

**Florida
Power**
CORPORATION

Crystal River Unit 3
Docket No. 50-302

September 20, 1990
3F0990-04

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Subject: Post-accident Hydrogen Control

Reference: A. NRC to FPC letter dated December 3, 1976
B. FPC to NRC letter dated December 15, 1980
C. FPC to NRC letter dated October 31, 1980

Dear Sir:

This letter is being provided to inform the NRC staff of the continuing activities at Florida Power Corporation (FPC) to clearly define and resolve post-accident hydrogen control issues at Crystal River Unit 3 (CR-3). These issues were discussed in telephone conversations with the NRC staff on August 16 and 17, 1990. This letter briefly describes how these issues were identified, provides a description of the issues, and the plans for corrective action. Each issue and the associated corrective actions are discussed separately.

BACKGROUND

As part of the on-going Environmental Qualification (EQ) Enhancement Program, an internal question arose regarding the need to environmentally qualify equipment in the Post-accident Hydrogen Purge System at CR3. While researching this question, FPC discovered other potential issues relating to the adequacy of the design of this system. Some of these issues were discussed with the NRC staff in telephone conversations on August 16 and 17. Since that time, FPC has taken appropriate corrective actions to assure the system meets the applicable design and licensing requirements (the original licensing basis, NUREG-0578, NUREG-0737, 10 CFR 50.44, and 10 CFR 50.49).

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Original Licensing Basis

An evaluation was performed to verify conformance to the original licensing basis and 10 CFR 50.44. A concern about the ability of the design to meet the requirements of General Design Criteria (GDC) 41, 42, and 43 was identified. This concern was resolved through a review of original license correspondence. It was determined that the NRC staff specifically reviewed the original system design and determined it to be in conformance with GDC s 41, 42, and 43. This determination is documented in the Safety Evaluation Report of the Operating License (Reference A) for CR-3 and states:

"We have reviewed the combustible gas control systems for conformance to GDC Nos. 41, 42, and 43 and Regulatory Guide 1.7. We find them in conformance with these criteria and conclude that the systems are acceptable."

FPC has also reviewed the current system design to assure the modifications made to the system were adequate, and to assure that the original design requirements are still met. As a result of that review, it was determined that the purge exhaust flow control valve and flow indication was redundant in the original design. This redundancy has been inadvertently eliminated in subsequent plant modifications. FPC will evaluate modifying the system design to restore this redundancy. This evaluation will be completed and the NRC notified of results before December 31, 1990.

NUREG-0578 and NUREG-0737

The procedure for operation of the Post-accident Hydrogen Purge System implements a lower degree of redundancy of containment penetrations than implied by NUREG-0578 and NUREG-0737. The procedure at CR-3 for post-accident hydrogen purging includes the provisions to utilize a single containment penetration for repressurization supply and redundant penetrations for hydrogen purge exhaust. FPC now recognizes that NUREG-0578 and NUREG-0737 intended that there be redundancy for the penetrations for both repressurization supply and purge exhaust. Redundant penetrations are available for repressurization supply, but their use is not reflected in plant procedures, and a minor modification would be required to adapt the compressor connection for the redundant penetrations. As corrective action, FPC will provide one or more additional containment penetrations for use in repressurization to achieve the redundancy implied by NUREG-0578 and NUREG-0737 (i.e., so designate; provide means for compressor connection; and proceduralize). These actions will be completed before December 31, 1990.

Dedicated Hydrogen Purge Filter Commitment

FPC has not formally notified the NRC staff of a change to a related voluntary commitment. In a letter to the NRC discussing NUREG-0737 implementation (Reference B), FPC committed to a modification to supplement the existing purge filter and piping with a dedicated hydrogen purge unit. The added purge unit would have been designed to allow contaminated filter change-out and to facilitate condensation drainage back to the containment. Subsequent to that submittal, it was determined

the advantages of the dedicated hydrogen purge filter did not justify the high cost. Consequently, the modification was cancelled.

10 CFR 50.49

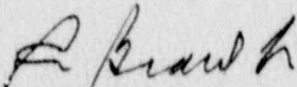
FPC had committed to include the Post Accident Hydrogen Purge System equipment in CR-3's EQ Program in a response (Reference C) to IE Bulletin 79-018. However, this has not yet been done. Most, but not all, of the equipment is qualifiable without modification. This equipment includes the containment isolation valves, the purge exhaust flow transmitter, and the purge exhaust fans. FPC is now pursuing qualification of that equipment which is expected to be completed by December 1, 1990. In addition, a modification has been installed to allow operation of the system without the solenoid valves on the purge exhaust dampers which are unqualifiable.

On August 20, 1990, FPC confirmed that those unqualifiable solenoid valves were required for system operation. The system was declared inoperable and the Action Statement for Technical Specification 3.6.4.2 was entered. This Action Statement requires that the system be restored to operable status within 30 days. Corrective actions included the modification to eliminate the reliance on the unqualifiable solenoids, modification to the purge procedure to reflect the modification, and reverification that all other equipment was qualifiable. Following completion of these corrective actions, the Technical Specification Action Statement was exited on September 13, 1990.

CONCLUSION

In conclusion, while deviations from NRC guidance have been identified in the Post-accident Hydrogen Purge System design, the system is fully capable of performing its intended function. FPC will keep the NRC informed of the status of corrective actions. In addition, the Final Safety Analysis Report will be updated to better describe the system and its function.

Sincerely,



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

PMB:AEF

xc: Regional Administrator, Region II
Senior Resident Inspector