



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

Report No. 50-302/81-19

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

Facility Name: Crystal River Unit 3 Nuclear Generating Plant

Docket No. 50-302

License No. DPR-72

Inspection at Crystal River near Crystal River, Florida

Inspectors: *John Haggan for* 10/29/81  
T. F. Stetka Date Signed

*John Haggan for* 10/29/81  
B. W. Smith Date Signed

Approved by: *Vergil Brownlee* 10/23/81  
V. Brownlee, Chief, Reactor Projects Branch 2B, Date Signed  
Division of Resident and Reactor Projects  
Inspection

SUMMARY

Inspection on August 26 - September 22, 1981

Areas Inspected

The inspection involved 188 hours on site by two resident inspectors of plant operations, security radiological controls, Licensee Event Reports (LER's) and Nonconforming Operations Reports (NCO's), licensee action on IE Bulletins and Circulars, and licensee action on previous inspection items. Numerous facility tours were conducted and facility operations observed. Some of these tours and observations were conducted on back shifts.

Results

One violation was identified (Failure to perform adequate monthly functional testing of the reactor building high pressure trip channels, paragraph 5.b(11)c).

## DETAILS

### 1. Persons Contacted

#### Licensee Employees

P. Baynard, Manager, Nuclear Support Services  
G. Boldt, Technical Services Superintendent  
\*C. Brown, Nuclear Compliance Supervisor  
\*D. Brock, Nuclear Maintenance Specialist  
J. Buckner, Security Officer  
\*J. Bufe, Compliance Auditor  
M. Collins, Reactor Specialist  
\*J. Cooper, QA/QC Compliance Manager  
B. Crane, Plant Training Manager  
C. Goering, Acting Planning Engineer  
W. Herbert, Technical Specification Coordinator  
V. Hernandez, Compliance Auditor  
C. Hunter, Acting Relay Department Foreman  
S. Johnson, Maintenance Staff Engineer  
\*B. Komara, Compliance Auditor  
\*K. Lancaster, Quality Assurance Auditor  
T. Lutkehaus, Technical Assistant to the Nuclear Plant Manager  
\*D. Marmar, Contract Engineer  
\*P. McKee, Operations Superintendent  
G. Perkins, Health Physics Supervisor  
\*D. Poole, Nuclear Plant Manager  
\*G. Ruzala, Chemistry/Radition Protection Manager  
D. Smith, Technical Services Superintendent  
R. Westfall, Manager, Relay Department (by telephone)  
\*K. Wilson, Licensing Specialist

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

\*Present at the Exit Interview conducted on September 22.

### 2. Exit Interview

The inspectors met with licensee representatives (denoted in paragraph 1) on numerous occasions during and at the conclusion of the inspection on September 22, 1981. During this meeting, the inspector summarized the scope and findings of the inspection as they are detailed in this report. During this meeting, the violation, unresolved item, and inspector followup items were discussed.

### 3. Licensee Action on Previous Inspection Items

(Closed) Open Item (302/79-30-06): HPI cross connect valves MUV-3 and MUV-9 have had motor operators added to them to enable remote isolation and all

four cross connect valves (MUV-3, 4, 8 and 9) are maintained open as required by 10 CFR Part 50.46(a). HPI injection valves MUV-23, 24, 25, and 26 are supplied from diverse power supplies and are tested periodically by surveillance procedures. The licensee's actions on this item are complete.

(Closed) Inspector Followup Item (302/79-48-01): As a result of the loss of non-nuclear instrumentation (NNI) event of February 26, 1980, the licensee made major modifications to provide backup power for the Integrated Control System (ICS) and NNI. These modifications were reviewed, verified to be complete, and operational testing observed as described in NRC Inspection Report 50-302/80-24. The licensee's action on this item is complete.

(Closed) Inspector Followup Item (302/80-24-10): The licensee has issued and implemented a new procedure, CP-123, Key Control, that provides a unique key for each valve required to be in a locked position. The licensee's action on this item is complete.

(Closed) Violation (302/81-11-01): The licensee has revised surveillance procedure SP-300, Operating Daily Surveillance Log, as Revision 4 on June 29, 1981, to include a channel check of the PORV and Code Safety Valve position indicators. This testing is now being performed as required by the Technical Specifications (TSs). The inspector also interviewed the Technical Specifications Coordinator to assure that this individual has established a method to assure that future amendments to TS are dealt with in a more timely manner.

(Closed) Unresolved Item (302/78-26-04): The licensee has developed a Relay Systems Quality Operating Manual that contains Plant Review Committee (PRC) approved procedures that are utilized to calibrate safety systems relays. Discussion with licensee personnel and review of this manual by the inspector indicate that a viable system has been developed to assure adequate relay calibration.

(Closed) Inspector Followup Item (302/80-24-05): In a letter dated January 30, 1981, to Mr. Darrell G. Eisenhut of Nuclear Reactor Regulation (NRR) from Patsy Y. Baynard of FPC, the licensee addressed the Thermal-Mechanical Report (BAW-1648) developed by Babcock and Wilcox that discusses the thermal shock effects of Borated Water Storage Tank (BWST) water temperature on the reactor vessel. From this report the licensee has concluded that raising of the BWST water temperature is not necessary. The inspector has reviewed this report and the licensee's conclusions and has no further questions on this item.

(Closed) Inspector Followup Item (302/81-07-05): The licensee's Engineer, Gilbert Associates (GAI), reviewed the effect of the broken light bulb on the spent fuel pool filter/demineralizer system and water chemistry and determined that no deleterious effects would occur as a result of this event. The inspectors reviewed this report and have no further questions on this item.

(Closed) Inspector Followup Item (302/81-07-09): The inspector reviewed a representative sample of surveillance test procedures (SPs) and discussed the status of completion of SP revisions with licensee personnel. Based on these reviews and discussions, the licensee has completed revising applicable SP's to provide step completion signoffs for equipment return to service.

(Closed) Inspector Followup Item (302/81-11-08): Review of the Dissemination of Operational Experience Information (DOEI) forms and their distribution lists that are issued as cover and tracking sheets of the Unusual Event Reports indicate that the NGRC is now routinely receiving the reports.

(Closed) Inspector Followup Item (302/81-07-08): The licensee was developed and issued an Operations Section Implementation Manual (OSIM) that delineates in detail the functions of the operations section and the operating experience assessment group. Procedure AI-500, Conduct of Operations, has been revised to reference pertinent sections of the OSIM and had redundant sections deleted. The inspector has reviewed the OSIM and the revised AI-500 and has no further questions on this item at this time.

(Open) Inspector Followup Item (302/81-11-11): The licensee revised procedure SP-405, Core Flooding System Check Valve Operation Demonstration and Leak Testing, and issued new procedure SP-603, Decay Heat Check Valve Leak Testing, to provide leak testing of check valves CFV-1, CFV-3, DHV-1, and DHV-2. Review of these procedures by the inspector indicate that the procedure acceptance criteria are not consistent with that required by the Technical Specifications in that the procedures do not recognize that a valve failure determination should include a leak rate increase determination. The licensee will revise these procedures to be consistent with TS acceptance criteria by October 9, 1981.

(Open) Unresolved Item (302/78-25-02): The licensee has developed a new form for the semiannual reporting of operator training results to the Operations Superintendent and has issued a recent report using this new form. This new form and methods for accomplishing this reporting will be included in training procedures that will be implemented on October 1, 1981. This item remains open pending implementation of these procedures.

(Closed) Inspector Followup Item (302/80-42-12): The licensee has revised procedure AI-1300, Crystal River Units 1 and 2 Interface with Crystal River Unit 3, to list the equipment in the fossil plants (CR 1&2) that effect operation of the nuclear plant (CR 3). The licensee's action on this item is complete.

(Open) Inspector Followup Item (302/81-07-07): The licensee has written new training program procedures, however these procedures have not been approved and implemented. These procedures will be issued and implemented by October 1, 1981. This item remains open pending issuance of these procedures.

(Closed) Inspector Followup Item (302/81-15-08): The licensee has revised procedure SP-113, Power Range Nuclear Instrumentation Calibration, as Revision 18 on September 10, 1981, to include a procedure to reduce the reactor protection system nuclear overpower trip setpoints.

(Closed) Inspector Followup Item (302/81-11-05): The licensee revised drawing FD-302-691 for the Gas Waste System to show as built conditions of a connection between the 2 inch and 3 inch gas headers.

(Closed) Unresolved Items (302/81-07-02 and 302/81-11-02): The inspector observed numerous maintenance activities to verify that procedures and "controlled copies" of technical manuals were being used during the performance of safety-related maintenance. The inspectors have no further questions on these items.

(Closed) Unresolved Item (302/81-11-03): The inspector verified that CP-113 has been revised to include administrative controls for controlling troubleshooting aids (jumpers, lifted leads etc). In addition, the inspector witnessed implementation of these controls during maintenance activities. The inspector has no further questions on this issue.

#### 4. Unresolved Items

Unresolved items are matters which more information is required to determine whether they are acceptable or may result in violations. New unresolved item identified during this inspection is discussed in paragraph 5.b(11)b.

#### 5. Review of Plant Operations

The plant continued with Mode 1 power operations for the duration of the inspection period.

##### a. Shift Logs and Facility Records

The inspectors reviewed the records listed below and discussed various entries with operations personnel to verify compliance with TS and the licensee's administrative procedures.

- Shift Supervisor's Log;
- Operator's Logs;
- Equipment-out-of-Service-Log;
- Shift Relief Checklist;
- Control Center Status Board;
- Short Term Instructions;
- Auxiliary Building Operators' Log; and
- Operating Daily Surveillance Log.

In addition to these record reviews, the inspector independently verified selected clearance order tagouts.

b. Facility Tours and Observations

Throughout the inspection period, facility tours were conducted to observe operations and maintenance activities in progress. Some operations and maintenance activity observations were conducted during back shifts. Also during this inspection period, numerous licensee meetings were attended by the inspectors to observe planning and management activities.

The facility tours and observations encompassed the following areas:

- Security Perimeter Fence;
- Turbine Building;
- Control Room;
- Emergency Diesel Generator Rooms;
- Auxiliary Building;
- Intermediate Building;
- Battery Rooms; 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 Technical Specifications for the current operational mode:
  - Equipment Operation status;
  - Area, atmospheric and liquid radiation monitors;
  - Electrical system lineup;
  - Reactor operating parameters; and,
  - Auxiliary equipment operating parameters.

- (2) Safety Systems Walkdowns

The inspectors conducted walkdowns of the following safety systems to verify lineups were in accordance with license requirements for system operability:

- Emergency Feedwater System;
- Low Pressure Injection System (Train "A" only);
- High Pressure Injection System (Train "A" only);
- Reactor Building Spray System (Train "A" only).

As a result of these checks, the following item was identified:

During the walkdown of the Low Pressure Injection system in the "A" decay heat pit, the inspector noticed a short section of capped 3/8 inch stainless steel tubing (approximately 6 feet) penetrating the reactor building (RB) just below the decay heat suction line that penetrates the RB into the RB sump. The tubing was unmarked and not supported in any manner. The inspector

questioned the licensee as to the purpose of the turbine and the licensee responded that they will investigate this issue.

Inspector Followup Item: (302/81-19-01): Review licensee's investigation in to the purpose of tubing penetrating RB below decay heat suction line from RB sump.

- (3) Shift staffing - The inspectors verified by numerous checks that operating shift staffing was in accordance with Technical Specification requirements. In addition, the inspectors observed shift turnovers on different occasions to verify the continuity of plant status, operational problems, and other pertinent plant information was being accomplished. No problems were identified in this area.
- (4) Plant housekeeping conditions - Storage of material and components and cleanliness conditions of various areas throughout the facility were observed to determine whether safety and/or fire hazards exist. The general housekeeping conditions are acceptable.
- (5) Radiation Areas - Radiation Control Areas (RCA's) were observed to verify proper identification and implementation. These observations included review of step-off pad conditions, disposal of contaminated clothing, and area posting. Area postings were verified for accuracy through the use of the inspector's own radiation monitoring instrument. No problems were identified in this area.
- (6) Fluid Leaks - Various plant systems were observed to detect the presence of leaks. No problems were identified in this area.
- (7) Piping Vibration - No excessive piping vibrations were noted.
- (8) Pipe Hangers/Seismic Restraints - Several pipe hangers and seismic restraints (snubbers) on safety-related systems were observed. No problems were identified in this area.
- (9) Security Controls - Security controls were observed to verify that security barriers are intact, guard forces are on duty and access to the protected area is controlled in accordance with the facility security plan. No problems were identified in this area.
- (10) Waste drumming operations - The inspector observed drumming operations for three barrels of radioactive waste. No problems were identified in this area.

(11) Surveillance Testing - Surveillance testing was observed and procedures reviewed to verify that:

- approved procedures were being used;
- qualified personnel were conducting the tests;
- testing was adequate to verify equipment operability;
- procedures were adequate to accomplish required results;
- calibrated equipment, as required, were utilized; and,
- Technical Specification requirements were being followed.

The following tests were observed and procedural reviews conducted:

- SP-310, Daily Surveillance of the Loose Parts Monitoring System;
- SP-190, Control Complex Smoke Detector Testing (164' elevation only);
- SP-351, Nuclear Services Flow Path Operability (data review only);
- SP-110, Reactor Protective System Monthly Functional Test (Channel "C");
- QOP-21, Testing of Safety-Related Relays;
- SP-347, Emergency Core Cooling and Boration System Flowpath;
- SP-130, Engineered Safeguards Monthly Functional Test (section 6.2);
- SP-169, Plant Safety-Related Instrument Calibration (Procedure review); and,
- Relay Systems Quality Operating Manual (procedure review).

These reviews and observations identified the following items;

- a. The Relay Systems Quality Operating Manual procedures contain blank, "Relay Data and Setting Sheets" upon which the relay setting calculation results are recorded. These relay setting calculations are performed by the Relay Staff Engineer in accordance with procedure QOP 1.0, Organization and Responsibilities.

The inspector reviewed these procedures and discussed their implementation with licensee personnel. The inspector noted that the completed "Relay Data and Setting Sheets" are not reviewed by the Plant Review Committee (PRC) as are the entire Relay Systems Quality Manual procedures, but do, however, receive Nuclear Engineering Department approval prior to being issued to the field. Since these completed data sheets are used by relay technicians to provide the actual data to which the relays are calibrated, it appears that these sheets with the setting data should be an integral part of the procedure.

The licensee will review the implementation of these data sheets to determine if the completed sheets will be included as part of the PRC approved QOPs. This review will be completed and a method for controlling the data sheets implemented by January 1, 1982.



Inspector Followup Item (302/81-19-02): Review the licensee's actions with respect to revising the relay department procedures to include completed Relay Data and Setting Sheets.

The inspector also queried licensee representatives to determine if the procedures utilized manufacturer's technical manuals to accomplish the calibrations since the manuals were referred to as references in the procedures. The licensee reviewed the procedures and noted that one procedure QOP 30, Loss of Excitation Relay Type CEH, referred to a drawing in a technical manual. The licensee will revise QOP 30 to incorporate this diagram as a part of the procedure by January 1, 1982.

Inspector Followup Item (302/18-19-03): Verify relay test procedure QOP 30 is revised to include technical manual drawing.

- b. Surveillance procedure SP-169, Plant Safety-Related Instrument Calibration, is used to calibrate the balance of plant instrumentation. Data sheets for this procedure are not contained with the procedure. The setpoints on these sheets are controlled by a computer generated "Setpoint Document" which is not a controlled document nor is it approved by the Plant Review Committee (PRC), however the document is reviewed by Nuclear Engineering and changes to the document are made in accordance with the licensee's modification system.

This finding was identified by the licensee and procedure SP-169 will be revised by October 15, 1981 to include the data sheets. In addition, the licensee will review other procedures to insure that other safety-related equipment procedures do not refer to the Setpoint Document.

Unresolved Item (302/81-19-04): Revise SP-169 and review other procedures to insure that the Setpoint Document is not used to provide setpoints.

- c. While reviewing SP-110, Reactor Protective System Functional Testing, the Reactor Building (RB) Pressure Channel electrical schematic, the inspector determined that the method used to functional test the high RB pressure trip channels did not include the injection of a simulated pressure signal into the RB pressure switches. The method used would only verify operability of the circuitry downstream of the RB pressure switches. A review of Technical Specification (TS) 4.3.1.1.1, Table 4.3-1 and TS definition for functional testing indicated the present method for functionally testing the high RB pressure trip channel was in accordance with the testing requirements for an analog channel. The inspector's review of the RB pressure channel indicated that the channel should be classified as a bistable channel due to the fact that the channel only sees two states (pressure switch contact closed indicates RB pressure less than 4 psig, contact open indicates pressure greater than 4 psig). The TS requirements for bistable channel functional testing would require the injection of a simulated

pressure signal into the RB pressure switch to verify operability of the pressure switch and the rest of the channel. The inspector discussed this issue with the licensee and the inspector's comments were acknowledged. The licensee called a meeting of the Plant Review Committee (PRC) to review the issue. As a result of this meeting, the licensee determined that the high RB pressure trip channel was an analog channel. The inspectors referred this issue to NRC Region II for resolution. On August 27, 1981, the licensee was informed by NRC that the high RB pressure trip channel was considered to be a bistable channel and should be tested in accordance with TS requirements. The licensee then initiated a procedure change to SP-110 to include functional testing of the RB pressure switches. Functional testing was completed at 1758 hours on August 27, 1981. Failure to perform adequate monthly functional testing of the high RB pressure trip channel as required by TS 4.3.1.1.1, Table 4.3-1 is considered to be a violation.

Violation (302/81-19-05): Failure to perform adequate monthly functional testing of the high RB pressure trip channel as required by TS 4.3.1.1.1, Table 4.3-1.

(12) Maintenance Activities - The inspector observed maintenance activities to verify that:

- Correct equipment clearances were in effect;
- Work Requests (W/R's), Radiation Work Permits (RWP's), and Fire Prevention Work Permits, as required, were issued and being followed;
- Quality Control personnel were available for inspection activities as required; and
- Technical Specification requirements were being followed.

The following maintenance activities were observed:

- Decay heat closed cycle cooling pump (DCP-1A) coupling lubrication in accordance with PM-133, Equipment Lubrication Procedure;
- DCP-1A pump to coupling alignment in accordance with MP-114, Disassembly and Reassembly of DCP-1A and DCP-1B;
- Filling, venting and calibration check of building spray flow switch (BS-81-FIS) in accordance with SP-169, Plant Safety-Related Instrument Calibration;
- Lube oil replacement of nuclear services closed cycle cooling pump (SWP-1B) in accordance with PM-133;
- Repair of gas leak on gas analyzer used in the waste gas system; and,
- Replacement of bellows in high pressure injection (HPI) flow transmitter (MU-23-dpt 1).

No problems were identified in this area.

6. Review of Licensee Event Reports (LERs) and Nonconforming Operations Reports (NCOR's)

a. The inspector reviewed Licensee Event Reports to verify that:

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

LER's 81-40, 81-52, 81-53, 81-54, 81-55, 81-56 and 81-58 were reviewed. As a result of this review the following items were identified:

- (1) LER 81-052 reported to the inoperability of decay heat pump (DHP)-1A as a result of worn bearings. The licensee is having a bearing failure analysis performed to determine the reason for the failure.

Inspector Followup Item (302/81-19-06): Review failure analysis study performed on DHP-1A worn bearings.

- (2) LER 81-064 reported the inoperability of several hydraulic snubbers discovered over the past several years. This issue was addressed in inspection report 302/81-15 and is being followed as item (302/81-15-06).
- (3) LER 81-056 was issued as a followup to a prompt report of September 4, 1981, which reported a failure of the control complex radiation monitor (RMA-5). As a result of this issue, the licensee is planning to install a modification to the control room ventilation system that will establish an emergency recirculation lineup for the control room upon receipt of a flow alarm from RMA-5.

Inspector Followup Item 302/81-19-07): Verify installation of RMA-5 modification for establishing emergency recirculation lineup for the control room upon receipt of flow alarm.

b. The inspector reviewed NCOR's to verify the following:

- Compliance with the Technical Specifications;
- Corrective actions as identified in the reports or during subsequent reviews have been accomplished or are being pursued for completion;
- Generic items are identified and reported as required by 10 CFR Part 21; and,
- Items are reports as required by the Technical Specifications.

The following NCOR's were reviewed:

81-225	81-308
81-229	81-310
81-233	81-311
81-275	81-312
81-277	81-313
81-283	81-318
81-285	81-319
81-286	81-320
81-298	81-321
81-307	81-324

No problems were identified during these reviews.

#### 7. Review of IE Bulletins and Circulars

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

- a. IEB 80-04, Analysis of a PWR Main Steam line Break with Continued Feedwater Addition

In the response dated May 8, 1980, the licensee stated that their system design adequately protects against occurrences described in the IEB. The licensee also states that, as a result of their February 26, 1980, event, an engineering evaluation was being conducted to determine if isolation of emergency feedwater (EFW) valves FWV-161 and 162 should be removed from the main steam rupture matrix thus providing a more reliable EFW system. This engineering evaluation was concluded on June 2, 1980, and was submitted to Nuclear Reactor Regulation for review. The licensee's action with respect to responding to IEB 80-04, is considered complete.

- b. IEB 78-14, Deterioration of BUNA-N Components in Asco Solenoids

This bulletin was sent to the licensee for information and is not applicable to pressurized water reactors. No licensee action was required.

- c. IEB 79-23, Potential Failure of Emergency Diesel Generator Field Excitor Transformer

The licensee's actions on this Bulletin is complete.

- d. IEB 80-02 (Supplement), Failure to Gate Type Valves to Close Against Differential Pressure

The licensee's action of this Bulletin is complete.

- e. IEB 79-27, Loss of Non-Class - IE Instrumentation and Control Power System Bus During Operation

As a result of the loss of non-nuclear instrumentation (NNI) event of February 26, 1980, the licensee made major modifications to prevent a loss of the NNI's and control power buses. These modifications were verified as complete as described in NRC Inspection Report 50-302/80-24. In addition these modifications were reviewed by Nuclear Reactor Regulation (NRR) on July 18, 1980, and a plant restart was approved. The licensee's action on the Bulletin are considered to be complete.

- f. IEC 79-21, Prevention of Unplanned Releases of Radioactivity

The licensee has completed an extensive review of their systems that can cause an unplanned release of radioactivity and as a result made plant modifications to minimize these occurrences. Of these modifications, MAR 78-08-10 was completed on October 4, 1979 and MAR 80-07-03 was completed on February 3, 1981. On April 15, 1980, the licensee submitted a letter to Mr. Harold Denton of NRR which addressed their actions in responding to NUREG-0578, Item 2.1.6.a, Systems Integrity for High Radioactivity. This letter discussed additional system reviews performed by the licensee's staff to prevent unplanned releases of radioactivity. The licensee's action on this circular is considered to be complete.

- g. IEC 80-03, Protection From Toxic Gas Hazards

The licensee has evaluated this Circular and in conjunction with their review of NUREG-0737, Item III.D.3.4 Control Room Habitability Requirements, are making required plant modifications. Modification MAR 80-12-04 will be completed during the refuel outage scheduled to begin September 27 and an additional modification will be completed in the Spring of 1982. Completion of these modifications will be followed as NUREG-0737 items are reviewed. The licensee's response to this circular is complete.

- h. IEC 80-04, Securing of Threaded Locking Devices on Safety-Related Equipment

The licensee has completed reviewing approximately 80% of the preventative maintenance procedures (MP) and added cautions, where required, regarding installation of locking devices. Review of the remaining 20% of MPs and PMs will be completed by May, 1982. The licensee's response to this Circular is considered complete.