



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N.W. SUITE 1217
ATLANTA, GEORGIA 30303

Report No.: 50-302/78-15

Docket No.: 50-302

License No.: DPR-72

Licensee: Florida Power Corporation
3201 34th Street, South
P. O. Box 14042
St. Petersburg, Florida 33733

Facility Name: Crystal River, Unit 3

Inspection at: Crystal River Site, Crystal River, Florida

Inspection conducted: May 22-26, 1978

Inspector: P. T. Burnett

Approved by: R. D. Martin
R. D. Martin, Chief
Nuclear Support Section No. 1
Reactor Operations and Nuclear Support Branch

6/23/78
Date

Inspection Summary

Inspection on May 22-26, 1978 (Report No. 50-302/78-15)

Areas Inspected: Routine, unannounced inspection of licensee preparation for refueling, refueling activities and review of initial and post-rod-repatch power escalation tests. One inspector was onsite for a total of 32 hours.

Results: No items of noncompliance were identified in the three areas inspected.

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DETAILS I

Prepared by:

P. T. Burnett
P. T. Burnett, Reactor Inspector
Nuclear Support Section No. 1
Reactor Operations and Nuclear
Support Branch

6/23/78
Date

Dates of Inspection: May 22-26, 1978

Reviewed by:

R. D. Martin
R. D. Martin, Chief
Nuclear Support Section No. 1
Reactor Operations and Nuclear
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1. Persons Contacted

- *G. P. Beatty, Jr., Nuclear Plant Manager
- *P. F. McKee, Technical Services Superintendent
- W. R. Nichols, Operations Superintendent
- *G. R. Westafer, Maintenance Superintendent
- *J. Cooper, Compliance Engineer
- *G. M. Williams, Compliance Plant Engineer
- *W. R. Klein, Reactor Engineer
- J. R. Wright, Chem/Rad Protection Engineer
- W. Pittman, Maintenance
- K. Prince, Babcock and Wilcox

Various other plant operations personnel.

*Indicates attendance at the exit interview on May 26, 1978.

2. Licensee Actions on Previous Inspection Findings

Not addressed.

3. New Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance or deviations. An unresolved item disclosed during this inspection is discussed in paragraph 5.

4. Exit Interview

On May 26, 1978, the inspector met with Mr. G. P. Beatty, Jr., Nuclear Plant Manager, and those others indicated by asterisk in paragraph 1. The scope and findings of this inspection were presented by the inspector. Plant management made commitments to add the Missile Shield Crane to the preventive maintenance program for cranes and to review ANSIB30.2-1976, a safety standard for cranes, for applicability to all cranes engaged in handling radioactive material or carrying loads over reactor fuel (78-15-02).

5. Preparation for Refueling

Prior to refueling, the licensee inspected the upper end fittings of all fuel assemblies for signs of wear caused by flow induced motion of orifice rod assemblies (ORA) and burnable poison rod assemblies (BPRA). The inspection was performed using a TV camera. The inspector reviewed a sample of the video tapes of the inspection. The resolution and contrast of the tapes were good and it was clear that the ORAs had barely marked the end fittings. On the other hand, wear caused by motion by the BPRAs was obvious.

The licensee stated that eight fuel assemblies including those from which the BPRAs came loose, and their symmetric counterparts, would be reinstalled without orifice rod assemblies. Other fuel assemblies previously containing BPRAs will have ORAs installed so that the retaining ball contact area is 90° from that of the previously installed BPRAs.

Procedure FP-203, "Defueling and Refueling Operations" was reviewed for content and for performance up to the time of the inspection. All appropriate procedure steps were completed. The control room log maintained by the refueling consultant was also reviewed for the activities in that area performed prior to the inspection. No questions arose from that review. The required surveillance procedures for fuel handling were found to be complete. These included:

- a. SP112, "Calibration of the Reactor Protection System,"
- b. SP220, "Instrumentation Functional Checks during Refueling Operations,"
- c. SP346, "Containment Penetrations Weekly Functional Checks During Refueling Operations,"

- d. SP406, "Refueling Operations Daily Data Requirements,"
- e. SP532, "Reactor Building Main and Auxiliary Fuel Bridges Electrical Interlock Check" and
- f. SP670, "Reactor Building Fuel Handling Bridges".

In reviewing the required surveillance procedures it was noted that none of the surveillance procedures addressed the reactor building polar crane, which had to be used to make the vessel accessible for both the defueling and refueling operations. The licensee does not have a surveillance procedure that addresses the polar crane. That piece of equipment is part of the preventive maintenance program implemented by Preventive Maintenance Procedure 109. However, that procedure has no stated frequency for performance. From discussions with plant personnel and review of documents immediately available to the inspector, it was not clear when the polar crane had last been inspected or whether a timely inspection had been performed prior to lifting the vessel head. This has been identified to the licensee as an unresolved item pending further determination of the status and extent of inspections and preventive maintenance performed on the polar crane prior to its use for this outage.

Unresolved Item: The inspection of the polar crane prior to its use for safety-related load lifting activities is unresolved pending licensee determination of the last date of polar crane inspection (78-15-01).

6. Refueling Operations

Problems with the upenders in the spent fuel pool and the two fuel transfer carts and drive units interrupted fuel handling shortly before the inspector arrived onsite, and no fuel handling from the spent fuel pool to the reactor building was accomplished during the period of this inspection. The inspector observed some of the remote maintenance activities attempted on these malfunctioning pieces of equipment, and also witnessed the use of a diver to work on the equipment underwater. In the course of the observations of activities in the spent fuel pool and adjacent areas, the inspector noted that two cranes appeared to be improperly reeved in that the wire ropes were not fully in the grooves of the upper drums. That was the case for the main hook of the spent fuel cask handling crane and for the missile shield crane directly over the spent fuel pool. In addition, the latter crane was reeved such that the various parts of wire rope between the upper and lower blocks were twisted and rubbing together. These concerns and observations were brought to the attention of plant management and

maintenance personnel. During this time the cask handling crane was not in use and the missile fuel crane was used only for operations much less than its rated capacity.

7. Power Escalation Test

a. Core Power Distribution

During the initial power escalation, core power distribution as a function of increasing power was measured using test Procedure 7/1/800/11, "Core Power Distribution." Following the control rod repatch in February 1978, core power distribution was measured using surveillance Procedure 116, "Core Power Distribution and Power Imbalance Correlation Test."

The data and completed procedures for these tests were reviewed by the inspector. The test results confirmed that adequate thermal margins, F_Q , $F_{\Delta H}$, linear heat rate, and DNBR were maintained in all cases.

b. Power Imbalance Test

The relationship between the incore and excore measurements of the axial power imbalance were measured during the startup test using test Procedure 7/1/800/18 and following rod repatch using SP116. Review of the plotted test data indicated that the relationship between incore and excore indications of axial power imbalance met the test acceptance criteria in all cases.

c. Reactivity Coefficients at Power

During the startup phase of operations, reactivity coefficients at power was measured at 40%, 70% and 100% power using test Procedure 7/1/800/5. Following review of the test procedure and results, the inspector had no further questions.