



Florida Power

CORPORATION

Crystal River Unit 3
Docket No. 50-302

March 25, 1996
3F0396-14

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

Subject: Notice of Violation (NRC Inspection Report No.50-302/95-21)
NRC to FPC letter, 3N0296-07, dated February 26, 1996

Dear Sir:

In the subject Inspection Report, Florida Power Corporation (FPC) received a Notification of Violation concerning a lack of separation between safety related circuitry and non-safety related circuitry. Please accept this correspondence as our response.

Sincerely,

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

PMB/RLM

cc: Regional Administrator, Region II
NRR Project Manager
Senior Resident Inspector

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FLORIDA POWER CORPORATION
NRC INSPECTION REPORT NO. 50-302/95-21
REPLY TO A NOTICE OF VIOLATION

VIOLATION 50-302/95-21-03

10 CFR 50, Appendix B, Criterion III, Design Control, requires that measures be established to assure that applicable regulatory requirements and the design basis for those structures, systems, and components to which this appendix applies are correctly translated in specifications, drawings, procedures, and instructions. FSAR paragraph 8.1, Design Basis, states that the electrical systems design satisfies the IEEE 308 Proposed Criteria for Class IE Electrical Systems, dated June 1969. IEEE 308 dated June 1969, paragraph 5.2, Alternating Current Power Systems, states; Sufficient physical separation, electrical isolation, and redundancy shall be provided to prevent the occurrence of common failure mode in the Class IE electrical systems.

Contrary to the above, the safety related circuitry for the containment purge and mini-purge valves was found to not be isolated from the non-safety related circuitry for the radiation monitor, RM-A1.

ADMISSION OR DENIAL OF THE ALLEGED VIOLATION

Florida Power Corporation (FPC) accepts the violation.

REASON FOR THE VIOLATION

This condition is considered to be a result of cognitive personnel error. For both the containment purge valves (AHV-1A through 1D) and mini-purge valves (LRV-70 through 73), the design engineer failed to recognize the design criteria for electrical isolation as described in IEEE 308 "Proposed Criteria for Class IE Electrical Systems for Nuclear Power Generating Stations" dated June, 1969. In the case of the containment purge valves, the condition was created by the Architect Engineer during original plant design. In the case of the mini-purge valves, the condition was created by the FPC Nuclear Engineering Department during a plant modification in 1988. This modification used the same design as the original purge valve design.

CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED

Permanent modifications have been installed that added isolation relays between the RM-1A non-safety signal and valves AHV-1B, AHV-1C, LRV-70, LRV-71, LRV-72 and LRV-73. These modifications completed the corrective actions relating to RM-A1 and the mini-purge valves (LRVs). These modifications also completed the corrective actions relating to RM-A1 and the purge valves AHV-1B and AHV-1C. These two valves satisfy MODE 6 operability requirements for Technical Specification compliance. Although not required for Mode 6 operability, modifications for purge valves AHV-1A and AHV-1D are being evaluated.

Evaluations of the control circuits for AHV-1A through 1D confirmed that the closure function of these valves was maintained in MODES 1 through 4 by the locked closed position of the valves. In MODE 5, there are no operability requirements in the Improved Technical Specifications pertaining to containment integrity. These evaluations also confirmed that faults in the circuitry

associated with these components would not have affected the safeguards position of other safety related components. AHV-1B and AHV-1C are motor operated valves and do not share circuits with other components. AHV-1A and AHV-1D are solenoid operated valves which share their DC power distribution circuit with MUV-253, CAV-2 and CAV-6. Faults in the DC power distribution circuit that AHV-1A and AHV-1D share would at worst case place MUV-253, CAV-2 and CAV-6 in their safeguards position.

Evaluations of the control circuits for LRV-70 through LRV-73 indicated that a short-circuit in the RM-A1 control cabinet could keep the valves energized, thereby rendering inoperable the Engineered Safeguards actuation signal. The power to these valves was subsequently removed so that the valves would be in their safeguards position until the modifications were made to provide the isolation relays between RM-A1 and the valve circuitry.

As another result of the above evaluations, other components were identified that presented a similar problem to RM-A1. In the case of AHV-1B and 1C, these safety related circuits were found to receive signals from the non-safety related 480V Vent Motor Control Centers (MCC) 3A and 3B. A temporary modification was installed for this condition that returned operability to these two valves, and in conjunction with a Short Term Instruction to the operations staff, allowed Reactor Building purging to commence. In the case of AHV-1A and 1D, some safety related circuits were found to be routed to non-safety related Terminal Boxes AH-23 and AH-24, and were connected to non-safety related components without isolation devices installed. Modifications to AHV-1A and AHV-1D are much more complex and alternatives are being evaluated to correct this condition.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

A permanent modification will add isolation relays between the non-safety (MCC 3A and 3B) and safety-related circuits for valves AHV-1B and 1C. This modification will be installed prior to the completion of Refuel 10, currently scheduled for April 1996 and will finalize all actions required for these two valves.

The Design Engineering Review Board will be briefed on these design errors and a summary of this briefing will be distributed to engineering design personnel by March 28, 1996. In addition, other non-safety-related cabinets, panels, and motor control centers will be examined using a sampling approach to determine if similar safety/non-safety problems exist. This sampling will be completed by June 30, 1996.

Updated design criteria have been developed which, in conjunction with improved industry standards, provide specific guidance in this area. Engineering procedures and tracking and documentation systems presently in place will preclude such an incident from recurring during installation or modification of control circuitry in the future. In addition, the Electrical Separation Design Criteria was developed in 1991 as a single, complete, and reliable source for electrical separation and isolation criteria.

FPC will evaluate, by December 20, 1996 alternatives to the present non-isolated design of the control circuits for AHV-1A and 1D. Alternatives to be considered will be either to revise the safety classification of the circuitry or to correct the more complex non-safety interface. Based on the alternatives selected, additional actions may be generated to resolve this problem. FPC considers the

date of December 20, 1996 to be reasonable in that the modifications installed on AHV-1B and AHV-1C satisfy MODE 6 operability requirements. This date also reconciles this effort with other priorities and tasks within the electrical engineering group.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance has been achieved for LRV-70, LRV-71, LRV-72 and LRV-73 with the installation of the permanent modification to these valves noted above.

Full compliance has been achieved for AHV-1B and 1C with the installation of the modification to these two valves noted above. An improved design is planned for installation in April, 1996.

Full compliance will be achieved for AHV-1A and 1D with the installation of a permanent modification to these two valves. The schedule for this modification will be determined by the evaluation noted above. This response will be supplemented by December 20, 1996 to describe any additional corrective actions to be taken and the schedule for completion of those actions.