



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

Report No.: 50-302/84-30

Licensee: Florida Power Corporation
St. Petersburg, FL 33733

Docket No.: 50-302

License No.: DPR-72

Facility Name: Crystal River 3

Inspection Dates: October 27 - November 9, 1984

Inspection at Crystal River site near Crystal River, Florida

Inspector: V. W. Panciera
for T. F. Stetka, Senior Resident Inspector

12/28/84
Date Signed

Accompanying Personnel: J. E. Tedrow, Resident Inspector

Approved by: V. W. Panciera
V. W. Panciera, Chief, Project Section 2B
Division of Reactor Projects

12/28/84
Date Signed

SUMMARY

Scope: This routine inspection involved 59 inspector-hours on site by one resident inspector in the areas of plant operations, security, radiological controls, Licensee Event Reports and Nonconforming Operations Reports, facility design and design changes, 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 backshifts.

Results: One violation was identified (Failure to take and analyze a radioactive dose rate sample - paragraph 6.a.).

REPORT DETAILS

1. Licensee Employees Contacted

- *G. Boldt, Nuclear Plant Operations Manager
- *J. Buckner, Nuclear Security and Special Projects Superintendent
- *R. Carbiener, Nuclear Compliance Specialist
- *E. Carver, Shift Captain
- *M. Collins, Nuclear Safety and Reliability Superintendent
- *M. Craven, Nuclear Security Officer
- *R. Dorrie, Quality Engineer
- *F. Harman, Operations Security
- *E. Howard, Director, Site Nuclear Operations
- *D. Humphreys, Project Manager, Wackenhut
- *W. Johnson, Nuclear Plant Engineering
- J. Kraiker, Nuclear Operations Superintendent
- *M. Mann, Nuclear Compliance Specialist
- P. McKee, Nuclear Plant Manager
- *R. Murgatroyd, Assistant Nuclear Maintenance Superintendent
- *D. Nash, Nuclear Master Mechanic
- *T. Neaman, Nuclear Security Specialist
- *S. Powell, Senior Licensing Engineer
- *V. Roppel, Nuclear Plant Engineering and Technical Services Manager
- *W. Rossfeld, Nuclear Compliance Manager
- *P. Skramstad, Nuclear Chemistry and Radiation Protection Superintendent
- *D. Spires, Nuclear Compliance Specialist

Other personnel contacted included office, operations, engineering, maintenance, 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 November 9, 1984. During this meeting, the inspector summarized the scope and findings of the inspection as they are detailed in this report. Also during this meeting the inspector discussed problems that have occurred with other licensees due to inadequate notification of plant events to the NRC Operations Center.

3. Licensee Action on Previous Inspection Items

(Closed) Inspector Followup Item (302/84-29-03): The licensee removed the unmodified control rod drive (CRD) breaker and replaced it with a modified breaker. The unmodified breaker was subsequently modified and tested and returned to the warehouse as a spare breaker. The inspector observed the modification and testing activities on this breaker and considers this item to be closed.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Review of Plant Operations

The plant continued in power operation (Mode 1) until November 5. On November 2, a control rod dropped into the reactor core, causing a plant reduction in power to approximately 50% of full power (see paragraph 8 for details of this event). Due to inability to retrieve this control rod, a plant shutdown was commenced on November 5 and the plant placed into cold shutdown (Mode 5) on November 6. During this shutdown, the dropped control rod stator was replaced, two control rod position indicator tubes were replaced, valve MUV-24 was repaired, some plant modifications were completed, and some secondary plant maintenance performed. On November 9, a plant heatup was commenced and the plant was in hot standby (Mode 3) at the end of this inspection period.

a. Shift Logs and Facility Records

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

The following records were reviewed: Shift Supervisors Log; Reactor Operators' Log; Equipment Out-of-Service Log; Shift Relief Checklist; Auxiliary Building Operator's Log; Active Clearance Log; Daily Operating Surveillance Log; Work Request Log; Short Term Instructions (STIs); and selected Chemistry/Radiation Protection Logs.

In addition to these records, the inspector independently verified clearance order tagouts.

No violations or deviations were identified.

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 backshifts. Also, during this inspection period, licensee meetings were attended by the inspector to observe planning and management activities.

The facility tours and observations encompassed the following areas: security perimeter fence; control room; emergency diesel generator room; 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 the TS for the current operational mode: Equipment operating status; area, atmospheric and liquid radiation monitors; electrical system lineup; reactor operating parameters; and auxiliary equipment operating parameters.

No violations or deviations were identified.

- (2) Shift Staffing - The inspector verified that operating shift staffing was in accordance with TS requirements and that control room operations were being conducted in an orderly and professional manner. In addition, the inspector observed that turnovers on various occasions to verify the continuity of plant status, operational problems, and other pertinent plant information during these turnovers.

No violations or deviations were identified.

- (3) 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 existed.

No violations or deviations were identified.

- (4) Radiation Areas - Radiation Control Areas (RCAs) were observed to verify proper identification and implementation. These observations included selected licensee conducted surveys, review of step-off pad conditions, disposal of contaminated clothing, and area posting. Area postings were independently verified for accuracy through the use of the inspector's own radiation monitoring instrument. The inspector also reviewed selected radiation work permits and observed personnel use of protective clothing, respirators, and personnel monitoring devices to assure that the licensee's radiation monitoring policies were being followed.

No violations or deviations were identified.

- (5) Security Control - Security controls were observed to verify that security barriers are intact, guard forces are on duty, and access to protected area (PA) is controlled in accordance with the facility security plan. Personnel within the PA were observed to insure proper display of badges and that personnel requiring escort were properly escorted. Personnel within vital areas were observed to ensure proper authorization for the area.

No violations or deviations were identified.

- (6) Fire Protection - Fire protection activities, staffing, and equipment were observed to verify that fire brigade staffing was appropriate and that fire alarms, extinguishing equipment, actuating controls, fire fighting equipment, emergency equipment, and fire barriers were operable.

No violations or deviations were identified.

- (7) Surveillance - Surveillance tests were observed to verify that approved procedures were being used; qualified personnel were conducting the tests; tests were adequate to verify equipment operability; calibrated equipment, as required, was utilized; and TS requirements were followed.

The following tests were observed and/or data reviewed:

- SP-104, Hot Channel Factors Calculations;
- SP-177, Local Leak Rate Test of AHV-1A through D;
- SP-312, Heat Balance Calculations;
- SP-317, RC System Water Inventory Balance;
- SP-333, Control Rod Exercises;
- SP-370, Quarterly Cycling of Valves;
- SP-381, Locked Valve List (Position Verification of Locked Valves);
- SP-421, Reactivity Balance Calculations (including an independent calculation of the shutdown margin by the inspector);
- SP-422, RC System Heatup and Cooldown Surveillance; and
- SP-425, Control Rod Drive Patch Panel Access Control.

As a result of these reviews the following items were identified:

- (a) Procedure SP-425 requires in step 6.7 that if further surveillance activities are necessary, these activities be logged in the "Outstanding Surveillance Items Log". At the time procedure SP-425 was performed, it was required to perform another surveillance procedure SP-401, Control Rod Programming Verification. The inspector's review indicates that the Outstanding Surveillance Items Log no longer exists (it was discontinued some years ago) and that the licensee has no apparent method to ensure that subsequent surveillances (such as SP-401) are accomplished. The licensee will revise procedure SP-425 to remove reference to the non-existent log and review implementation of a method to ensure that subsequent surveillances are performed.

Inspector Followup Item (302/84-30-01): Review the licensee's progress to revise step 6.7 of SP-425 and develop a method to ensure subsequent surveillances are performed.

- (b) Procedure SP-177, step 6.1 allows deviation from the procedure to account for "maintenance, plant conditions and clearance conflicts, and to allow individual testing of

valves". Use of this step was discussed with licensee personnel and while it is realized that some latitude is necessary in this type of test to allow the test to proceed, the inspector observed activities that appear to exceed the limits allowed in step 6.1. The licensee will revise step 6.1 in procedure SP-177 and in other applicable procedures (e.g., procedure SP-179) to clarify the intent of the step.

Inspector Followup Item (302/84-30-02): Review the revision to step 6.1 of procedure SP-177 and other applicable procedures to clarify the intent of the step.

- (8) Maintenance Activities - The inspector observed maintenance activities to verify that correct equipment clearances were in effect; Work Requests and Fire Prevention Work Permits, as required, were issued and being followed; Quality Control personnel were available for inspection activities as required; and TS requirements were being followed.

Maintenance was observed and work packages were reviewed for the following maintenance activities:

- Repair of the seal ring leak on valve MUV-24; and
- Replacement of the control rod drive mechanism (CRDM) stator on control rod 5-6 in accordance with procedure MP-108.

No violations or deviations were identified.

- (9) Radioactive Waste Controls - Selected gaseous and liquid waste releases were observed to verify that approved procedures were utilized, that appropriate release approvals were obtained, and that required surveys were taken.

No violations or deviations were identified.

- (10) Pipe Hangers and Seismic Restraints - Several pipe hangers and seismic restraints (snubbers) on safety-related systems were observed to ensure that fluid levels were adequate and no leakage was evident, that restraint settings were appropriate, and that anchoring points were not binding.

No violations or deviations were identified.

6. Review of Nonconforming Operations Reports

The inspector reviewed Non-Conforming Operations Reports (NCOR) to verify the following: compliance with the TS, 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 reported as required by TS.

All NCORs were reviewed in accordance with the current NRC enforcement policy.

As a result of these reviews, the following items were identified:

- a. NCOR 84-244 identified and reported the failure to sample and analyze a gas sample from the auxiliary building and fuel handling area exhaust area monitor (RMA-A2) within 2 to 6 hours after a change in power level that exceeded 15% of rated thermal power in one hour. This sampling and analysis is required by TS 4.11.2.1.2. The power level change occurred at 11:00 p.m., on November 2 and the sample was not taken and analyzed until 5:41 p.m., on November 3, approximately 13 hours later.

A similar event occurred on July 30, 1983, in which a power level change occurred at 1:54 p.m., and the RMA-A2 sample was not taken and analyzed until 12:45 p.m., on July 31, approximately 23 hours later. This event was also identified by the licensee and reported in NCOR 84-173 and Licensee Event Report (LER) 84-17.

As a result of the July 30 event, the licensee's corrective action to prevent recurrence was to revise certain surveillance procedures to highlight the applicable sample requirements. These procedures were revised and implemented by October 15, 1984.

The NRC, in accordance with 10 CFR Part 2, Appendix C, Section IV.A., will generally not issue a Notice of Violation if the violation was:

- Identified by the licensee;
- Fits in Severity Level IV or V;
- Was reported as required;
- Was corrected including measures to prevent recurrence; and
- Was not a violation that could have been prevented by corrective action from a previous violation.

While the original occurrence of July 30 met these criteria, the occurrence of November 2 indicates a failure to initiate appropriate corrective measures to prevent recurrence. Therefore, these occurrences are being considered as a violation of TS 4.11.2.1.2.

Violation (302/84-30-03): Failure to perform the sampling and analysis for RMA-A2 as required by 4.11.2.1.2.

- b. NCOR 84-220 reported the plugging of the decay heat closed cycle cooling heat exchanger (DCHE) 1B due to failure of the decay heat seawater (RW) piping protective liner. The licensee discovered this occurrence by observing an increased differential pressure across the heat exchanger. The licensee presently has a pipe wall thickness surveillance program underway (see NRC Inspection Reports 50-302/83-17, paragraph 6.a and Report 50-302/84-09, paragraph 3) and is considering additional surveillance to monitor lining degradation.

Inspector Followup Item (302/84-30-04): Review the licensee's plan for additional surveillances to monitor RW piping liner degradation.

7. Design, Design Changes and Modifications

Installation of new or modified systems were reviewed to verify that the changes were reviewed and approved in accordance with 10 CFR 50.59, that the changes were performed in accordance with technically adequate and approved procedures, that subsequent testing and test results met acceptance criteria or deviations were resolved in an acceptable manner, and that appropriate drawings and facility procedures were revised as necessary. This review included selected observations of modifications and/or testing in progress.

The following modification approval records (MARs) were reviewed and/or associated testing observed:

- MAR 80-11-40-01, Install Back-up Power Sources in NNI/Y Cabinet;
- MAR T84-06-05-01, Remove ES Signal from Valve MUV-64; and
- MAR 77-11-14, Remove Trip Reset From AC Breakers.

No violations or deviations were identified.

8. Nonroutine Operating Event Followup

- a. At 2:00 p.m., on October 27 the plant declared an Unusual Event due to a leak of sulfur dioxide (SO₂) from the Unit 1 and 2 fossil plants. At that time, the control complex ventilation fans (which ventilate the control room) were placed in the recirculation mode to prevent entry of SO₂ into the control room and selected turbine building fans were secured. At 3:30 p.m., due to a wind shift, a precautionary evacuation of non-essential personnel from the site was made.

The SO₂ leak came from an SO₂ holding tank at Units 1 and 2. The holding tank is used to provide SO₂ to the electrostatic precipitators to ensure proper operation while the units burn low sulfur coal.

The Unusual Event was terminated at 6:46 p.m., when the gas leak was stopped. There was no entry of the gas into the plant and the plant continued to operate throughout the event. There were no personnel injuries.

During the inspector's review of this event, it was determined that abnormal procedure AP-513, Toxic Gas Monitor Actuation, does not require personnel from Units 1 and 2 to notify Unit 3 personnel when a gas release occurs. The procedure only requires this notification for fossil Units 4 and 5. As a result, there was some delay in notifying Unit 3 when the event occurred.

The licensee will review their notification procedures and make appropriate changes to assure Units 1, 2, 4, and 5 make early notification to Unit 3 when a toxic gas event occurs.

Inspector Followup Item (302/84-30-05): Review the changes to the fossil units' notification plan for toxic gas release events.

- b. At 11:00 p.m., on November 2 while operating at near full, power the plant experienced an operational transient when control rod 6 in rod group 5 (Rod 5-6) dropped into the reactor core. As designed, a plant runback to 60% of full power occurred thus preventing a plant trip. The resulting abnormal control rod configuration caused the quadrant power tilt (QPT) limits of 3.31 (steady state) and 8.81 (transient) to be exceeded and at 11:30 p.m., the operators reduced plant power to approximately 40% of full power as required by TS 3.2.4b.

The cause of the dropped rod was traced to an open control rod drive motor (CRDM) power supply breaker. Attempts to reset the breaker were unsuccessful and it was determined that the stator for the CRDM for rod 5-6 was shorted. The licensee elected to continue operating at reduced power through the weekend to permit adequate planning for plant shutdown to replace the stator.

The inspector arrived in the control room shortly after the event occurred and verified the status of plant operating parameters and observed the activities of troubleshooting the cause of the dropped rod. The inspector reviewed the licensee's plan for continued operation with the dropped rod and verified that such operation was in accordance with plant TS.

A plant shutdown was commenced at 5:20 a.m., on November 5 and the plant entered cold shutdown at 2:00 a.m., on November 6. The defective CRDM stator was replaced and plant restart was in progress as of November 9.

No violations or deviations were identified.