



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
230 PEACHTREE STREET, N.W. SUITE 818  
ATLANTA, GEORGIA 30303

IE Inspection Report No. 50-302/76-20

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

Facility Name: Crystal River 3  
Docket No.: 50-302  
License No.: CPPR-51  
Category: B1

Location: Crystal River, Florida

Type of License: B&W, PWR, 2452 Mwt

Type of Inspection: Routine, Unannounced

Dates of Inspection: October 19-22, 1976

Dates of Previous Inspection: October 5-8, 1976

Principal Inspector: F. Jape, Reactor Inspector  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear Support Branch

Accompanying Inspectors: P. T. Burnett, Reactor Inspector  
Nuclear Support Section  
Reactor Operations and Nuclear Support  
Section

G. L. Troup, Radiation Inspector  
Radiation Support Section  
Fuel Facility and Materials  
Safety Branch

Other Accompanying Personnel: R. C. Lewis, Chief  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear  
Support Branch

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Principal Inspector: Frank Jape 11/11/76  
F. Jape, Reactor Inspector  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear Support Branch  
Date

Reviewed by: R. C. Lewis 11/22/76  
R. C. Lewis, Chief  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear Support Branch  
Date

## SUMMARY OF FINDINGS

I. Enforcement Matters

None

II. Licensee Action on Previously Identified Enforcement Matters

All previously identified enforcement matters have been closed.

III. New Unresolved Items76-20/1 Conduct of Preoperational Radiochemistry Testing

A review of the preoperational radiochemistry test procedure on October 20, 1976, indicated that samples from the decay heat system and fuel pool were not collected as required by the licensee's procedure nor were the procedural requirements changed in accordance with approved procedures. (Details II, paragraph 2)

IV. Status of Previously Identified Unresolved Items75-16/2 Training Completion and Documentation

Amendment 49 to the FSAR revised the training commitment to agree with the present staff. This item is closed.

75-19/4 Testing of Radioactive Waste Sample Lines

A program for the testing of the sample lines has not been developed. This item remains open. (Details II, paragraph 4)

75-19/6 Evaluation of Sampling Media Collection Efficiencies

The licensee's evaluation of the collection efficiency is incomplete. This item remains open. (Details II, paragraph 4)

76-6/2 Pre-critical Test Program

Amendment 49 to the FSAR revised the pre-critical test program plans to agree with RG 1.68. This item is closed.

V. Unusual Occurrences

None

VI. Other Significant FindingsA. Project Status

The licensee has revised its plans for requesting a facility operating license and fuel loading date. Plans are to request a license on November 22, 1976, instead of November 1. Also, the licensee's plans are to complete the structural integrity and integrated leak rate test before requesting the operating licensee.

B. DeviationChemical Fume Hoods Performance

Contrary to the recommendation of National Bureau of Standards Handbook 92 and the American Conference of Governmental Industrial Hygienist, the face velocities of the chemistry fume hoods, as determined by measurement by the licensee, were significantly less than the recommended minimum velocity of 100 feet per minute. (Details II, paragraph 3)

VII. Management Interview

A management interview was held on October 22, 1976, with J. Alberdi and members of his staff. The inspection findings were discussed. In particular, the status of the facility in relation to the revised plans for loading fuel was discussed. A punch list of items requiring completion was discussed.

Items discussed also included the deviation and new unresolved items.

DETAILS I

Prepared by:

Frank Jape  
F. Jape, Reactor Inspector  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear  
Support Branch

11/11/76  
Date

Dates of Inspection: October 19-22, 1976

Reviewed by:

R. C. Lewis  
R. C. Lewis, Chief  
Reactor Projects Section No. 2  
Reactor Operations and Nuclear  
Support Branch

11/22/76  
Date

1. Individuals ContactedFlorida Power Corporation (FPC)

J. Alberdi - Project Manager  
G. P. Beatty, Jr. - Nuclear Plant Superintendent  
W. R. Nichols - Operations Supervisor  
D. H. Reuzic - Results Engineer  
G. J. Walker - Manager - Field Testing  
J. C. Clapp - Manager - Quality Surveillance Audits

2. Review of Operating Procedures

During inspection 50-302/76-11, comments on operating procedures were identified. The inspector's comments dealt primarily with inconsistencies between the operating procedures and the proposed Technical Specifications. Followup revealed that the licensee has conducted a review of all operating procedures to compare the limits with the Technical Specifications. Corrections have been made and the inspector had no further comment on this matter.

3. Plant Operational Status

The licensee's master punch list was examined to determine the status of the plant for initial fuel loading and initial operations. The master plan contains items requiring attention and delineates priorities and responsibilities.

During the review, the inspector questioned the priority assignment of a number of items. In each case, licensee management stated that the item would be reviewed, or the priority was changed to require an earlier completion date. In summary the inspector had

no issue with the licensee's list of items that need to be completed prior to initial fuel loading and initial operations. Followup will be conducted on items that are considered to be a restraint to licensing and initial fuel loading.

4. Vibration Testing

The test results from the reactor vessel and internals inspection prior to and after hot functional testing were reviewed. The licensee has committed to performing this inspection, in Section 3.1.2.4.1 of the FSAR, as presented in Safety Guide 20.

The licensee's procedure for performing the inspection in SP-298 "Reactor Vessel and Internals Inspection." A comparison of data obtained from the pre-hot functional examination and post-hot functional examinations revealed no indications which could be of a flow induced nature. The inspection procedure covered all areas of concern and the inspector had no questions concerning the results.

5. Plant Tour

A tour of the reactor building and portions of the auxiliary building was conducted. The inspector noted that significant progress had been made in cleaning the reactor building. Access to the reactor building was being controlled to maintain cleanliness.

Final cleanup of the auxiliary building has not been completed. The housekeeping condition of the auxiliary building varied with the on-going construction activity.

6. Nuclear General Review Committee

Minutes of the Nuclear General Review Committee (NGRC) were examined to determine if the committee is functioning as prescribed. The preoperational activities of the committee, as prescribed in Sections 1.7.6.7.5, 12.6 and 13.2.6.3 of the FSAR, are to independently audit plant operations and to review test results that involve an unreviewed safety question.

The minutes reveal that the committee is fulfilling the FSAR commitments. Several comments were raised by the inspector and discussed with licensee management. These are summarized below:

- a) The minutes examined by the inspector did not contain any recommendations or findings. The decisions or recommendations made by the committee could not be determined from the minutes.

- b) The minutes did not include a review of enforcement matters reported in IE inspection reports. For example, the infractions reported in IE Report 50-302/76-8, and the deficiency in IE Report 50-302/76-11 were not included on the committee's agenda for discussion.
- c) The minutes do not reflect the committee's view on plant status in regard to fuel loading.

Licensee management stated that the above comments will be brought to the committee's attention for their consideration.

DETAILS II

Prepared by: *G. L. Troup*

G. L. Troup, Radiation Specialist  
Radiation Support Section  
Fuel Facility and Materials Safety  
Branch

11/18/76  
Date

Dates of Inspection: October 19-22, 1976

Reviewed by: *A. F. Gibson*

A. F. Gibson, Chief  
Radiation Support Section  
Fuel Facility and Material Safety  
Branch

11/22/76  
Date

1. Individuals Contacted

J. Alberdi - Project Manager  
G. P. Beatty, Jr. - Nuclear Plant Superintendent  
J. R. Wright - Chemistry and Radiation Protection Engineer  
G. D. Perkins - Health Physics Supervisor  
J. L. Harrison - Assistant Chemistry and Radiation Protection  
Engineer  
D. W. Pedrick, IV - Compliance Engineer  
W. A. Cross - Plant Engineer  
W. R. Klein - Reactor Engineer  
J. C. Hobbs, Jr. - Manager, Generation Testing  
G. H. Ruzsala - Test Engineer

2. Conduct of Preoperational Radiochemistry Testing

- a. Test procedure TP 7 2 500 3, Initial Radiochemistry Test, specifies samples to be collected and the analyses to be performed on the samples commencing with Hot Functional Testing (HFT) and continuing through power escalation to the 100% power plateau. Additional tests, such as radiochemistry testing after the initial fill of the spent fuel pool, are also specified in the procedure. The inspector ascertained from licensee representatives that HFT was completed in July 1976 and that the spent fuel pool was initially filled with water in June 1976.
- b. The inspector reviewed the appropriate sections of the test procedure for HFT and spent fuel pool sampling and analysis, prerequisites, changes and exceptions and deviation. As the



radiochemistry laboratory and counting room were not operable at the time of HFT, a procedure change was prepared and approved which permitted the collection of the samples with analyses at a later date. The inspector reviewed all of the changes made to the procedure to date and verified that they had been reviewed and approved in accordance with the licensee's procedures.

- c. The inspector reviewed the procedure to verify that the required samples had been collected and that the procedure had been signed off accordingly, or that exceptions to the procedure were recorded and signed off. During HFT, the prerequisite for, and sampling of the Decay Heat Removal System were not signed off nor was the sampling of the spent fuel pool following initial fill signed off as having been performed. No exceptions from the procedure were recorded regarding these samples. Licensee representatives reviewed the samples which had been collected and stored for analysis and located samples collected from the spent fuel pool but were unable to locate any samples from the Decay Heat Removal System.
- d. Licensee management acknowledged these comments and stated that the test procedure would be reviewed and appropriate action taken to correct the identified problems.

3. Chemical Fume Heads Performance

- a. National Bureau of Standards Handbook 92, "Safe Handling of Radioactive Materials," Section 4.2.a states, in part, for laboratory hood design "for handling low to moderate levels of radioactive materials, the average velocity through openings in the hood must be 100 fpm." The American Conference of Governmental Industrial Hygienists publication Industrial Ventilation states, in part, for ventilation of radioactive and high toxicity operations "for laboratory type hoods, an average face velocity of 125-200 fpm and a minimum face velocity of 100 fpm would be necessary to insure that no contaminate would escape into the room." In IE Report No. 50-302/76-14, Details I, paragraph 5.a it was noted that the face velocities of the fume hoods were approximately 50 fpm as determined by preliminary testing but that the licensee had stated that the condition would be corrected during final ventilation system balancing.

- b. During this inspection a licensee representative informed the inspector that the ventilation balancing was essentially complete for the control complex and auxiliary building. The test data for the primary (radiochemistry) laboratory hoods and nuclear sample room hoods indicated that the face velocities were approximately 60 and 80 fpm, respectively. Test data for the waste sample area hoods were not available for review. On October 19 the inspector observed additional testing being conducted to verify the face velocities of the primary laboratory fume hoods. Measurements made with an anemometer showed variable velocities depending on the location around the hood face but appeared to average about 60 fpm.
- c. This condition is considered to be a deviation from generally accepted industry practices. This condition was acknowledged by licensee management, who stated that this condition would be investigated and corrective actions taken. In the interim administrative controls would be established to obtain satisfactory face velocities so that radiochemistry training could continue.

4. Status of Unresolved Items

a. Testing of Radioactive Waste Sample Lines (75-19/4)

This item was originally discussed in IE Report No. 50-302/75-19, Details III, paragraph 2 and dealt with the need to test waste sample lines to verify representative sampling and assess the amount of plateout in sample piping, as required by Regulatory Guide 1.68. The inspector discussed this item with licensee representatives regarding status, schedule and test methods. The representatives discussed several possible methods for performing the test but stated that neither the test method nor the test procedure had been finalized. This item remains open.

b. Evaluation of Sampling Media Collection Efficiencies (75-19/6)

- (1) This item was originally discussed in IE Report Nos. 50-302/75-19, Details III, paragraph 4 and dealt with the need to establish the collection efficiencies for sample collection media, especially charcoal cartridges. In IE Report No. 50-302/76-14, Details I, paragraph 3 it was noted that the residence time for the charcoal cartridges

is too low to provide reasonable efficiencies or adequate counting statistics. A licensee representative informed the inspector that the collection efficiencies were still under study as were methods for increasing the cartridge residence time but that no decisions had been reached.

- (2) Subsequent to the inspection, a licensee representative advised the inspector by telephone that an engineering change notice had been issued to modify the air samplers to increase the residence time to an acceptable value. However, a the final value to be used for the collection efficiency had not been established. This item remains open.

5. Status of Previously Identified Items

The following facilities, systems and functional areas were reviewed by the inspector. These items were previously discussed in IE Reports as incomplete.

- a. administrative instructions for the conduct of chemistry and radiation protection - a revision to AI-700 was in the review cycle but had not been approved.
- b. respiratory protection training - training and respirator fitting had not started
- c. discharges from laundry sump - no procedures have been issued to establish administrative controls over the sump during discharges to meet the batch release criterion.
- d. calibration of effluent monitors - preoperational testing and calibration of the monitors was in progress but incomplete.
- e. waste solidification - procedures for the solidification of waste with no free liquid have not been prepared.
- f. decontamination room - the decontamination room has not been completed nor have temporary decontamination facilities been provided.
- g. make-up system letdown line - An engineering change notice has been issued to install shielding on the letdown line and block orifice but the shielding has not been installed.