August 4, 2005

Mr. Dale E. Young, Vice President
Crystal River Nuclear Plant (NA1B)
ATTN: Supervisor, Licensing & Regulatory Programs
15760 W. Power Line Street
Crystal River, Florida 34428-6708

SUBJECT: CRYSTAL RIVER UNIT 3 - ISSUANCE OF AMENDMENT REGARDING REACTOR BUILDING SPRAY NOZZLES SURVEILLANCE (TAC NO. MC4878)

Dear Mr. Young:

The Commission has issued the enclosed Amendment No. 219 to Facility Operating License No. DPR-72 for Crystal River Unit 3. The amendment consists of changes to the existing Technical Specifications (TS) in response to your letter dated October 14, 2004.

The amendment revises the TS to change the required frequency of the reactor building spray nozzle surveillance requirement (SR) 3.6.6.8 from once every 10 years to "following maintenance that could result in nozzle blockage."

A copy of the Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Brenda L. Mozafari, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosures:
1. Amendment No. 219 to DPR-72
2. Safety Evaluation

cc w/enclosures: See next page

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CITY OF NEW SMYRNA BEACH
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ORLANDO UTILITIES COMMISSION AND CITY OF ORLANDO
SEMINOLE ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-302

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 219
License No. DPR-72

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Florida Power Corporation, et al. (the licensees), dated October 14, 2004, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-72 is hereby amended to read as follows:

   Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 219, are hereby incorporated in the license. Florida Power Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Michael L. Marshall, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical Specifications

Date of Issuance: August 4, 2005

ATTACHMENT TO LICENSE AMENDMENT NO. 219

FACILITY OPERATING LICENSE NO. DPR-72

DOCKET NO. 50-302

Replace the following page of the Appendix "A" Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains a vertical line indicating the area of change.

Remove	Insert
3.6-20	3.6-20

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 219 TO FACILITY OPERATING LICENSE NO. DPR-72

FLORIDA POWER CORPORATION, ET AL.

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

DOCKET NO. 50-302

1.0 INTRODUCTION

By application dated October 14, 2004, Florida Power Corporation (the licensee, also doing business as Progress Energy Florida, Inc.) proposed changes to the Crystal River Unit 3 (CR-3) Technical Specifications (TS) (ADAMS Accession No. ML042960356). The requested change revises the required frequency of reactor building spray nozzle surveillance from once every 10 years to "following maintenance that could result in nozzle blockage."

2.0 REGULATORY EVALUATION

Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR Part 50) Appendix A contains General Design Criteria (GDC) for nuclear power reactors. In particular, GDC-40 requires that the containment heat removal system be designed to permit periodic testing. The reactor building (RB) spray system is a containment heat removal system.

The RB spray system is designed to reduce containment pressure following an accident in order to meet the requirements of 10 CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors, 10 CFR 50.49, Environmental qualification of electric equipment important to safety for nuclear power plants, and 10 CFR 50.67, Accident source term. The CR-3 Improved TS (ITS) require that each RB spray nozzle be verified unobstructed every 10 years. The ITS Bases further clarify that the test is performed using a low-pressure air or smoke flow test to verify that the spray nozzles are not obstructed and that flow will be provided when required. However, nozzle blockage is considered unlikely except as a consequence of maintenance or repair since the system was demonstrated to be OPERABLE prior to initial startup, successful air or smoke tests have been performed, and the design of the system minimizes the likelihood of corrosion or degradation.

NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," (December 1992) reported on an NRC staff review of industry experience, which indicated that RB spray systems of similar design are highly reliable and not subject to plugging after testing following construction. The NRC reviewed industry experience and found that, in general, once tested after construction RB spray systems have not been subject to blockage.

The NRC has approved, on a plant-specific basis, several revisions to this requirement. The revisions require verification that each spray nozzle is unobstructed only following maintenance that could potentially result in nozzle blockage. This is based on the judgment that once the containment spray system nozzles are determined to be unobstructed, the only mechanism that

can cause nozzle blockage is foreign material introduced following maintenance if the licensee's foreign material exclusion (FME) program is not effective. This is substantiated by operational experience as discussed below.

3.0 EVALUATION

The RB spray system reduces RB atmospheric pressure after a Loss-of-Coolant Accident (LOCA) by removing heat from the RB atmosphere and structures. The RB spray system consists of two redundant subsystems. Each subsystem contains one RB spray header, a pump, associated piping and valving, and instrumentation. There are a total of 192 spray nozzles. The RB spray system is maintained closed during normal operation to provide containment isolation. A detailed description of the RB spray system is located in the CR-3 Final Safety Analysis Report Section 6.2.

Performance History at CR3

The licensee's October 14, 2004, letter describes the past testing done to ensure that the containment spray nozzles are unobstructed.

The licensee described the operating experience since the last tests as follows:

> [The] CR-3 Foreign Material Exclusion (FME) program, developed using INPO 97-008 (MA-320), "Foreign Material Exclusion Program," is in place to prevent the introduction of foreign material into the RB spray system. When maintenance or repairs are performed on the RB Spray System, or other connected systems that could result in obstruction of the spray nozzles, the CR-3 FME program ensures that system cleanliness is maintained.
>
> Personnel awareness and training, combined with individual accountability, are the key factors to CR-3's foreign material control. The importance of internal component cleanliness and control of foreign object debris is paramount to equipment reliability. Station goals and expectations are consistently advertised to heighten the focus on FME control. Operators, Mechanics, Laborers, and contractors are all aware of their contribution to CR-3's FME program and ultimately the safety of the plant.
>
> Awareness of [the] FME program is assured through training. Understanding the fundamentals of the station's FME Program (MNT-NGGC-0007) enables individual accountability. All new employees and contractors are required to complete an extensive computer based FME training course before they are permitted to work in the field. FME awareness is also included in the annual unescorted access requalification training for all workers.
>
> Continual and effective communication of the station goals and expectations are shared through various mediums. Specific FME concerns are discussed during pre-job briefs. Implementation is verified by way of peer checks, and enhancements are identified during post-job critiques. Personnel awareness is maintained and the FME Program is continually checked and balanced.

> Procedure MNT-NGGC-0007 includes criteria for establishing FME areas, steps to take if FME control is lost and guidance for FME retrieval. FME areas are clearly marked and material accountability is assured through logs and securing of loose items and tools. FME barriers and covers are used except when performing necessary operations. If any material is unaccounted for in an FME area, a condition report is initiated in the corrective action program.

Prior to initial startup operation, CR-3 had demonstrated that the RB spray system was clean and OPERABLE by flushing the system. CR-3 performed the RB nozzle surveillance requirement (SR) in June 1979, July 1985, June 1990, and March 1993. One nozzle was found to be obstructed in the SR test conducted in July 1985. A wire tool was used to probe and clear the one obstructed nozzle. All other nozzle SRs were completed satisfactorily with no observation of nozzle obstruction. CR-3 had an inadvertent actuation of RB spray system on October 15, 1992. The RB spray nozzle SR was performed in March 1993 to verify no material was carried into the spray nozzles. No nozzles were found obstructed in March 1993.

A number of maintenance and modification activities were performed on the RB spray system since the last smoke or air test. FME control was maintained during these activities. Should maintenance activities or unanticipated circumstances result in concerns that the RB spray headers may become obstructed, performance of the spray nozzle flow test or a visual inspection would be required by the revised SR to verify system operability.

Nozzle blockage is considered unlikely during normal operations because the nozzles of the spray systems are made of corrosion-resistant materials (stainless steel). Piping downstream of the RB spray containment isolation valves (BSV-3 and BSV-4) and the nozzles are kept dry. Therefore, degradation of the spray nozzles is not expected. The nozzles are located at the top of the containment, over 96 feet above any floor level; therefore, introduction of foreign material from the exterior to the system is unlikely.

The NRC staff finds that the CR3 operating experience supports the requested amendment.

Industry Experience and Failure Mechanisms

Review of industry experience using the NRC's Sequence Coding and Search System for Licensee Event Reports indicates that spray systems of similar design are not susceptible to plugging. The NRC staff reviewed industry experience and found that, with a few exceptions, once tested after construction, containment spray nozzles have not been subject to blockage. There have been several exceptions. In the case of one pressurized-water reactor (PWR), a chemical added to the inner surface of a spray system pipe to eliminate corrosion detached, and the loose material blocked some spray nozzles. Spray piping in PWRs, and CR3 in particular, is corrosion resistant; therefore, this failure mechanism is not applicable to CR3. The licensee for another PWR found debris, identified as construction debris, in the spray nozzle headers. The fraction of blockage was not significant and the sprays remained functional. The debris was found by visual observation, not by an air flow test.

4.0 SUMMARY

The spray system is constructed from corrosion-resistant materials; therefore, it is not likely that corrosion products will clog the system. Industry operating experience indicates that systems similar to that at CR3 are not susceptible to plugging under normal operating conditions. The NRC staff, therefore, finds that the licensee's proposal to inspect the RB spray nozzles only after maintenance that could result in foreign material being introduced into the system is acceptable.

5.0 STATE CONSULTATION

Based upon a letter dated May 2, 2003, from Michael N. Stephens of the Florida Department of Health, Bureau of Radiation Control, to Brenda L. Mozafari, Senior Project Manager, U.S. Nuclear Regulatory Commission, the State of Florida does not desire notification of issuance of license amendments.

6.0 ENVIRONMENTAL CONSIDERATIONS

The amendment changes a surveillance requirement. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (70 FR 2891). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: August 4, 2005

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