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

Report No. 50-302/80-28

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

Facility Name: Crystal River Unit 3

Docket No. 50-302

License No. DPR-72

Inspection at Crystal River 3 site near Crystal River, FL

Inspectors: R Martin for — 9/30/80
T. Stetka, Senior Resident Inspector — Date Signed

R Martin for — 9/30/80
B. Smith, Resident Inspector — Date Signed

P Burnett — 10-1-80
P. Burnett, Reactor Inspector — Date Signed

Approved by: R D Martin — 10/1/80
R. Martin, Section Chief, RONS Branch — Date Signed

SUMMARY

Inspection on August 1 through August 29, 1980

Areas Inspected

This routine inspection by the Resident Inspectors of plant operations, security, radiological controls, post refueling testing, Licensee Events Report (LERs), Licensee action on IE Bulletins and Circulars, non-routine events and licensee action on previous inspection items. Facility tours were conducted and facility operations were observed. The inspection involved 76 hours onsite by two resident inspectors and one region based inspector.

Results

No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Licensee Employees

*J. Bufe, Compliance Auditor
M. Collins, Reactor Specialist
*J. Cooper, QA/QC Compliance Manager
W. Cross, Operations Engineer
*S. Johnson, Maintenance Staff Engineer
W. Kemper, Plant Training Manager
*K. Lancaster, Compliance Supervisor
*T. Lutkehaus, Technical Services Superintendent
*P. McKee, Operations Superintendent
G. Perkins, Health Physics Supervisor
D. Poole, Nuclear Plant Manager
G. Ruszala, Chem/Rad Protection Engineer
G. Westafer, Maintenance Superintendent

Other personnel contacted included office, operations, engineering, chem/rad, and corporate personnel.

*Attended exit interview

2. Exit Interview

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on August 28, 1980. During this meeting the inspectors summarized the scope and findings of the inspection as they were detailed in this report. During this meeting unresolved items and inspector followup items were discussed.

3. Unresolved Items

Unresolved items are those items for which further information is required to determine whether they are acceptable or items of noncompliance. An unresolved item is contained in paragraph 5a.(2).

4. Licensee Action on Previous Inspection Items

(Closed) Inspector Followup Item (302/80-24-01): The emergency Diesel generator radiator cooling inhibitor has been replaced with an approved inhibitor. In addition, Surveillance Procedure (SP) No. 713 and SP No. 354 have been revised to develop a lead history in the system and to require periodic inspection of the radiator cooling system for leaks after testing.

(Closed) Inspector Followup Item (302-80-24-02): Core Flood Tank (CFT) Sample Isolation Valve CFV-12 was cycled successfully 12 times at normal operating pressure with no operational problems noted. Maintenance Work Request 12810 was reviewed by the inspectors for verification of this item.

(Closed) Unresolved Item (302-80-24-07): The inspectors reviewed completed Operating Procedure No. 414 that was performed subsequent to mitrosen flushing operations. No discrepancies were found.

(Closed) Inspector Followup Item (302/80-24-08): The inspectors reviewed completed Maintenance Work Request 17606 and the reactor operator log for verification that CFV-79 internals were replaced prior to entering Mode 3 operations.

(Closed) Inspector Followup Item (302/80-24-11): The inspectors reviewed completed Waste Procedure (WP) No. 102, Underground Nitrogen Piping Integrity Tests for verifications of satisfactory results. No discrepancies were found.

(Closed) Unresolved Items (302/80-24-12): The inspectors reviewed Short Term Instruction 80-51, which was Plant Review Committee Approved for verification of adequate Surveillance for the temporary nitrogen bottles. No discrepancies were found.

(Closed) Inspector Followup Item (302/80-23-08): The inspector reviewed the Babcock and Wilcox (B&W) evaluation report that addressed the broken hold-down spring issue. The report indicates that the plant could have operated with the broken hold down spring fuel assembly installed; however, the licensee had removed the assembly during the past refueling outage. Action on this item is complete.

5. Review of Plant Operations

The facility has recently recovered from an extensive refueling outage and is presently operating at power in Mode 1 operations.

As a result of the facility's recent return to power operations, particular emphasis was placed on operations, equipment status and plant housekeeping conditions.

a. Shift Logs and Facility Records

The inspector reviewed the records listed below and discussed various entries with operations personnel to verify compliance with Technical Specification (TS) and the licensee's administrative procedures.

- Shift Supervisor's log;
- Operator's Log;
- Equipment Out-of-service Log;
- Equipment Clearance Order Log;
- Shift Relief Checklists;
- Control Center Status Board; and,
- Short Term Instructions.

In addition to these records reviews, the inspectors independently verified selected clearance order tag-outs. These records reviews identified the following items:

(1) During Shift Supervisor's Log review on August 18, 1980, the inspector noted a log entry that discussed a problem with the fire alarm audibility on the turbine building 95' elevation. This issue was discussed with the licensee and the inspector was informed that an engineering review was in progress to resolve the issue. This is an inspector followup item (302/80-28-01).

(2) During several log reviews it was noted that the equipment out of service (OOS) system did not appear to be adequate to ensure that the operators are aware at all time of what indicates are OOS. In addition, some indicators that were OOS did not appear in the log. This issue was discussed with the licensee. A short term instruction (STI) was issued providing additional guidance to the operators for handling equipment OOS pending evaluation of an improved OOS system.

Unresolved Item: The licensee will review the equipment out of service status system and evaluate how this system can be improved (302/80-28-02).

(3) Dirty oil in Nuclear Services Closed Cycle Cooling Pump 1A (SWP-1A). SWP-1A was taken out of service due to dirty oil in the lubricating system. The oil had been replaced in this pump during the refueling outage. The licensee is evaluating the cause of the dirty oil. This will be an inspector followup item (302/80-28-03).

(4) During review of the annunicator status in the control room, the inspectors noted three annunicators that were continually illuminated. Discussions with operators indicate that these annunciators, "HEAT TRACING TEMP," "BATT 3A/3B GND," and "BATT CHARGER DC HIGH VOLTAGE", are continually lit due to system problems that have not been corrected. The inspectors verified that these problems did not compromise operation of these systems and expressed their concern that continually lit annunicators could result in operators missing additional system problems. A licensee representative stated that these annunicators/systems would be reviewed to determine what actions could be taken to change their status. This is an inspector followup item (302/ 80-28-09).

b. Facility Tours and Observations

Throughout this inspection period, facility tours were conducted to observe operations and maintenance activities in progress. The tours encompassed the following areas:

- Turbine building;
- Control Room;
- Diesel generator rooms;
- Auxiliary building;
- Intermediate building;

- Cable spreading room;
- Battery rooms;
- Heating, ventilation and air conditioning room; and,
- Electrical switchgear rooms.

During these tours the following observations were made:

(1) Monitoring Instrumentation. The following instrumentation was observed to verify that indicated parameters were in accordance with the Technical Specifications for the current operational mode:

- Equipment Operating Status;
- Areas Radiation Monitors;
- Electrical System Lineup;
- Control Rod Positions; and,
- Reactor Power Level.

The inspector observed numerous radiation monitors either in an alarming condition or out of service. These observations were discussed with licensee representatives who stated that the alarming monitors were still adjusted for refueling setpoints and had not been reset for normal power operation. The out of service monitors were to be reviewed to determine if action could be taken to hasten their return to service. Action was initiated to readout the setpoints to normal power operation setpoints and to return the out of service monitors to service. This action has been completed and the inspectors have no additional questions on this items at this time.

(2) Shift Staffing. The inspector verified by spot checks that that operating shift was in accordance with Technical Specification requirements.

(3) Plant Housekeeping and Conditions. Storage of material and components and cleanliness condition of various areas throughout the facility were observed to determine whether safety and/or fire hazards exist.

(4) Fire Protection. Fire extinguishers and fire fighting equipment were observed to be unobstructed and inspected for operability.

(5) Radiation Areas. Radiation control zones were observed to verify proper identification and implementation. These observations included review of step-off pad conditions, disposal of contamination clothing and area posting. The inspectors noticed a High Radiation Sign Barrier down; however, concurrent with this finding, a Chemistry/Radiation Technician replaced the barrier. Unclear markings for a contaminated area were also identified by the

inspectors and actions were taken by a chemistry/radiation technician to clarify the marking. Overall, considerable improvement has been made by the licensee in the area of radiation protection and control. The inspectors will continue to monitor this area to ensure radiation control requirements are maintained.

(6) Shift Turnovers. While observing a shift turnover it appeared that some operators were not reading the logs prior to relieving the off-going operators. The inspectors discussed this with the operators and determined that while the operators verbally discussed the log readings during shift turnover, they did not necessarily read the logs until after shift relief. Review of Administrative Instruction (AI) No. 500, Conduct of Operations, indicated the operators were in fact performing the shift turnovers in accordance with approved procedures. The inspectors questioned licensee representatives to determine how the on-coming operator resolved questions on log entries that may arise during the course of his log review if the log reading is accomplished after the off-going shift has left the facility. The licensee acknowledged the inspectors concerns and issued a short term instruction to require log reading by the on-coming operator prior to shift turnovers pending a permanent revision to AI-500. This is an inspector followup item (302/80-28-04).

(7) Test Procedures. The inspectors observed portions of SP-102, Rod Drop Times, and PT-106, Special Load Test of the Emergency Diesel Generator. No issues were identified during these test observations. The inspectors reviewed completed data from SP-401, Control Rod Programming Verification. The inspectors had no questions following this review.

6. Review of Licensee Event Reports

a. The inspectors reviewed Licensee Event Reports (LERs) to verify that:

- The reports accurately described the events;
- The safety significance is as reported;
- The report is accurate as to cause;
- The report satisfies requirements with respect to information provided and timing of submittal;
- Corrective action is appropriate; and,
- Action has been taken.

LER's 80-27, 80-29, and 80-30 were reviewed. This review identified the following items:

b. LER 80-27 reported the failure of core Flood System check valve CFV-79 and the subsequent flooding and contamination of the station nitrogen system. This event was discussed in detail in NRC Report 50-302/80-24 and, with the exception of some outstanding items, the licensee's actions are considered to be adequate. The inspectors have no further questions on this LER at this time.

c. LER 80-30 reported the tripping of Emergency Diesel Generator (EDG) "B" due to separation of the turbocharger air discharge ductworks. The ductwork separation was caused by the loosening and subsequent shearing of the ductwork mounting bolts. As a part of their investigation of this event, the licensee checked the mounting bolts on EDG "A" and found one of the three support bolts to be missing.

To prevent recurrence of this event, the licensee has installed lock washers on the support bolts. In addition the licensee will revise surveillance procedure SP-605, Emergency Diesel Generator Engine Inspection/Maintenance, to include a check of these bolts and has requested a review of this issue by their engineering office in accordance with Part 21. Revision of procedure SP-605 is considered to be an inspector followup item (302/80-28-05).

7. Review of IE Bulletins and Circulars

The following IE Bulletins (IEB) and Circulars (IEC) were reviewed to verify adequacy of the licensee's actions.

a. IEB 80-19, Rev. 1 - Failures of Mercury-Wetted Matrix Relays in Reactor Protective Systems of Operating Nuclear Power Plants Designed by Combustion Engineering.

b. IEB 80-20, Failures of Westinghouse Type W-2 Spring Return to Neutral Control Switches.

c. IEC 80-02, Nuclear Power Plant Staff Work Hours

The inspectors reviewed the licensee's proposed staffing schedule for licensed operators for the period of August 25 through September 14. This review identified that two Shift Supervisors (SS), one Assistant Nuclear Shift Supervisor (ANSS), two Chief Nuclear Operators (CNO), and three Nuclear Operators (NO) were working in excess of the 72 hours in any 7 day period suggested in the Circular. These work schedules were discussed with cognizant licensee personnel who stated that due to the expanded training and shift manning requirements, operator's working hours had to be extended.

The licensee reviewed their schedules and made some changes that brought operator working hours more closely in line with the suggested guidelines. The licensee also has personnel that are scheduled to be examined in October for licenses. When these personnel have successfully completed their examinations they will become part of the licensed staff and further reduce working hours. Until new licensed operators are added to the staff, the inspectors will continue to review licensee operator scheduling. This Circular remains open pending review of the licensee's actions to adhere to staff work hour guidelines.

8. Post Refueling Procedure Review

During the period of 8/3/80 through 8/6/80 the procedure reviewed included:

PT-100, Pre-Critical Testing;
SP-102, Rod Drop Times
SP-401, Control Rod Programming Verification;
PT-101, Reactor Coolant Flow and Flow Coastdown;
PT-110, Zero Power Physics Testing;
PT-111, All-Rods-Out Boron Concentration Determination;
PT-112, Regulating Rods Group Measurement;
PT-114, Temperature Coefficient Determination;
PT-115, Ejected Rod Worth Measurement;
PT-116, Determination of Sensible Heat; and,
PT-120, Power Escalation Testing.

These procedures were discussed with the reactor specialist, and only one unanswered issue remains: The licensee will consider whether step 10.2.9 of PT-120 should specify the most negative acceptable valve of the doppler coefficient as well as the least negative valve. This will be an inspector followup item (302/80-28-06).

9. Nonroutine Events

a. EDG Turbo-Charger Bearing Failure

On August 2 at 1308 hours the "B" emergency diesel generator (EDG) was tripped due to a bearing failure in the turbocharger. The cause of the bearing failure at this time is unknown. The turbocharger with the failed bearing is being sent to Colt Industries for analysis of the failure. The "B" EDG was repaired, and declared operable within the action statement requirements of the TS. The evaluation of the turbocharger bearing failure will be followed as an inspector followup item (302/80-28-07).

b. Reactor Trip Due to Technician Error

On August 19 at 1109 hours the reactor tripped from 75% power. The trip was caused by an experienced Instrument and Control (E&C) technician who, when told to free a condenser hotwell level switch to enable starting a fourth main circulating water pump, inadvertently tripped a feedwater heater high level switch. The feedwater heater high level switch tripped the main turbine which in turn tripped the reactor. A normal reactor shutdown occurred with all safety system responding as designed. The inspector arrived in the conrtol room approximately five minutes after the trip and observed operator response to return the plant to a stable shutdown condition. The inspector discussed the event with the licensee as to the use of less experienced technicians performing unsupervised maintenance on non-safety related systems. A management memorandum was issued providing guidelines as to the assignment of technicians. The inspectors have no further questions on this event at this time.

c. Inadvertant Reactor Building Isolation Due to Operator Error

On August 27, 1980 at approximately 0530 hours an inadvertant reactor building isolation occurred on the "A" reactor building isolation matrix. Several reactor building isolation valves stroked. The cause of the actuation was operator error during the performance of Surveillance Procedure No. 355, Operations E.S. Monthly Functional Test. The event was attributed to operator error as control board markings and procedure SP-355 appear to be adequate. The inspectors reviewed this event and have no further questions with this item at this time.

d. Plant Runback Due to Troubleshooting Operations on Rod Position Indication Reed Switches

On August 27, 1980 a plant runback from 75% to 66% Power occurred while the electricians were troubleshooting Position Indication reed switches on rod group 7, rod no. 4. The troubleshooting resulted in a false (indication only) asymmetric rod fault which intiated the plant runback. Following the reactor trip on August 29, 1980 discussed in the following paragraph, the licensee replaced the faulty position indication reed switch assemblies. The inspectors discussed this event with the licensee and have no questions on this item at this time.

e. Reactor Trip Due to Turbine Governor Valve Malfunction

On August 29, 1980 at 1155 hours the reactor tripped on high primary system pressure. The cause of the trip was a broken Linear Variable Differential Transformer (LVDT) reference rod on Governor Valve No. 3 resulting in a large secondary system transient which lead to a high pressure condition in the primary plant and subsequent high pressure reactor trip. Initial conditions at the time of the trip were: Reactor Power Level 70%, Tave 579 , Pressurizer Level 200", and the generator output at 510mw. The inspector arrived in the control room approximately 30 minutes after the trip and observed the plant in a stable shutdown condition. Repairs were made on the LVDT and the plant returned to power operations at approximately 1800 hours on the 29th of August. The inspector discussed the event with the licensee. The licensee is presently evaluating the reason for the reference rod failure. This is an inspector followup item (302/80-28-08).