



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

March 22, 2001

Mr. Dale E. Young, Vice President
Crystal River Nuclear Plant (NA1B)
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SUBJECT: CRYSTAL RIVER UNIT 3 - ISSUANCE OF AMENDMENT REGARDING REMOTE
SHUTDOWN SYSTEM INSTRUMENTATION (TAC NO. MA9901)

Dear Mr. Young:

The Commission has issued the enclosed Amendment No. 196 to Facility Operating License No. DPR-72 for the Crystal River Unit 3. The amendment consists of changes to the existing Technical Specifications (TS) in response to Florida Power Corporation's letter dated August 31, 2000. TS Table 3.3.18-1, "Remote Shutdown System Instrumentation," was changed. The list of instruments that would be used by operators to place the plant in a safe shutdown condition from outside the control room was modified consistent with recent plant modifications and changes to the approach to achieve and maintain a safe shutdown condition.

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

Sincerely,

John M. Goshen, 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. 196 to DPR-72
2. Safety Evaluation

cc w/encls: See next page

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Mr. Dale E. Young
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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
SEMINOLE ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-302

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 196
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 August 31, 2000, 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.

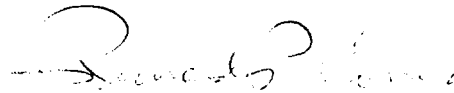
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-72 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 196 , 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 prior to restart following the Fall 2001 refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION



Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Project Licensing Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the
Technical Specifications

Date of Issuance: March 22, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 196

FACILITY OPERATING LICENSE NO. DPR-72

DOCKET NO. 50-302

Replace the following pages of the Appendix A Technical Specifications and associated Bases pages with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

3.3-44

B 3.3-146

B 3.3-150

Insert

3.3-44

B 3.3-146

B 3.3-150

Table 3.3.18-1 (page 1 of 1)
Remote Shutdown System Instrumentation

FUNCTION/INSTRUMENT	REQUIRED NUMBER OF CHANNELS
1. Reactivity Control	
a. Reactor Trip Breaker (RTB) Position	1 per trip breaker
b. Source Range Neutron Flux	1
2. Reactor Coolant System (RCS) Pressure Control	
a. RCS Wide Range Pressure	1
3. RCS Temperature Control via Steam Generators (OTSGs)	
a. Reactor Coolant Hot Leg Temperature	1 per loop
b. Reactor Coolant Cold Leg Temperature	1 per loop
c. OTSG Pressure	1 per OTSG
d. OTSG Level	1 Low Range and 1 High Range per OTSG
e. Emergency Feedwater Flow	1 per OTSG
f. Emergency Feedwater Tank Level	1
4. RCS Inventory Control	
a. Pressurizer Level	1
b. High Pressure Injection Flow	1 per injection line

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

The Remote Shutdown System was determined by the NRC to be a risk significant item required to be retained in the Technical Specifications.

LCO

The Remote Shutdown System LCO provides the requirements for the OPERABILITY of the indication instrumentation necessary to place and maintain the plant in MODE 3 from a location other than the control room. The instrumentation required are listed in Table-3.3.18-1 in the accompanying LCO.

The instrumentation are those required for:

- Core Reactivity Control;
- RCS Pressure Control;
- RCS Temperature Control (Decay Heat Removal); and
- RCS Inventory Control.

Function of a Remote Shutdown System is OPERABLE if all instrument channels needed to support the Function are OPERABLE. Functionality of the control functions supported by the instrumentation included in this Specification is addressed outside Technical Specifications.

The Remote Shutdown System instruments covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure the Remote Shutdown System instruments will be OPERABLE if plant conditions require that the Remote Shutdown System be placed in operation.

Bases Table B 3.3.18-1 identifies the specific instrument tag numbers for the Remote Shutdown System Instrumentation listed in Table 3.3.18-1.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1, 2, and 3 so that the plant can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODE 4, 5, or 6. In these MODES, the plant is initially subcritical and in a condition of reduced RCS energy. Under these conditions, considerable

(continued)

Table B 3.3.18-1
Remote Shutdown System Instrumentation

FUNCTION	INSTRUMENT NUMBER
1. Reactivity Control	
a. Reactor Trip Breaker Position	CB-1 CB-2 CB-3 CB-4 A B
b. Source Range Neutron Flux	NI-014-NI2
2. Reactor Coolant System Pressure Control	
a. RCS Wide Range Pressure	RC-158-PI1 OR RC-159-PI1
3. RCS Temperature Control	
a. RCS Hot Leg Temperature	"A" Loop: RC-4A-TI3-2 "B" Loop: RC-4B-TI4-2
b. RCS Cold Leg Temperature	"A" Loop: RC-5A-TI2-2 "B" Loop: RC-5B-TI4-2
c. OTSG Pressure	"A" OTSG: MS-106-PI2 OR MS-107-PI2 "B" OTSG: MS-110-PI2 OR MS-111-PI2
d. OTSG Level	"A" OTSG Low Range Level: SP-25-LI2 OR SP-26-LI2 "B" OTSG Low Range Level: SP-29-LI2 OR SP-30-LI2 "A" OTSG High Range Level: SP-17-LI2 OR SP-18-LI2 "B" OTSG High Range Level: SP-21-LI2 OR SP-22-LI2
e. Emergency Feedwater Flow	"A" OTSG: EF-25-FI2 OR EF-26-FI2 "B" OTSG: EF-23-FI2 OR EF-24-FI2
f. Emergency Feedwater Tank Level	EF-98-LI2 OR EF-99-LI2
4. RCS Inventory Control	
a. Pressurizer Level	RC-1-LI1-2 OR RC-1-LI3-2
b. High Pressure Injection Flow	A1 Injection Line: MU-23-FI8-2 A2 Injection Line: MU-23-FI6-2 B1 Injection Line: MU-23-FI5-2 B2 Injection Line: MU-23-FI7-2



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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 196 TO FACILITY OPERATING LICENSE NO. DPR-72
FLORIDA POWER CORPORATION, ET. AL.
CRYSTAL RIVER UNIT NO. 3 NUCLEAR GENERATING PLANT
DOCKET NO. 50-302

1.0 INTRODUCTION

By letter dated August 31, 2000, Florida Power Corporation (FPC, the licensee) submitted a request for changes to the Crystal River Nuclear Generating Plant, Unit 3 (CR3), Technical Specifications (TS) and associated Bases pages. The requested changes consist of revisions to TS Table 3.3.18-1, "Remote Shutdown System Instrumentation." The list of instruments that would be used by operators to place the plant in a safe shutdown condition from outside the control room would be modified consistent with recent plant modifications and changes to the approach to achieve and maintain a safe shutdown condition.

2.0 BACKGROUND

The remote shutdown system provides control room operators with sufficient instrumentation to place and maintain the plant in a safe shutdown condition. This is necessary to account for the possibility that the control room could become inaccessible. At CR3, a safe shutdown condition is defined as Mode 3 (hot standby where the reactor is sub-critical and the temperature is greater than or equal to 280 °F). With the plant in Mode 3, the emergency feedwater (EFW) system and the main steam safety valves or the atmospheric dump valves can be used to remove core decay heat and meet all safety requirements.

If the control room becomes inaccessible, the operators can control the plant at the remote shutdown panel, placing and maintaining it in Mode 3. Not all controls and necessary transfer switches are located at the panel. Some will have to be operated locally at the switchgear, motor control panels or other stations.

The design basis for the CR3 remote shutdown system includes Title 10, *Code of Federal Regulations* (10 CFR), Part 50, Appendix A; General Design Criterion (GDC) 19, "Control Room," and 10 CFR Part 50, Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," Section III.L, "Alternative and Dedicated Shutdown Capability."

ENCLOSURE

3.0 EVALUATION

Appendix A of 10 CFR Part 50; GDC 19, and 10 CFR Part 50, Appendix R, Section L, require that instrumentation and equipment to achieve and maintain Mode 3 conditions be provided remotely from the control room. The instrumentation are those required for:

- Core reactivity control
- Reactor coolant system (RCS) pressure control
- RCS temperature control (decay heat removal)
- RCS inventory control
- Support systems for the above functions

Reactivity Control:

In their submittal the licensee proposed to require one channel of source range neutron flux to be operable. The addition of this monitor will improve the ability of the operators to verify the reactor is shutdown following a reactor trip. Periodic monitoring of the source range neutron flux will also allow the operators to evaluate the longer term reactivity changes due to RCS temperature changes, boron concentration changes, and post-trip xenon burnout. The staff finds that the addition of the source range neutron flux monitor is an improvement in direct monitoring of shutdown reactivity, and is consistent with NUREG-1430, Revision 1. This change is acceptable.

RCS Temperature Control via Once-Through Steam Generators (OTSGs):

The licensee proposed to delete the current requirement for decay heat removal temperature indication, add a requirement for RCS cold leg temperature indication and clarify the OTSG level instrumentation. The requirement for motor-driven feedwater pump discharge pressure would be changed to EFW flow indication. In addition, the licensee proposed to delete service water system temperature and pump discharge pressure monitoring requirements.

With the addition of the RCS cold leg temperature indication, the decay heat removal temperature indication is not needed to verify RCS natural circulation, nor is it required to maintain Mode 3 operation. The deletion of this instrument from Table 3.3-18-1 is acceptable.

The addition of reactor coolant cold leg temperature instrumentation, along with the existing reactor coolant hot leg temperature instrumentation and OTSG pressure, provide the means of verifying natural circulation and maintaining RCS temperature control. The utilization of OTSG pressure and level along with emergency feedwater flow and tank level monitoring are consistent with the utilization of the OTSGs to maintain RCS temperature via bleeding steam. The addition of EFW tank level provided additional information to the operators to ensure a source of water is available to the EFW pump. Additionally, the monitoring of emergency feedwater flow in combination with monitoring OTSG level versus monitoring motor driven emergency feedwater discharge pressure provides the operators with an improved ability to evaluate EFW system status and proper operation regardless of the specific EFW pumps in operation. Also, the change to the number of required channels for OTSG level is a clarification needed to reflect actual system configuration. The staff finds these changes acceptable.

Service water (SW) outlet temperature and pump discharge pressure have been eliminated from Table 3.3.18-1 as these are not used in verifying the maintaining of RCS temperature control via the OTSG's. SW water operation is addressed procedurally in AP 990 in three specific functions:

- ensuring an emergency duty SW pump is running
- ensuring SW is aligned to the Reactor Building Fans
- ensuring SW is aligned to makeup pump MUP-1C if required.

During normal operation SW flow is supplied by a normal duty SW pump which has a flow of 6900 gpm. The emergency duty pump has a flow of 8400 gpm which provides a proportional increase in heat removal capacity. Additional actions in the procedure such as securing reactor coolant pumps reduce total SW load. The only change in SW system lineup from normal operation is the starting of the emergency duty pump along with verifying system component status/ position. The increased SW flow, reduced SW heat loads, and configuration checks insure adequate functioning of the SW system for this plant condition. Therefore, the inclusion of SW outlet temperature and pump discharge pressure in table 3.8-1 is not necessary. These changes are consistent with approved guidance in NUREG-1430, Revision 1, and the staff finds them acceptable.

RCS Inventory Control:

The licensee proposed to add a new monitoring function, High Pressure Injection Flow, to provide the operators with an indication for monitoring and controlling flow to the pressurizer. This instrumentation will provide additional information to aid the operators in maintaining RCS inventory and is consistent with the guidance previously approved in NUREG-1430, Revision 1. This change is acceptable to the staff.

Basis Table B 3.3.18-1:

The licensee is adding a table to Basis section B 3.3.18 that will list the specific instrument tag numbers on the instruments used to satisfy the requirements of Table 3.3.18-1. This addition is consistent with NUREG-1430, Revision 1, and will assist the operators in making accurate and timely determinations regarding remote shutdown operability.

The reference to "support systems for the above functions" has been deleted to maintain consistency between the actual information provided in the Bases and the instruments listed in the revised specification table. The revised table does not list any support system instruments. Post control room actions to monitor support system performance will be accomplished using local instrumentation and indication in the plant outside the control room.

4.0 STATE CONSULTATION

Based upon a letter dated March 8, 1991, from Mary E. Clark of the State of Florida, Department of Health and Rehabilitative Services, to Deborah A. Miller, Licensing Assistant, U.S. Nuclear Regulatory Commission, the State of Florida does not desire notification of issuance of license amendments.

5.0 ENVIRONMENTAL CONSIDERATIONS

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 (65 FR 59223). 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.

6.0 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 these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: John M. Goshen, NRR

Date: March 22, 2001