Florida Power
CORPORATION

May 31, 1984
3F0584-18

Director of Nuclear Reactor Regulation
Attention: Mr. George W. Rivenbark, Acting Chief
Operating Reactors Branch #4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72
Environmental Qualification of Electrical Equipment

Dear Sir:

On May 2, 1984, your staff transmitted questions to Florida Power Corporation (FPC) regarding the environmental qualification of electrical equipment installed at Crystal River 3. The attachment to this letter documents FPC's responses to those questions.

Sincerely,

Patsy Y. Baynard

P. Y. Baynard
Assistant to Vice President
Nuclear Operations

AEF/feb

Attachment

cc: Mr. J. P. O'Reilly
Regional Administrator, Region II
Office of Inspection & Enforcement
U.S. Nuclear Regulatory Commission
101 Marietta Street N.W., Suite 2900
Atlanta, GA 30303

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ATTACHMENT

The staff has completed its review of the environmental qualification of electrical equipment important to safety for Crystal River 3. The review produced the need to docket the remaining outstanding justifications for continued operation (JCO's) and the additional listed information. In order to complete the Safety Evaluation Report on environmental qualification for Crystal River 3, the following information is required by May 31, 1984:

QUESTION 1.

Submit all applicable JCO's that are currently being relied upon and certify the following for each JCO associated with equipment that is assumed to fail:

> No significant degradation of any safety function or misleading information to the operator as a result of failure of equipment under the accident environment resulting from a design basis event will occur.

ANSWER 1.

JCO's are addressed on Page 3 and in Enclosure 1 of minutes of December 15, 1983 meeting. The JCO's submitted before the Franklin Research Technical Evaluation Report (TER) and those resubmitted in the FPC May 20, 1983 submittal are still valid. The need for JCO's has been eliminated in the case of DHV-34 and DHV-35 (TER 02) and DHV-5 and DHV-6 (TER 09) since those valve operators have been replaced with qualified units.

Continued operation of Crystal River 3 with the equipment discussed in the above referenced JCO's will not result in a significant deterioration of any safety function or in providing significant misleading information to the operator under the accident environments resulting from the design basis events which have been postulated for Crystal River 3.

QUESTION 2.

The licensee should certify that in performing its review of the methodology to identify equipment within the scope of 10 CFR 50.49(b)(2) that the following steps have been addressed:

> **Question 2.1.**
>
> A list was generated of safety-related electric equipment as defined in paragraph (b)(1) of 10 CFR 50.49 required to remain functional during or following design-basis Loss of Coolant Accident (LOCA) or High Energy Line Break (HELB) Accidents. The LOCA/HELB accidents are the only design-basis accidents which result in significantly adverse environments to electrical equipment which is required for safe shutdown or accident mitigation. The list was based on reviews of the Final Safety Analysis Report (FSAR), Technical Specifications, Emergency Operating Procedures, Piping and Instrumentation Diagrams (P&IDs), and electrical distribution diagrams.

Answer 2.1.

A LOCA or HELB inside containment and an HELB outside containment are the only design basis accidents which result in significantly adverse environments to electrical equipment which is required for safe shutdown or accident mitigation. A master list has been generated to identify the systems and equipment that are required for safe shutdown operation and accident mitigation. Documents that provide information identifying the components required to operate these systems and equipment, and documents pertaining to the use of various systems and equipment for the required accident scenarios have been utilized in generating this master list. These documents include the FSAR, Technical Specifications, Emergency Operating Procedures, Instrument and Flow Diagrams, and Electrical Elementary and Wiring Diagrams.

Question 2.2.

The elementary wiring diagrams of the safety-related electrical equipment identified in Step 1 were reviewed to identify any auxiliary devices electrically connected directly into the control or power circuitry of the safety-related equipment (e.g., automatic trips) whose failure due to postulated environmental conditions could prevent required operation of the safety-related equipment.

Answer 2.2.

Elementary diagrams were reviewed to identify any auxiliary devices that interface with the control of the required safe shutdown equipment listed in the master list. Each auxiliary device was then investigated to determine if environmentally induced failure of the device could jeopardize the safe shutdown operating mode of the respective safe shutdown equipment. Auxiliary devices whose failure could be detrimental to safe shutdown operation were then included on the master list of required safe shutdown equipment.

Question 2.3.

The operation of the safety-related systems and equipment were reviewed to identify any directly mechanically connected auxiliary systems with electrical components which are necessary for the required operation of the safety-related equipment (e.g., cooling water or lubricating systems). This involved the review of P&IDs, component technical manuals, and/or systems descriptions in the FSAR.

Answer 2.3.

The safety related systems and equipment required for safe shutdown were reviewed to identify any mechanical interfaces with auxiliary supporting systems which would also need to function to assure the operation of the respective safe shutdown equipment. The auxiliary systems which have been identified as required to support safe shutdown systems, and which contain electrical components, include the Nuclear Services Closed Cycle Cooling System, Emergency Nuclear Services Seawater System, and portions of the Air Handling System. The electrical components of these auxiliary systems have been included in the master list of safe shutdown equipment.

Question 2.4

Nonsafety-related electrical circuits indirectly associated with the electrical equipment identified in Step 1 by common power supply or physical proximity were considered by a review of the electrical design including the use of applicable industry standards (e.g., IEEE, NEMA, ANSI, UL, and NEC) and the use of properly coordinated protective relays, circuit breakers, and fuses for electrical fault protection.

Answer 2.4.

Non-safety related electrical circuits indirectly associated with the safe shutdown components as listed in the master list were considered in the investigation of the required safe shutdown equipment. In most cases, the safe shutdown components are fed from a separate power source via coordinated breakers or fuses. For the cases where several components are fed in parallel from a common source without individual breakers or fuses, the components making up the parallel loads are either (1) qualified or will be qualified for the required adverse environments, or (2) the required safe shutdown components will fail in the safe shutdown mode on loss of power due to environmentally induced faults.

QUESTION 3.

Provide certification that all design basis events which could potentially result in a harsh environment, including flooding outside containment, were addressed in identifying safety-related electrical equipment within the scope of 10 CFR 50.49(b)(1).

ANSWER 3.

The design basis events were addressed by FPC. See Page 4 of the December 15, 1983 meeting minutes.