UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

May 26, 1988

Docket No. 50-302

Mr. W. S. Wilgus
Vice President, Nuclear Operations
Florida Power Corporation
ATTN: Manager, Nuclear Licensing
Crystal River, Florida 32629

Dear Mr. Wilgus:

SUBJECT: EXEMPTION TO GENERAL DESIGN CRITERIA-17
FOR CRYSTAL RIVER UNIT 3

On December 23, 1987, the Commission issued an exemption from the requirements of General Design Criteria (GDC)-17 permitting Crystal River Unit 3 (CR-3) to operate until the next scheduled refueling outage with predicted accident loads for emergency diesel generator (EDG) "A" within its 30-minute rating for not more than 30 minutes. The exemption was issued with the proviso that the principal estimated loads are confirmed by test. The exemption further noted that you had committed to submit to the Commission by March 30, 1988, your proposed actions to bring the facility into compliance with GDC-17.

By letter dated February 29, 1988, you submitted the final EDG test results, supplemented by information in Licensee Event Report (LER) 87-019, Revision 1, on the same date. By letter dated March 25, 1988 and in a meeting with the NRC staff on March 30, 1988, you described your proposed actions to bring CR-3 into compliance with GDC-17.

The major electrical loads on train "A" were tested at or as near as possible to conditions which would exist during a large-break loss-of-coolant accident (LOCA). The test results show that the worst-case total load on EDG "A" is below the previously calculated value and within the 30-minute rating of the EDG. We conclude that the test results are acceptable and that they confirm the estimated loads, and therefore find that the proviso in the exemption is satisfied.

We also find that your commitment to submit by March 30, 1988 your proposed actions to bring the facility into compliance with GDC-17 (the long-term solution) is satisfied.

The long-term solution conceptual design described in your letter of March 25, 1988 and at the meeting of March 30, 1988, provides a control system which precludes loading both the Decay Heat (DH) pump and Emergency Feedwater (EFW) pump on the EDG, thereby reducing worst-case predicted auto-connected accident loads to within the 2000-hour rating of the EDG. Two-out-of-three instrument logic will be employed to sense Reactor Coolant System (RCS) pressure, and will, when RCS pressure drops below 500 psig, trip the EFW pump and start the DH pump. The NRC staff concurs that for any accident at 500 psig and below, which would

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be indicative of a large LOCA, the EFW pump would not be immediately required. On the other hand, the design of the DH pump is such that the pump cannot supply water to the RCS above 500 psig, so that there is no need to start the DH pump above that pressure. In the event of incorrect or spurious EFW pump trip, the steam-driven EFW pump would be available to deliver water to the steam generators. In addition, another feedwater pump proposed to be installed as part of a separate matter would be available as a source of water.

Based on our review of your proposal, we find your approach to the long-term solution generally acceptable. However, our review to date has raised the following concerns which must be satisfactorily addressed prior to final approval of the design.

1. During certain events, both the EFW and DH pumps may be necessary for plant control in the long-term recirculation mode. In general, the question of long-term need for loads not needed early in an accident should be addressed.

2. The proposed long-term solution control system may pose additional risk or problems in more likely scenarios. The reliability of the Engineered Safeguard Features (ESF) system should be addressed to assure that failures which could prevent operation of EFW or DH removal are not made more likely, and that defeating a safety function (i.e., EFW) will not have a significant effect on ESF reliability. The adequacy of two-out-of-three logic should also be examined.

3. Currently, the Low Pressure Injection System is initiated by diverse signals, namely 4 psig containment pressure or low RCS pressure. In the proposed design, only the latter is used. The use of an appropriate diverse signal should be addressed.

4. The battery charger and other loads as appropriate should be added back on the EDG.

5. Although the proposed long-term solution is conceptually acceptable, the EDGs would not have a desirable capacity margin, particularly with the return of loads previously removed. You have indicated that one group of EDG upgrades will be implemented by the next refueling, and that others are being considered. The capacity benefit of these upgrades and of those you propose to implement should be addressed.

The exemption expires at the end of the next refueling outage and you have indicated your intent to implement the long-term solution during that outage. You have stated that the detail design for the required modifications will be submitted in the third quarter of this year. Responses to the above concerns

should be received before that time. We plan to review your submittals on a timely basis and we see no reason to expect any deviation from the above implementation schedule.

Sincerely,

Original Signed By:

Steven A. Varga, Director
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

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Mr. W. S. Wilgus
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