

January 13, 2000

Mr. John Paul Cowan  
Vice President, Nuclear Operations  
Florida Power Corporation  
ATTN: Manager, Nuclear Licensing (SA2A)  
Crystal River Energy Complex  
15760 W. Power Line Street  
Crystal River, Florida 34428-6708

SUBJECT: CRYSTAL RIVER UNIT 3 - REQUEST FOR ADDITIONAL INFORMATION RE:  
INDIVIDUAL PLANT EXAMINATION OF EXTERNAL EVENTS SUBMITTAL  
(TAC NO. M83612)

Dear Mr. Cowan:

Based on our ongoing review of the Crystal River Unit 3 (CR-3) Individual Plant Examination of External Events (IPEEE) submittal, and the Florida Power Corporation (FPC) response to our previous request for additional information (RAI), we have developed the enclosed supplemental RAI. The RAI is related to the seismic analyses in the IPEEE and is needed because FPC's June 30, 1998, response to the seismic part of the staff's original RAI, dated February 12, 1998, was not sufficient to allow the staff to complete its review. The supplemental RAI was developed by our contractor, Brookhaven National Laboratory, and reviewed by the "Senior Review Board" (SRB). The SRB is comprised of U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research (RES) and Office of Nuclear Reactor Regulation staff and RES consultants (Sandia National Laboratories) with probabilistic risk assessment expertise in external events.

FPC's original IPEEE submittal, dated June 28, 1996, and Revision 1 to the submittal dated March 24, 1997, did not include a seismic evaluation as required in Supplement 4 to Generic Letter 88-20. In response to the staff's February 12, 1998, RAI, FPC addressed the seismic part of the staff's RAI by providing the Seismic Summary Report in a submittal dated June 30, 1998. FPC addressed the staff's RAI in the area of high winds, floods and other external events (HFO), and part of the staff's RAI in the area of fire, in a submittal dated April 17, 1998. Responses to the remaining fire issues, in particular the generic fire issues that were evaluated by the Electric Power Research Institute, were addressed in a submittal dated September 28, 1999. The staff has reviewed the HFO responses and found them to be acceptable. The fire responses are currently under review, and if additional RAIs in the fire area are needed to finish our review for CR-3, they will be forwarded separately.

John Paul Cowan

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This RAI was discussed with Mr. Sidney Powell and other members of your staff on December 21, 1999. During that telephone call, it was agreed that the response would be provided within 90 days of receipt of this letter. If you have any questions concerning this request, please contact me at (301) 415-1495.

Sincerely,

**\RAI**

L. A. Wiens, Senior Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosure: Request for Additional Information

cc: See next page

John Paul Cowan

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**CRYSTAL RIVER UNIT 3 IPEEE**  
**Supplemental Request for Additional Information**

**Seismic Evaluation**

Based on your Individual Plant Examination of External Events (IPEEE) submittal (June 28, 1996), Revision 1 to the submittal (March 24, 1997), and your response to the staff's seismic requests for additional information (RAIs) (Seismic Summary Report, June 30, 1998), we are unable to conclude at this time that the Crystal River Unit 3 (CR3) IPEEE has met the intent of Supplement 4 to Generic Letter 88-20. Your response to the following seismic RAIs (follow-up to the staff's previous RAI dated February 12, 1998) are necessary in order to complete our review.

- 1) Although Section 2.3.7 of the Seismic Summary Report is titled "Nonseismic Failures and Human Actions," only nonseismic failures are discussed in this section. Human actions involved in the success paths are not discussed in the report. Also, the Success Path Logic Diagram (SPLD) presented in Attachment A of the Seismic Summary Report is not legible.

Regarding nonseismic failures and human actions, NUREG-1407 (Section 3.2.5.8) states that "It is important that the failure modes and human actions are clearly identified and have low enough probabilities to not affect the seismic margins evaluation" and that "the redundancies along a given success path should be specifically analyzed and documented when they exist."

***In accordance with NUREG-1407, please provide an SPLD that clearly identifies the trains of the systems selected for the four safety functions in each success path and describe the systems selected for the safety functions, as well as the procedures and operator actions involved in the success path.***

- 2) For both success paths referred to above in RAI No. 1, reactor coolant inventory control is provided by the Make-up and Purification (MU) System, and decay heat removal is accomplished by secondary heat removal. The low pressure system of CR-3 is not included in the success path for either inventory control or decay heat removal. This lack of a sump recirculation capability is particularly significant for the small loss-of-coolant accident (LOCA) case. Without sump recirculation provided by the low pressure system (which provides suction to high pressure recirculation), there must be a borated water supply to the MU system sufficient for a 72-hour mission time.

Section 2.3.10 of the CR-3 Seismic Summary Report states that "The IPEEE examinations confirm that the equipment selected is sufficient for coping with a LOOP and a small break LOCA for 72 hours. With power from the emergency diesel generators and only a small break, adequate vessel make-up is assured by the Make-up System." This does not seem to be consistent with the information presented in the CR3 IPE submittal (which is based on a 24-hour mission time) where high-pressure recirculation is needed in order to avoid core damage in the case of a small break LOCA.

**ENCLOSURE**

***Please provide sufficient information to show that there is a sufficient borated water supply for a small break LOCA with a combined leakage equivalent to a 1-inch diameter break (per Section 3 of EPRI-6041-SL). If sources of water other than that from the borated water storage tank (BWST) are required, please discuss the procedures and operator actions involved in the process of connecting these sources and confirm that these sources, as well as the BWST, are seismically qualified.***

Mr. John Paul Cowan  
Florida Power Corporation

**CRYSTAL RIVER UNIT NO. 3**

cc:

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