

**Florida
Power**
CORPORATION

September 21, 1984
3F0984-03

Director of Nuclear Reactor Regulation
Attention: Mr. John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72
NUREG-0737, Item II.E.1.1
Safety Evaluation of Emergency Feedwater System Upgrade

Dear Sir:

In response to our phone conversation on September 7, 1984 and our letter of commitment dated February 29, 1984, Florida Power Corporation feels it is necessary to define the actions underway and schedule for continuing analysis concerning the reliability of our steam admission valve (ASV-5) to the turbine driven emergency feedwater pump.

On October 10, 1983, FPC and NRC held a meeting to discuss our EFW system. Ten items were identified and addressed in FPC to NRC letter dated November 18, 1983. One of these items (item 10) was ASV-5. The concern was generated initially as a result of the NRC IREP study which was done in 1980. The IREP study identified several concerns involving ASV-5. The following events would prevent actuation of the EFW System.

- Loss of offsite power, failure of Battery B, and failure to obtain emergency back-up power on AC power Train A.
- Loss of offsite power, failure to obtain emergency power on either AC power train, and failure of the EFS turbine pump.

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Based on these concerns, FPC requested that Babcock and Wilcox (B&W) perform a reliability analysis. The B&W analysis assumed that DC power and battery-backed AC (inverter) power were available. At the time that the B&W reliability analysis was performed, the turbine driven emergency feedwater pump bearings required external cooling and resulted in B&W assigning a low reliability category. FPC subsequently modified the pump to eliminate the requirement for external cooling water. Therefore, B&W's low reliability concern was addressed and corrected. B&W also stated a concern for major pump mechanical failures and failure of the pump steam admission valve (ASV-5). Our proposed modification below addresses the steam admission valve concern.

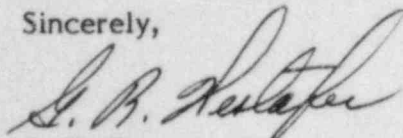
The NRC performed IREP study is very conservative and exceeds the design criteria for CR-3 as described in the FSAR Section 14.1.2.8.4. Based on this overconservatism in the IREP study and on the results of the B&W reliability study, FPC committed in our February 29, 1984 letter to install a parallel valve to ASV-5 (ASV-204) which will be powered from the same Battery B source as the existing steam admission valve (ASV-5).

Because of the apparent conflicting emphasis on the reliability analysis described above, FPC is contracting the development of a Level I Probabilistic Risk Assessment (PRA) with a special sub-task to evaluate the reliability of the Emergency Feedwater System. This evaluation will permit FPC to independently review the areas of concern and to identify areas of significant contributors to risk. An organized and coordinated approach to resolving these areas of significant contributors to risk will be defined and specific modifications to correct these deficiencies will be evaluated. The PRA evaluation of the EFW system is scheduled for completion in mid-1985.

A pneumatically operated bypass steam admission valve around ASV-5 was not considered because it did not satisfy the CR-3 design criteria in that the failure of one signal should not cause an actuation. Failure of either the electrical signal or one pneumatic signal to a normally energized DC solenoid valve would violate this criteria. In addition, FPC considers the proposed DC motor operated valve to be a more reliable application. The Emergency Feedwater System does not presently utilize pneumatically operated valves and this application is not deemed appropriate.

FPC believes that the present approach to resolving this concern is the most reasonable and cost effective one at this time until a revised PRA study which considers the modifications made to date can be performed. FPC believes that the additional cost of approximately \$750,000 to install a separate electrical power source from Battery A is not cost justified at this time.

Sincerely,



G. R. Westafer
Manager, Nuclear Operations
Licensing and Fuel Management

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