UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report No. 50-302/79-22

Licensee: Florida Power Corporation
3201 34th Street, South
St. Petersburg, Florida 33733

Facility Name: Crystal River Unit 3

Docket No. 50-302

License No. DPR-72

Inspection at Crystal River Site near Crystal River, Florida

Inspectors: D. R. Quick — 8-10-79 Date Signed

E. J. McHenry — 8/10/79 Date Signed

J. Buzy — 8-10-79 Date Signed

Accompanying Personnel: S. Israel, NRR (June 20-21, 1979)
B. L. Wilson, OLB (June 20-21, 1979)

Approved by: E. H. Verdery, Acting Section Chief, RONS Branch — 8/10/79 Date Signed

SUMMARY

Inspection on June 18-22 and 25-29, 1979

Areas Inspected

This special, announced inspection involved 186 inspector-hours onsite in the areas of IE Bulletins and compliance with the requirements of the Commission Order dated May 16, 1979.

Results

Of the two areas inspected, no apparent items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

   Licensee Employees

   *G. P. Beatty, Jr., Plant Manager
   *P. F. McKee, Technical Services Superintendent
   *W. R. Nichols, Operations Superintendent
   G. R. Westafer, Maintenance Superintendent
   W. A. Cross, Operations Engineer
   J. Cooper, Jr., Compliance Engineer
   *G. M. Williams, Plant Engineer
   J. L. Harrison, Chemical/Radiation Protection Engineer
   *W. E. Kemper, Technical Specification Engineer
   S. W. Johnson, Inservice Inspection Engineer
   *P. E. Griffith, Training Coordinator
   G. L. Boldt, Performance Engineering Supervisor
   *W. P. Stewart, Director, Nuclear Operations

   Other licensee employees contacted included technicians, operators, maintenance, and office personnel.

   *Attended exit interview

2. Management Interviews

   The inspection scope and findings were summarized on June 20, 22, and 29, 1979, with those persons indicated in Paragraph 1 above. The inspection activities presented in these details were discussed.

3. Licensee Action on Previous Inspection Findings

   Not inspected.

4. Unresolved Items

   Unresolved items were not identified during this inspection.

5. Followup on IE Bulletin IEB 79-05B

   The licensee's responses and actions taken in regard to IEB 79-05B were reviewed to verify that these actions fulfilled requirements to develop procedures, train operators, and make setpoint changes. The following areas were reviewed:

a. Procedure Development

The inspector verified that procedures for the natural circulation mode of operation had been developed and approved. These procedures require increasing steam generator level setpoint to initiate natural circulation.

The procedures address the reactor vessel pressure and temperature limitations when the high pressure injection system is in service. Also guidance is provided on anticipatory response and annunciation for specified transients.

The following procedures were reviewed:

EP-101, Unit Blackout

EP-103, Loss of RC Flow/RC Pump Trip

EP-106, Loss of Reactor Coolant or Reactor Coolant Pressure

EP-108, Loss of Steam Generator Feed

AP-113, Reactor Cooldown by Natural Circulation

EM-203, Classification of Emergencies and Criteria for Evacuation

EM-207, Reporting Requirements on Emergencies

b. Operator Training

Audits of training records and interviews of licensed operators were conducted to verify the following:

(1) Operating personnel were instructed on new procedures identified in 5.a above.

(2) Operations personnel understood the technique for determining the degree of reactor coolant subcooling.

(3) Plant operators and supervisory personnel were instructed in the provisions and directives for early notification of serious events.

Additional details of the training audit on the operating staff is discussed in paragraph 7.d.

c. PORV and High Pressure Trip Setpoint

To minimize the operation of the power operated relief valve (PORV) and to reduce the energy input to the reactor coolant system during

transients that result in primary system volume increases, the reactor trip setpoint for high pressure was reduced to 2300 psig and the block valve on the PORV closed on April 21, 1979. The inspector reviewed SP-112, Calibration of the Reactor Protection System and verified that the procedure reflected the revised setpoint. The inspector reviewed operating logs to insure that the PORV block valve was closed on April 21, 1979, and also reviewed SP-118, Electromatic Relief Valve Functional Test, to verify that the PORV had been reset at 2450 psig.

The inspector had no further questions regarding IEB 79-05B.

6. Followup on IE Bulletin IEB 79-09

The licensee identified the reactor trip breakers as GE type AK-2 in a response dated May 21, 1979. The inspector reviewed completed PM-118, AC and DC Breakers - Control Rod Drive System and verified that the procedure had been completed on June 16, 1979. The inspector also discussed the GE type AK-2 breakers with the electrical foreman in charge of completing PM-118. The inspector had no further question regarding this item. IEB 79-09 is closed.

7. Followup on Commission Order dated May 16, 1979

The inspector reviewed the licensee's design modifications, procedure revisions, testing and training associated with the requirements set forth in Commission Order dated May 16, 1979. Inspector findings with regard to these items are as follows:

a. Design Modifications

The inspector reviewed the following Commission Order related design modifications:

(1) 79-4-65, Removal of auto start interlock on turbine-driven emergency feedwater pump.

(2) 79-4-71 and 71A, Auto start of motor-driven emergency feedwater pump.

(3) 79-4-76, Installation of emergency feedwater flow indicators.

(4) 79-6-60, Installation of incore thermocouple readout in the control room.

(5) 79-5-71 thru 71E Installation of control grade reactor trip and emergency feedwater auto start.

(6) 79-5-70, Installation of control room annunciators to indicated emergency feedwater autostart and failure to autostart

The inspector reviewed the above design modifications to insure that design changes were made in accordance with the requirements of CP-114 Procedure for Control of Modifications. The inspector conducted an inspection of instrument and relay cabinets to verify installation of relays and wiring as described in the associated design modifications. Testing associated with each design modification was observed by the inspector and the associated test data was reviewed. At the completion of the inspection, the inspector had verified that all design changes had been installed and tested as required; however, administrative details, consisting of final review and approval of each completed design change package; had not been completed. The inspector stated that each design change identified above must be reviewed and approved in accordance with the requirements of CP-114 prior to reactor startup. The finalization of design change packages was designated as an outstanding item to be reviewed during the continuing inspection at the Crystal River facility.

b. Procedure Revisions

The inspector reviewed procedure revisions to assure that procedures had been developed and implemented for initiation and control of emergency feedwater independent of the Integrated Control System control. In addition, the inspector reviewed procedures which may be affected by design modifications described in paragraph 7.a to insure that appropriate revisions had been implemented. The following procedures were reviewed:

EP-101,	Unit Blackout
EP-103,	Loss of RC Flow/RC Pump Trip
EP-104,	Steam Generator Tube Failure
EP-105,	Steam Supply Rupture
EP-106,	Loss of RC/RC Pressure
EP-108,	Loss of Steam Generator Feed
AP-102,	Annunciator Alarms (only selected alarms associated with affected systems were reviewed)
AP-113,	Reactor Cooldown by Natural Circulation
SP-332,	Monthly Feedwater Isolation Test
SP-340,	ECCS Pump Operability

SP-343,	Main Steam Isolation Valve Part Stroke
SP-344,	Nuclear Services Cooling System Operability
SP-347,	ECCS and Boration System Flow Path
SP-349,	Emergency Feedwater System Operability
SP-351,	Nuclear Services Flow Path Operability
SP-354,	Diesel Generator Monthly Test
SP-355,	ES Monthly Functional Test
SP-370,	Quarterly Cycling of Valves
SP-416,	Emergency Feedwater Automatic Actuation
OP-202,	Plant Heatup
OP-203,	Plant Startup
OP-204,	Power Operation
OP-401,	Core Flooding
OP-402,	Makeup and Purification
OP-403,	Chemical Addition
OP-404,	Decay Heat Removal
OP-405,	Reactor Building Spray
OP-408,	Nuclear Services Cooling
OP-605,	Feedwater System

Based upon a review of the above procedures, the inspector determined that several minor procedure changes, associated with plant design modification described in paragraph 7.a, had not been completed. The inspector identified specific procedure revisions that would be required prior to plant startup. These items were discussed with plant personnel responsible for procedure revisions. The following procedures were identified as requiring revision and subsequent review by operating personnel prior to reactor startup.

OP-404, Rev. 23	EP-104, Rev. 7
OP-405, Rev. 12	EP-106, Rev. 19

OP-408, Rev. 12	AP-113, Rev. 6
OP-204, Rev. 14	SP-347, Rev. 11
OP-202, Rev. 23	SP-416, Rev. 4
OP-203, Rev. 21	

The revision and subsequent operations personnel review of the above procedures was identified as an outstanding item to be reviewed during the continuing inspection at the Crystal River facility.

c. System Tests

In addition to the tests performed as part of the design changes in paragraph 7.b, the inspector also reviewed and observed the following tests.

PT-107,	Failure Verification for Air Operated Emergency Feedwater Level Control Valves
PT-112,	Calibration of the Reactor Protection System (control grade trip functional test portion only)

The inspector also reviewed the following draft procedures which were scheduled for completion subsequent to the inspection:

PT-106,	Special (Load Test of Emergency Diesel Generator "A"
PT-122,	Emergency Feedwater Pump Automatic Actuation and Manual OTSG Level Control Independent of ICS with the plant in Hot Shutdown
PT-123,	Emergency Feedwater Flow Verification and Manual OTSG Level Control Independent of ICS with the reactor at power

The inspector had minor comments on the draft procedures which were incorporated into the final approved procedures. No problems associated with the completed tests were identified.

d. Audit of Crystal River Training Program and Licensed Members of Operating Staff

The licensee conducted training for licensed personnel of the operating staff as a result of the Commission Order of May 16, 1979. The training included a review of the TMI incident at the B&W simulator at Lynchburg, Virginia, onsite training of small break LOCA's, modifications made as the result of the Order and changes to station operating and emergency procedures. In addition, a written examination was administered to all participants of the training program which required a passing

grade of 90%. Audits of eight licensed operators and senior operators were conducted on June 19-20 by members of the Regional staff. The audits revealed deficiencies in the knowledge of several operators related to LOCA transient behavior, modifications made as the result of the Order and understanding of immediate automatic and manual actions in the revised emergency procedures. The licensee was informed of these deficiencies. On June23-27 the licensee conducted additional training to correct the deficiencies. On June 26-28 a second audit of ten licensed members of the operating staff was conducted and the results were satisfactory. In addition, a review of the written examinations indicated that the grading was in agreement with NRR-OLB criteria. Several licensed personnel had not satisfactorily completed the training or had been on vacation at the time of this inspection. However, the licensee committed to administering additional training and examination before these individuals would assume licensed duties.

The fact that licensed personnel attended offsite Babcock and Wilcox (B&W) simulator training was verified and documented in inspection report 50-302/79-13.

8. Steam-Driven Emergency Feedwater Pump Turbine Governor

The inspector reviewed the licensee's actions with regard to Terry Corporation recommendations concerning operation of hydraulic governors following turbine shutdown. These recommendations assure that the turbine will not overspeed on subsequent turbine startup. The inspector reviewed SP-349 (Emergency Feedwater System Operability) and verified that the procedure provided for bleeding the speed control cylinder after equipment shutdown. The inspector also verified that applicable warning labels were affixed to the turbine and that the governor is accessible under accident conditions. The inspector expressed concern whether adequate provisions existed to insure bleeding of speed control cylinder following feed pump emergency starts. Licensee representatives stated that other assurances would be explored, including a possible location for a warning label on the main control board. This item was identified as open pending a further review of licensee actions during a future inspection. (50-302/79-22-01)

9. Endurance Test on Emergency Feedwater Pumps

The licensee agreed to demonstrate that each emergency feedwater pump was capable of 36 hours of operation. The inspector reviewed plant logs which documented that the turbine-driven emergency feedwater pump had been run on recirculation for 73 hours and 15 minutes on June 11-14, 1977. The motor-driven emergency feedwater pump was tested for approximately 20 hours during this inspection. The remaining hours of testing will be verified during the continuing inspection at the Crystal River facility.