REPORT OF ASSIST INSPECTION

Licensee: Florida Power and Light Company
Turkey Point 3
Docket No. 50-250

Dates of Inspection: January 13-14, 1971

Inspected By: HR Denton for — 1/21/71
L. L. Beratan, Senior Structural Engineer — Date

Reviewed By: HR Denton — 1/21/71
H. R. Denton, Chief, Technical Support Branch — Date

Proprietary Information: None

SCOPE

An announced inspection was conducted by J. M. Varela, R. Lewis, Reactor Inspectors, CO:II and L. L. Beratan, Senior Structural Engineer, CO:HQ at the Turkey Point 3 site on January 13, 14, 1971. The purpose of the author's participation in this inspection was to assist in an examination of the North-South meridional joint for evidence of voids in the region of the expanded metal and to examine other work being conducted on the dome pertinent to the repair of the dome. This inspection was conducted at the request of C. Long of DRL.[1/]

SUMMARY

1. No voids, cracks, or poor concrete were noted in that portion of the North-South meridional joint examined.

2. Documentation was not available at the site of the approximately 60 percent of the joint removed. A meeting was being held at Gaithersburg, Maryland, with DRL and DRS and the documents were there.

1/ Memo from C. Long, DRL, to J. P. O'Reilly, CO, dated January 8, 1971.

3. Many of the tendon sheaths uncovered had been punctured by the jackhammers. To date in excess of 1000 punctures were counted. Many tendon sheaths were out of round and deformed.

4. Damage to the tendon wires consisting of notching and kinking of the wires was noted.

5. The licensee's inspection procedure to determine the extent of damage to the wires has not been documented.

6. Foreign material, i.e., moisture and chips of concrete, are being forced into the bundle of wires. It was observed that this material was not entirely removed when the tendon sheaths were patched.

7. Additional damage was observed from the grinding wheels used to cut out damaged sections of tendon sheathing. Notches were observed to have been ground into the wires.

DETAILS

The following people were contacted during the meeting:

Florida Power and Light Company
W. Gaines - QA Engineer

Bechtel
S. Folsom - QA Engineer

AEC
R. C. Lewis, CO:II, Principal Inspector
J. M. Varela, CO:II, Reactor Inspector - Construction
L. L. Beratan, CO:HQ, Technical Support Branch

A meeting was held with the above parties present. The purpose and the objectives of the inspection were discussed. It was requested that all available documentation of the excavation of the North-South meridional construction joint be made available. The requested documentation was not available since it was being used at a meeting being conducted at the Bechtel office in Gaithersburg, Maryland with DRL and DRS of the AEC.

A detailed examination was conducted by the AEC inspectors of the work in progress on the dome. An examination of the meridional joint did not indicate the presence of any voiding, cracking or poor bonding to

the expanded metal. It was observed that extensive damage was inflicted on the tendon sheaths in the process of removing the delaminated concrete. In excess of 1000 punctures were recorded, and there is still much concrete to be removed. The punctures vary in size from about 1/4 inch in diameter to an excess of one inch, where the entire steel point of the jack-hammer penetrated the tendon sheath. In addition to the above, many of the sheaths have been badly deformed.

Repair to the tendon sheaths and examination of the damaged wires were in progress. Damaged sections of the sheathing were being cut out with an air driven grinding wheel. After the damaged section was removed an examination of the tendon was conducted. It was noted that some of the wires had been notched by the grinder, further increasing the number of damaged tendon wires. The depth of some of these damages was measured to be 0.068 inches.

Many of the reinforcing bars in the concrete had been cut in the coring program, and many were broken and notched in the concrete removal operations. The inspectors were informed by Mr. Folsom that sections of notched bars will be removed and tested to see what reduction in strength has been experienced. This will be evaluated by the licensee and be reported to the AEC at some future date. A repair procedure for cut and broken bars will be prepared by the licensee.

The inspectors were informed by Mr. Folsom that a test tendon, whose length is estimated to be 5 feet, was made up and laid on the ground. Soil was compacted around the sheath and wires were penetrated by a jack-hammer. The test tendon was then shipped to Prescon Corporation for examination and testing. Mr. J. E. Lowenichen, Bechtel, was in charge of this project. When Mr. Lowenichen was asked for a copy of the test procedure the inspectors were informed that none had been generated. Mr. Lowenichen was asked about the details of the examination and testing to be conducted by Prescon. He stated only that the wires would be examined for notching and tension tests would be conducted on some of the wires.

The inspectors read the following specifications which are considered proprietary by the licensee:

5610-C-6 Revision 1 - Concrete Removal and Surface Preparation of Unit 3 Containment Structure Dome for Turkey Point.

5610-C-62 - Concrete Replacement for Unit 3 Containment Structure Dome for Turkey Point.

5610-62 - Elastomeric Roofing.

Copies of progress reports of the remedial work being done on the dome were given to the inspectors.

Report No. 1 - November 4-8, 1970
Report No. 2 - November 9-29, 1970
Report No. 3 - November 30 to December 27, 1970

EXIT INTERVIEW

On January 14, 1971, the inspectors conducted their exit interview. Those in attendance were:

W. Gaines - QA Engineer - FP&L
C. Stone - Electrical Engineer - FP&L
S. Folsom - QA Engineer - Bechtel
R. C. Lewis - CO:II - AEC
J. M. Varela - CO:II - AEC
L. L. Beratan - CO:HQ - AEC

The licensee was advised that the inspectors had concerns in the following area:

1. The number of damaged tendon wires.

2. Lack of criteria for acceptability of damaged tendons.

3. Additional damage to tendons because of inadequate repair procedures.

4. Lack of cleanliness of the tendons because of the intrusion of debris.

5. Inadequate inspection of damaged tendons.

6. Moisture being trapped in the open tendon sheaths.

7. The safety of the structure over its life with a tendon system of reduced reliability.

8. The tendons in their present conditions do not satisfy the criteria established in the FSAR.

The licensee was requested to advise Mr. Lewis in a timely manner when the test tendon will be examined and tested by Prescon. Mr. Lewis or others of the AEC would like to witness the testing; and to be informed several days in advance when concrete is to be replaced on the dome.

Messrs. Gaines, Folsom and Stone stated that the concerns would be transmitted to management for consideration.