Florida Power
CORPORATION

March 19, 1990
3F0390-09

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

Subject: Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72
Request for Action Related to Resolution of Unresolved Safety Issue A-47 "Safety Implication of Control Systems in LWR Nuclear Power Plants" Pursuant to 10 CFR 50.54(f)
Generic Letter 89-19

Dear Sir:

Florida Power Corporation (FPC) is submitting the attached response to Generic Letter 89-19 as requested in your September 20, 1989 letter. Generic Letter 89-19, Attachment 2, makes specific recommendations for B&W designed PWR plants to provide automatic steam generator overfill protection. FPC's response addresses these recommendations for Crystal River Unit 3 (CR-3).

FPC will implement an appropriate system to protect against overfill concerns. Due to the complexity and extent of the design evaluation, (see below) FPC will integrate this modification in its master schedule for fuel cycle 9 (1992 - 1994) commensurate with construction work package development and material delivery. FPC considers this schedule adequate to address the issues for the following reasons:

- There is a low probability of an overfill event because adequate instrumentation and procedures are available to the operators for manual action.

- Sufficient indications are available for the operators to recognize overfill problems.

A001
1/1D

o The time for the operators to react to an overfill condition is adequate.

FPC is concerned that the recommendations in Generic Letter 89-19 may not have fully considered the integrated effect of all of the installed and proposed control systems associated with main feedwater. (For example, FPC has installed the Anticipatory Reactor Trip System (ARTS) and is installing the Anticipated Trip Without Scram/ATWS Mitigation System Actuation Circuitry (ATWS/AMSAC) which trip the main feedwater pumps for various transient conditions). Any new control systems recommended by this generic letter must be assessed for overall impact on the operation of the Main Feedwater System. FPC does not believe it prudent to implement another main feedwater pump trip without further extensive review and an integrated assessment of the systems interactions. We consider this review to be in the best interest of plant safety. Adding additional trip functions without considering the integrated effects on interfacing control systems could cause more problems than are solved. (Such as, increased probability of a loss of main feedwater, an event which has occurred at CR-3; whereas, steam generator overfill has not.)

Should there be any questions, please contact this office.

Sincerely,

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

PMB/EMG/sdr

Attachment

xc: Regional Administrator, Region II
Senior Resident Inspector

ATTACHMENT to FPC to NRC Letter Dated March 19, 1990

NRC Recommendation (3a) (Summarized)

It is recommended that all Babcock and Wilcox (B&W) plant designs have automatic steam generator overfill protection to mitigate MFW overfill events. The system should be sufficiently separate from the MFW control system to ensure that the MFW pump will trip on a steam generator high-water-level signal (or other equivalent signals) when required. Common failure modes that could disable the overfill protection and the feedwater control system, but trip the MFW pumps, are acceptable. The system needs to satisfy the single failure criteria. Acceptable designs are: (1) additional system to close isolation valves and trip the MFW pumps (2) modify existing system (3) upgrade existing system for overfill protection to a 2-out-of-4 trip system.

FPC Response to Recommendation (3a)

FPC will pursue development of an appropriate mitigation system and assess its value against its impacts. This system is likely to focus on MFW isolation using valve closure in lieu of MFW pump trip and fully consider the interactions with, and possible changes to, other systems that affect MFW control. Further, the initiating signal will include options that can clearly distinguish between sustained overfill and intermittent "near approach" to maximum operating levels as well as simple high level initiation. The design may also include capability for operator override to mitigate loss of feedwater events initiated by overfill logic failure. FPC's current action plan is to perform an integrated assessment of the present system interactions and their impact on an OTSG overfill protection system. This effort will be completed by March 1992. Implementation of the selected system will be based on the evaluation of this assessment. Design and procurement functions are expected to be completed to allow installation in fuel cycle 9 (1992 - 1994).

NRC Recommendation (3b)

It is recommended that plant procedures and technical specifications for all B&W plants include provisions to periodically verify the operability of overfill protection and ensure the automatic main feedwater overfill protection is operable during reactor power operation. The instrumentation should be demonstrated to be operable by the performance of a channel check, channel functional testing, and channel calibration, including setpoint verification. Technical specifications should include appropriate LCOs. These technical specifications should be

commensurate with the requirements of existing technical specifications for channels that initiated protective actions.

FPC Response to Recommendation (3b)

Technical Specifications associated with an overfill protection system will be evaluated at a later date consistent with the guidelines proposed for the Technical Specification Improvement Program. FPC's development of an appropriate mitigation system will include appropriate test capabilities.

NRC Recommendation (3c)

It is recommended that plant designs with no automatic protection to prevent steam generator dryout upgrade their design and the appropriate technical specifications and provide an automatic protection system to prevent steam generator dryout on loss of power to the control system. Automatic initiation of auxiliary feedwater on steam generator low-water level is considered an acceptable design. Other corrective actions identified in Section 4.3(4) of NUREG-1218 could also be taken to avoid a steam generator dryout scenario on loss of power to the control system. The staff believes that only three B&W plants, i.e., Oconee 1, 2, and 3, do not have automatic auxiliary feedwater initiation on steam generator low water level.

FPC Response to Recommendation (3c)

The present FPC EFIC system is safety grade and automatically initiates emergency feedwater on low steam generator level in either steam generator.

STATE OF FLORIDA

COUNTY OF CITRUS

P. M. Beard, Jr. states that he is the Senior Vice President, Nuclear Operations for Florida Power Corporation; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information, and belief.

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

Subscribed and sworn to before me, a Notary Public in and for the State and County above named, this 19th day of March 1990.

Notary Public

Notary Public, State of Florida at Large,

My Commission Expires: NOTARY PUBLIC STATE OF FLORIDA MY COMMISSION EXP JULY 22,1993 BONDED THRU GENERAL INS. UND.