October 2, 1989

Docket No. 50-302

DISTRIBUTION
See attached sheet

Mr. W. S. Wilgus
Vice President, Nuclear Operations
Florida Power Corporation
ATTN: Manager, Nuclear Licensing
P. O. Box 219
Crystal River, Florida 32629

Dear Mr. Wilgus:

SUBJECT: CRYSTAL RIVER UNIT 3 - ISSUANCE OF AMENDMENT RE: HYDROGEN PURGE VALVES (TAC NO. 73618)

The Commission has issued the enclosed Amendment No. 121 to Facility Operating License No. DPR-72 for the Crystal River Unit No. 3 Nuclear Generating Plant (CR-3). This amendment consists of changes to the Technical Specifications (TS) in response to your application dated June 12, 1989.

This amendment adds a new specification which addresses the use of hydrogen purge valves for depressurization.

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

Sincerely,

Original signed by

Harley Silver, Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 121 to DPR-72
2. Safety Evaluation

cc w/enclosures:
See next page

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LA:PDII-2	PE:PDII-2	PM:PDII-2	OTSB	SPLB	D:PDII-2	OGC
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cc

Mr. W. S. Wilgus
Florida Power Corporation

Crystal River Unit No. 3 Nuclear
Generating Plant

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DATED: October 2, 1989

AMENDMENT NO. TO FACILITY OPERATING LICENSE NO. DPR-72-CRYSTAL RIVER UNIT 3

[redacted]
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ACRS (10)
GPA/PA
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M. Sinkule, R-II

cc: Plant Service list

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

FLORIDA POWER CORPORATION
CITY OF ALACHUA
CITY OF BUSHNELL
CITY OF GAINESVILLE
CITY OF KISSIMMEE
CITY OF LEESBURG
CITY OF NEW SMYRNA BEACH AND UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH
CITY OF OCALA
ORLANDO UTILITIES COMMISSION AND CITY OF ORLANDO
SEBRING UTILITIES COMMISSION
SEMINOLE ELECTRIC COOPERATIVE, INC.
CITY OF TALLAHASSEE

DOCKET NO. 50-302

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 121
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 June 12, 1989, 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. 121, 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

Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 2, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 121

FACILITY OPERATING LICENSE NO. DPR-72

DOCKET NO. 50-302

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Remove	Insert
---	3/4 6-25
B3/4 6-4	B3/4 6-4

HYDROGEN PURGE SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.4.3 Hydrogen purge valve pairs LRV-70/71, and 72/73 shall be OPERABLE and may be opened for up to 1000 hours during a calendar year provided no more than one pair is open at one time.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With more than one pair of hydrogen purge valves open, or one or more pairs of hydrogen purge valves open for more than 1000 hours during a calendar year, close the open valve(s) or isolate the penetration(s) within 4 hours, otherwise be in at least HOT STANDBY within the next 6 hours, and in COLD SHUTDOWN within the following 30 hours.

b. With one or more hydrogen purge valves inoperable, comply with the ACTION of LCO 3.6.3.1.

SURVEILLANCE REQUIREMENTS

4.6.4.3.1 The cumulative time that each pair of 6" hydrogen purge valves LRV-70/71 and 72/73 have been open during a calendar year shall be determined at least once per 7 days.

4.6.4.3.2 LRV-70, 71, 72 and 73 shall be tested in accordance with 10CFR50, Appendix J or approved exemptions.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM

The OPERABILITY of the containment spray system ensures that containment depressurization and cooling capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the safety analyses. The leak rate surveillance requirements assure that the leakage rates assumed for the system during the recirculation phase will not be exceeded.

3/4.6.2.2 SPRAY ADDITIVE SYSTEM

The OPERABILITY of the spray additive system ensures that sufficient NaOH is added to the containment spray in the event of a LOCA. The limits on contained sodium hydroxide solution volume and concentration ensure a pH value of between 7.2 and 11.0 of the solution sprayed within containment after a design basis accident. The pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion cracking on mechanical systems and components. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

3/4.6.2.3 CONTAINMENT COOLING SYSTEM

The OPERABILITY of the containment cooling system ensures that 1) the containment air temperature will be maintained within limits during normal operation, and 2) adequate heat removal capacity is available when operated in conjunction with the containment spray systems during post-LOCA conditions.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment. Containment isolation within the required time limits ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA. Containment Isolation Valves and their required isolation times are addressed in the FSAR. The opening of a closed inoperable containment isolation valve on an intermittent basis during plant operation is permitted under administrative control. Operating procedures identify those valves which may be opened under administrative control as well as the safety precautions which must be taken when opening valves under such controls.

3/4.6.4 COMBUSTIBLE GAS CONTROLS

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. The purge system is capable of controlling the expected hydrogen generation associated with 1) zirconium-water reactions, 2) radiolytic decomposition of water and 3) corrosion of metals within containment. These hydrogen control systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," March 1971.

In addition to the two inplace hydrogen monitors, there are two portable hydrogen analyzing units. In the event that one hydrogen monitor is inoperable, one of the portable units may be used to monitor the hydrogen concentration in the Reactor Building.

The use of the hydrogen purge lines during operations is restricted to the 6-inch valve pairs LRV-70/71 and 72/73 since, these valves are capable of closing during a LOCA or steam line break accident. Therefore, the SITE BOUNDARY dose guideline values of 10 CFR Part 100 would not be exceeded in the event of an accident during containment purging operation. Operation will be limited to 1000 hours during a calendar year. Only one valve pair may be opened at a time. The total time the hydrogen purge valves may be open during MODES 1, 2, 3, and 4 in a calendar year is a function of anticipated need and operating experience. Only safety-related reasons; e.g., containment pressure control or the reduction of airborne radioactivity to facilitate personnel access for surveillance and maintenance activities, should be used to support additional time requests. Only safety-related reasons should be used to justify the opening of these hydrogen purge valves during MODES 1, 2, 3, and 4 in any calendar year regardless of the allowable hours.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 121 TO FACILITY OPERATING LICENSE NO. DPR-72

FLORIDA POWER CORPORATION, ET AL.

CRYSTAL RIVER UNIT NO. 3 NUCLEAR GENERATING PLANT

DOCKET NO. 50-302

INTRODUCTION

By letter dated June 12, 1989, Florida Power Corporation (FPC or the licensee) requested an amendment to the Technical Specifications (TS) appended to Facility Operating License No. DPR-72 for the Crystal River Unit No. 3 Nuclear Generating Plant (CR-3). The proposed amendment would add a new specification to address the use of hydrogen purge valves for containment depressurization during power operation.

EVALUATION

The normal function of the hydrogen purge valves (LRV-70, 71, 72, and 73) is to provide containment isolation for the hydrogen purge system. The configuration of these valves prevents a single failure from preventing hydrogen purging during a postulated loss of coolant accident. Furthermore, each valve is powered from a separate battery-backed vital bus; therefore, in the event of a loss of AC power, DC power would be available to operate the valve. Because these valves were not automatically actuated by the Engineered Safeguards Features Actuation System, they could not be opened during power operation without prior NRC approval. A modification was performed to actuate LRV-70, 71, 72, and 73 on an Engineered Safeguards Features Actuation System signal. These valves are also actuated by a high radiation signal to ensure that CR-3 does not challenge the radioactive effluents discharge limits of 10 CFR Part 100.

The containment purge valves (AHV-1A, 1B, 1C, and 1D) would normally be used for depressurization of containment during power operations; however, detailed analysis of the purge valves has failed to conclusively demonstrate their ability to close during a large-break loss of coolant accident in time to prevent offsite doses from exceeding 10 CFR Part 100 limits. Therefore, these valves are required to be locked shut during modes 1, 2, 3, and 4.

The hydrogen purge valves will close within 2 seconds against a differential pressure of 80 psid at an operating temperature of 670 degrees F. These conditions meet or exceed the requirements for the containment purge valves as stipulated in paragraph 5.3.3 of the CR-3 Final Safety Analysis Report.

SUMMARY

The new specification will ensure limited use of the hydrogen purge valves, and is consistent with current Standard Technical Specification 3.6.1.8.6 (NUREG-0452). It represents an additional restriction on plant operations which is necessary to ensure time periods with direct access from the containment atmosphere to the outside atmosphere are minimized. Therefore, based on our review, the changes proposed in this request are adequate and acceptable.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and adds surveillance requirements. We have 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

CONCLUSION

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: October 2, 1989

Principal Contributor:
G. Wunder