (or the 1357 total assemblies) is insignificant compared to the heat discharged during normal plant operations.

Sincerely,

P. M. Beard, Jr.
Senior Vice President
Nuclear Operations

Attachment

PMB/GMF

xc: Regional Administrator, Region II
Senior Resident Inspector

HEAT DISCHARGED TO THE ENVIRONMENT

Table 1 - Base Case

Assembly Reload Batch Size		Individual Assembly (Kwt)	(Mwt)
177 Assemblies @ 3 Days			= 8.400
76 Assemblies @ 2 Years	x	1.909	= 0.145
76 Assemblies @ 4 Years	x	1.000	= 0.076
76 Assemblies @ 6 Years	x	0.802	= 0.061
76 Assemblies @ 8 Years	x	0.729	= 0.055
76 Assemblies @ 10 Years	x	0.678	= 0.051
105 Assemblies @ 10 Years	x	0.678	= 0.071
Total: 662			8.859

Table 2 - Rerack Case

662 Assemblies	= 8.859 Mwt
*695 Assemblies @ 10 Years	= 0.470 Mwt
Total: 1357 Assemblies	9.329 Mwt

***NOTE:** The additional 695 assemblies would have to come from cycles beyond 10 years, therefore 10 years is conservative.