U. S. ATOMIC ENERGY COMMISSION

REGION II

DIVISION OF COMPLIANCE

Report of Inspection

CO Report No. 50-302/68-1

Licensee: Florida Power Corporation
License No. CPPR 51
Category A

Date of Inspection: October 30 - November 1, 1968

Date of Previous Inspection: None

Inspected By: J. C. Bryant, Reactor Inspector — 11/26/68 Date

Reviewed By: F. J. Long, Senior Reactor Inspector — 11/26/68 Date

Proprietary Information: None

SCOPE

Crystal River Unit No. 3 is an 800 MWe PWR reactor located near Crystal River, Florida. The purpose of this visit was to conduct the initial management meeting following issuance of the construction permit. The inspector was accompanied by F. J. Long and J. G. Davis. Following the meeting with licensee management, an inspection was conducted of quality control procedures and construction activity.

SUMMARY

Safety Items

None

Nonconformance Items

None

Status of Previously Reported Problems

None

Significant Items

1. The initial management meeting was held. The Inspector, Senior Inspector, and Regional Director attended this meeting.

2. Site preparation had commenced but was limited to excavation and placement of the grout curtain around the periphery of the excavations to retard water in-flow.

3. The contractual arrangement between Florida Power Corporation and their contractors appears to be desirable from the standpoint of quality control surveillance. A clear line of authority over matters of quality is established, the licensee providing all major supervisory personnel.

4. The contractors for the two existing coal units are building the reactor facility.

Management Interview

A separate management exit interview was held with Bennett at the termination of the inspection. Due to the early stage of construction, there was little to discuss concerning work that had been done. Bennett was very interested in the amount of documentation that the inspector would expect to find at the site. This was discussed, and, as an example, the inspector informed him that the grouting operation appeared to be well documented.

Bennett stated that his team of engineers and many of the subcontractors had worked together on several construction projects.

These projects included Crystal River Unit 1, a 375 MWe coal fired plant completed in 1966, and Crystal River Unit 2, a 500 MWe coal fired unit presently under construction. The same Florida Power Corporation personnel and many of the same subcontractors will build Crystal River Unit 3.

Bennett expressed complete confidence in the ability of this group to construct an excellent plant. He expressed concern, however, about the problem of pleasing the AEC if the PSAR is not followed to the letter. The inspector told him that changes in the PSAR and related specifications which are based on sound engineering principles and which are well documented should present no problems. He was told that significant changes should be discussed with DRL and must be justified in the FSAR.

DETAILS

A. Persons Contacted:

1. Persons present at the initial management meeting are listed on Exhibit A.

2. Persons contacted during the inspection were as follows:

H. L. Bennett	Florida Power Corporation, Manager, Power Construction
E. E. Froats	Florida Power Corporation, Quality Assurance Engineer
C. E. Jackson	Florida Power Corporation, Supervisor, Mechanical Construction
C. Pachos	Florida Power Corporation, Supervisor, Structural Construction
J. Lewis	Livsey and Company, Welding Supervisor

B. Management Meeting

The primary purpose of this visit was to conduct the initial management meeting with the licensee and his contractors. Persons in attendance are listed in Exhibit A.

The licensee began with a detailed presentation on the organization of the project. It was noted that Florida Power Corporation has a unique contractural arrangement which somewhat parallels Duke's Oconee organization. The nuclear plant construction will be almost a continuation of the contractual arrangements on Crystal River Unit 1, operational, and Unit 2, nearing completion of construction. Under this arrangement, the utility closely controls all plant design and construction and utilizes its own construction equipment.

Davis made the first part of the compliance presentation in accordance with paragraphs A and B of the attached outline, Exhibit C.

Long made a very detailed presentation covering all remaining items in Exhibit C. This presentation was intended to be comprehensive and cover as many areas of concern as possible. The completeness of areas covered was evidenced by a comment from the Project Manager to the effect that numerous questions in their minds had been answered. He further stated that the meeting was very beneficial to Florida Power Corporation and it was greatly appreciated.

C. Construction Organization

The plant construction organization is shown on Exhibit B, attached. The organization and experience of Florida Power Corporation's headquarters staff is outlined in the PSAR. The site staff is listed in the initial interview. The utility's own men and their assistants are presently supervising the construction of Unit 2. They will also supervise construction of Unit 3, and will remain for start-up of Unit 3. Resumés are given in the PSAR for several of these men. Experience of others is as follows:

1. Jackson graduated from the University of Florida in 1958 with a degree in mechanical engineering. From 1958 until 1962 he was employed by E. I. du Pont de Nemours and Company at the Savannah River Laboratory as a design engineer. There he participated in the design and construction of special equipment required by the laboratory and plant. In 1962 he became a development engineer for Honeywell-Aero of Florida. His assignments included work on Gemini - mechanical packaging of system electronics and the power supply.

   In 1965 Jackson joined Mills and Jones, Inc. as Mechanical Construction Supervisor on Crystal River Unit 1. In January

of 1966 he became an employee of Florida Power Corporation and continued in the same position.

2. Pachos graduated from New York University in 1953 with a degree in civil engineering. From 1953 until 1956 he worked at the Philadelphia Shipyard as an engineer on submarine hull structure. For 20 months of 1956-57 he worked for Catalytic Construction Company of Philadelphia on design structure of industrial plants. In 1957 he joined Bechtel Corporation, Fort Lauderdale Power Division where he worked in engineering and construction. From 1964 to 1966 Pachos worked for Mills and Jones, Inc. in the construction of Crystal River Unit 1. From August 1966 to February 1967, he worked with Webman-Lord, Inc. on the design of phosphate plants. In February 1967 he joined Florida Power Corporation as Structural Construction Supervisor.

3. Froats graduated from the University of Florida in 1963 with a degree in civil engineering. Upon graduation he joined Florida Power Corporation where he worked two years on transmission foundation design and then on transmission foundation installation. In August 1968 he became Quality Assurance Engineer at Crystal River Unit 3.

D. Status of Construction

Grouting of the curtain wall around the reactor, turbine, and auxiliary buildings is nearly complete. The grouting has been carried out essentially as described in the PSAR, Vol. 4. Approximately 300 holes were drilled to depths of 70 to 100 feet, and grouted to refusal. The grout in use is a 60, 20, 20, cement, fly ash, and lime rock flour mix. As of October 1, over 12,000 tons of grout had been installed in the curtain wall.

Two wells have been drilled inside the curtain for removal of water coming up from below. The reactor building site is being excavated to base mat level. A mud shield will be placed, and consolidation grouting will be carried on through this shield. This shield should be in place and consolidation grouting begun in December.

E. Quality Assurance

Manufacturing and Shop Fabrication

Babcock and Wilcox (B & W) has the responsibility for the engineering and procurement of the nuclear steam supply system. This includes responsibility for quality assurance of all materials, components,

and systems furnished under B & W's scope of supply. B & W will provide for Florida Power Corporation's (FPC) record, copies of specifications including quality control procedures for B & W's scope of supply.

Florida Power Corporation, with the assistance of independent quality control organizations, will periodically spot check B & W's quality control program to verify its proper execution.

Florida Power Corporation will furnish all material not furnished by B & W. Florida Power Corporation, with the assistance of independent quality control organizations, will periodically inspect the quality control measures and records associated with all material being manufactured for Crystal River Unit 3. Vendors must receive Florida Power Corporation approval prior to shipping any material to the site.

General

The direct responsibility for quality assurance rests with Florida Power Corporation's on-site quality assurance engineer. At present, the quality assurance engineer has no staff, but the staff will be acquired as needed. The quality assurance engineer has the responsibility of seeing that all necessary certifications and records are transferred to his file.

Upon arrival of material at the site, it will be inspected and positively identified by checking permanent shop markings against certifications and records. Items will be tagged to indicate rejection, needed repairs, or acceptance. The Compliance inspector pointed out the desirability of a separate yard for storage of unacceptable material. Froats agreed to look into the possibility of establishing such a yard.

The on-site staff in general, and Froats in particular, were very interested in the inspector's opinion of quality assurance measures and record handling. Jackson reviewed his system of weldor and welding records. He lists all welds and has a check off system showing type of weld, weldor and qualification, when welded, inspection, etc. This system is being applied at Unit 2, and will be continued on Unit 3.