



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
 REGION II  
 101 MARIETTA ST., N.W.  
 ATLANTA, GEORGIA 30323

Report Nos.: 50-250/89-01 and 50-251/89-01

Licensee: Florida Power and Light Company  
 9250 West Flagler Street  
 Miami, FL 33102

Docket Nos.: 50-250 and 50-251

License Nos.: DPR-31 and DPR-41

Facility Name: Turkey Point 3 and 4

Inspection Conducted: January 9-13, 1989

Inspectors: Rich C. Chou 2-21-89  
 R. C. Chou Date Signed

R. P. Carrion 21 FEB '89  
 R. P. Carrion Date Signed

Approved by: J. J. Blake 2/21/89  
 J. J. Blake, Chief Date Signed  
 Materials and Processes Section  
 Engineering Branch  
 Division of Reactor Safety

SUMMARY

Scope

This routine announced inspection was in the areas of previous open items, current modifications, and Heat Exchanger Piping System.

Results

In the areas inspected, violations or deviations were not identified.

One Unresolved Item (UNR) was identified concerning discrepancies between pipe support field conditions and as-built drawings, see paragraph 9. The management and responsible engineers demonstrated a positive attitude toward resolution of the the problems identified and setting a schedule for corrective actions. Although the licensee could not finish the resolution of previous open items before this inspection, the licensee did make positive effort and progress to resolve them.

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*J. E. Cross, Plant Manager
- \*R. J. Earl, Quality Control (QC) Supervisor
- \*S. M. Franzone, Lead Nuclear Engineer
- \*J. C. Gnecco, Civil Engineer - Juno Beach
- K. H. Greene, Civil Engineer Supervisor - Juno Beach
- \*R. Hart, Compliance Lead Engineer
- D. I. Lanier, Mechanical Engineer - Juno Beach
- \*J. F. O'Brien, Construction Project QC Supervisor
- J. S. Odom, Site Vice President
- \*L. W. Pearce, Operation Superintendent
- G. Salamon, Compliance Engineer
- \*F. H. Southworth, Technical Supervisor
- B. C. Waldrep, Associate Engineer
- \*A. T. Ziblonka, Engineering Supervisor

Other licensee employees contacted during this inspection included craftsmen, engineers, mechanics, technicians, and administrative personnel.

#### Other Organizations

##### Stone and Webster Corporation

- F. Seely, QC Inspector
- M. Field, QC Inspector

##### NRC Resident Inspector

- \*G. A. Schnebli, Resident Inspector

\*Attended exit interview

### 2. Action on Previous Inspection Findings (92701) (92702)

- a. (Open) UNR 50-250, 251/86-13-01, Adequacy of Design Capacities Used for Installed Wej-It Concrete Anchor Bolts. This matter concerned a small number of Wej-It concrete expansion anchors used on site because the Wej-It capacities tested on-site at Crystal River Nuclear Plant were found to be 40 percent to 60 percent less than the catalog values. The inspector held discussions with the responsible licensee engineers and reviewed the information provided. The licensee performed two sets of tests to determine a preliminary design capacity for Wej-It anchor bolts used for Turkey Point. The first



set of tests was performed in accordance with Specification No. 5177-478-C-103.2 (Rev. 1) on Wej-It anchors installed in new concrete slabs poured in accordance with current Turkey Point requirements. The results of these tests had a very low capacity and were considered somewhat questionable because the concrete materials used did not meet Turkey Point specification requirements for slump, aggregate soundness, and amount of lightweight aggregate. (See Inspection Report No. 50-250, 251/88-24 for more details.) The second, very limited set of tests was performed in accordance with Specification No. CN 2.19 (Rev. 0). Two 5/8" and three 1" diameter Wej-Its were installed in an existing concrete footing and the results were documented in Safety Evaluation JPE-PIN-SECJ-88-036. The results of these tests were also somewhat questionable because of the washer rotation during the tests. The results of both of these sets of tests were similar to the results found in the Crystal River testing program. The largest capacity reduction factors (actual capacity divided by published capacity) is between 0.5 and 0.4 with a range from 0.8 to 0.4. Turkey Point preliminary conclusion is that it has a condition similar to that of Crystal River with regard to reduced Wej-It capacities.

The licensee performed a screening of the approximately 160 supports at Turkey Point utilizing Wej-It to determine their adequacy using a reduction factor of 0.5 (per Crystal River) after comparing the Turkey Point test program to the Crystal River test program. The Crystal River test program was very comprehensive since tests were performed on the different sizes and embedments. The licensee determined that all Wej-Its had met functionality criteria for interim operation since all Wej-Its had a factor of safety of 2.

The licensee will examine the Crystal River test data and concrete material properties to determine whether the Crystal River data can be utilized in design for any permanent modifications required to meet design criteria at Turkey Point. Pending the licensee further actions on resolutions, this item remains open.

- b. (Open) UNR 50-250, 251/87-52-01, Discrepancies on As-Built Drawings and Calculations of Piping Systems for IEBs 79-02 and 79-14. This matter concerned the numerous discrepancies and calculations identified during previous inspections. This item was also discussed in Inspection Report No. 50-250, 251/88-24. In order to resolve these issues, the licensee's engineering has issued or will issue Design Equivalent Engineering Packages (DEEP) and Maintenance Items. The responsible licensee's engineers presented the schedule for implementation. The majority will be completed by the end of the upcoming refueling outage around the end of 1989 for Unit 3 with the rest being finished before that time. The modifications for the DEEP 88-208 to 211 for Unit 4 have been completed at this outage just before this inspection. The walkdown inspection included DEEP 88-211 to verify the licensee performance. Pending the full completion of the discrepancies, this item remains open.

- c. (Closed) Violation 50-250, 251/88-28-01, Failure to Provide Adequate Design Control. The checking of the stress analysis for Component Cooling Water (CCW) Thermowell TI-4-663A-F was not done in accordance to approved procedures, resulting in an error not being identified. The inspectors reviewed FPL letter L-88-540, dated December 21, 1988, for their response to the violation. The A/E which generated the calculations has revised the erroneous calculations and they are now acceptable. In addition to correcting the identified calculations, the A/E reviewed all other calculations checked by the individual in question to assure their accuracy. Furthermore, the individual in question has been retrained in procedures for Design Calculations and Project Drawings. His training was completed on November 22, 1988. Also, on October 28, 1988, an interoffice memorandum was issued to all project engineering personnel, emphasizing the responsibilities of the checker.

It appears that the A/E has taken appropriate steps not only to remedy the current situation, but also to assure that it will not happen again. Therefore, this violation is closed.

- d. (Open) Violation 50-250, 251/88-28-02, Failure to Establish an Adequate Inspection Program for Component Cooling Water Heat Exchanger Replacement. Numerous examples of work activities proceeding past hold points without consent of authorized personnel were noted. This violation and the steps to be taken to correct the problem are outlined in FPL letter L-88-540. A memorandum was issued on October 24, 1988, to all Project Field Engineers to emphasize that all Field Engineering inspections must be signed off within 24 hours of work completion and that the sign-off date is the actual date of the sign-off. A memorandum was also issued on October 25, 1988, to all Construction QC Inspectors, emphasizing the procedural requirements for timely sign-offs, fully completing hold point activities before sign-off, and fully recording supporting data entries where required. QC will monitor compliance on a weekly basis with the actions outlined in the above-referenced memoranda in order to determine their effectiveness. This monitoring will continue at least until a new Administrative Site Procedure is issued to address the use of Process Sheets and Installation Lists. It will provide clear direction on the use of hold points and when sequencing is required, as well as criteria for "inspection points" for Process Sheets and Installation Lists. Also, training sessions will be conducted for Backfit Construction Field Engineers and QC inspectors whose activities are controlled by Process Sheets and Installation Lists. The Procedure is expected to be issued and the training sessions are expected to be completed by February 15, 1989.

Because full compliance for the actions undertaken to remedy the violation has not been achieved to date, this violation remains open.



## 3. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. One unresolved item identified during this inspection is discussed in paragraph 9.

## 4. Walkdown Reinspection

To check the licensee's performance on the pipe support modifications during or before the refueling outage, the inspector randomly selected 27 pipe supports from several Plant Change/Modifications (PCM). The inspector walkdown reinspection was completed with the assistance from the licensee's engineers and QC inspectors. The supports were partially reinspected against their detail drawings for configuration, identification, fastener/anchor installations, member size, weld sizes, component identification numbers, dimensions, rust, maintenance, and damage/protection. The list below is the reinspected supports with discrepancies/comments:

Table 1

## Supports Reinspected

| <u>Support No./Drawing No.</u> | <u>Unit No.</u> | <u>Rev. No.</u> | <u>Data Point</u> | <u>Discrepancies/Comments</u>   |
|--------------------------------|-----------------|-----------------|-------------------|---|
| 81152-H-002-01                 | 3               | 0               | 50                | None  |
| 81152-H-002-02                 | 3               | 0               | 42                | None  |
| 81152-H-002-03                 | 3               | 0               | 28                | None  |
| 81152-A-002-01                 | 3               | 0               | 5                 | None  |
| H-733-01                       | 3               | 2               |                   | None  |
| H-733-02                       | 3               | 1               | 55                | None  |
| H-733-03                       | 3               | 2               | 90                | None  |
| H-733-04                       | 3               | 3               | 120               | None  |
| H-734-01                       | 4               | 0               | 80                | None  |
| H-734-02                       | 4               | 0               | 55                | None  |
| H-734-03                       | 4               | 0               | 35                | One flat washer is not installed per Spec. 5177-C-103.1   |
| H-734-04                       | 4               | 0               | 100               | None  |
| 81153-H-001-01                 | 4               | 0               | 50                | None  |
| 81153-H-001-02                 | 4               | 0               | 52                | None  |
| 81153-H-001-03                 | 4               | 0               | 108               | 0" clearance exists between top of pipe and Bar 6" x 1/2" x 0'-6" lg. 1/16" clearance is required per Spec. 5177-PS-21. |
| 81153-A-001-01                 | 4               | 0               | 130               | TS 8" x 6" x 1/2" and   |

| <u>Support No./Drawing No.</u><br>(cont'd) | <u>Unit No.</u> | <u>Rev. No.</u> | <u>Data Point</u> | <u>Discrepancies/Comments</u>  |
|--|-----------------|-----------------|-------------------|--|
|  |                 |                 |                   | base plate<br>3/4" x 12" x 1'-2"<br>are rotated 90° in<br>field.   |
|  |                 |                 |                   | Weld symbol is wrong<br>between TS 8" x 6" and<br>TS 6" x 6" due to the<br>above rotation.   |
|  |                 |                 |                   | Bar 1" x 6" x 6-3/4" for<br>Part PA-7 in field is<br>different from Bar Stock<br>1" x 6" x 6" for PA-7 in<br>Spec. 5177-PS-21.           |
| PTN-C-88-211-001                           | 4               | 0               | 750               | None   |
| PTN-C-88-211-002                           | 4               | 0               | 760               | None   |
| PTN-C-88-211-003                           | 4               | 0               | 1070              | None   |
| PTN-H-86-222-002                           | 4               | 0               | 135               | An anchor bolt at right<br>of lowest baseplate at<br>elevation looking east<br>has three threads short.                                  |
| PTN-H-86-222-005                           | 4               | 0               | A15               | None   |
| PTN-H-86-222-001                           | 4               | 0               | 110               | None   |
| PTN-H-86-222-003                           | 4               | 0               | 290               | None   |
| PTN-H-86-222-004                           | 4               | 0               | 813               | None   |
| PTN-P-86-222-005                           | 4               | 0               |                   | None   |
| PTN-H-86-222-006                           | 4               | 0               | 570               | The dimensions of<br>Section C are different<br>than those in the field.<br>PCM86-222 has been<br>issued to correct this<br>discrepancy. |
| 5614-H-535-28/88-515                       | 4               | 0               | 555               | None   |

#### 5. Heat Exchanger System Modification

Heat Exchangers for Unit 4 were replaced during this refueling outage. Pipe Supports were modified based on the specifications and information of new heat exchangers.

A walkdown of the Unit 4 Component Cooling Water (CCW) System reviewed modifications made to the supports listed in Table 2. Some minor discrepancies are noted together with licensee commitments for their resolution.



Table 2

| <u>Support No./Drawing No.</u> | <u>Rev. No.</u> | <u>Data Point</u> | <u>Discrepancies/Comments</u>  |
|--------------------------------|-----------------|-------------------|--|
| PTN-C-88-263-007-06            | 2               | 20                | None   |
| PTN-C-88-263-008-03            | 2               | 245               | Heat exchanger 4E207C and CC Pump 4P211C are mislabeled on the location plan. This will be corrected during ISI redraw effort. |
| PTN-C-88-263-008-04            | 2               | 2901              | None   |
| PTN-C-88-263-009-03            | 2               | 35                | Heat exchanger 4E207A and CC Pump 4P211A are mislabeled on the location plan. This will be corrected during ISI redraw effort. |
| PTN-C-88-263-009-04            | 2               | 8501              | None   |
| PTN-C-88-263-010-02            | 2               | 1951              | None   |
| PTN-C-88-263-010-03            | 2               | 175               | None   |
| PTN-C-88-263-011-01            | 2               | 114               | None   |
| PTN-C-88-263-011-02            | 2               | 115               | None   |
| PTN-C-88-263-011-03            | 2               | 121               | One weld slightly undersized. PCM88-263 has been issued to correct discrepancy.  |
| PTN-C-88-263-012-01            | 1               | 9                 | None   |
| PTN-C-88-263-012-02            | 1               | 17                | None   |

## 6. Calculation Review

The Design Calculation No. P-226A-01 for Support Mark No. 5177-226-81153-H-001-01, Rev. 1, Unit 4 was reviewed and evaluated for thoroughness, clarity, consistency, and accuracy. The input data for computer model was checked against design drawings. The output results from STRUDL were reviewed for consistency. The calculation contains the loading data, calculation and analysis, support sketch, and computer input and output.

## 7. Spent Fuel Pool Cooling System

The Spent Fuel Pool (SFP) Cooling System was originally designed as a non-seismic resisted system. The licensee discovered that this system was suppose to be a seismic resisted system. Therefore, the licensee revised the design to upgrade this system to ensure that the cooling function of the system is not lost as a result of a seismic event. The piping stress analysis was upgraded to include pool boiling (212°F) as the operating



temperature per letter no. JPE-PTPO-86-653. Several modifications are required in order to accomplish the system upgrade. These modifications included adding a thermal expansion loop for the existing piping, modifying the existing pipe supports and raceway supports, and replacing the manual transfer switch with a seismically qualified switch. This system is required to maintain the site radiation dose below 10 CFR 100 limitation. This system as modified at PCM85-148 consisted of a total of 23 supports for pipe sizes between 3/4" and 10" diameter. The modification for this system has been completed except for the installation of two seismically qualified gauges. Pending the inspection on design and modifications, this item is identified as Inspector Follow-up Item (IFI) 50-250, 251/89-01-04, Spent Fuel Pool Cooling System.

#### 8. Auxiliary Feed Water Area Surveillance

During the Maintenance Team Inspection, team members observed piping systems in Auxiliary Feed Water (AFW) Areas and found some deficiencies as stated in Section B.1.2 of NRC Inspection Report 50-250, 251/88-32. As a follow-up to the items identified in that report, a walkdown was conducted. Table 3 and Table 4 are the list of deficiencies during this walkdown and the previous observation stated in the above report. Table 3 and Table 4 are for Unit 3 except as noted:

Table 3  
Engineering Related Deficiencies

| <u>Item No.</u> | <u>Description</u>   |
|-----------------|--|
| 1.              | The machined drift pin installed at pipe strut and clamp instead of catalog parts for support no. 5177-162-80117-R-332-03.   |
| 2.              | Support 3MSHX-16 and 19 at Main Steam Line for 50,000# Snubber (PS) have studs for load pins instead of clevis pin. Several threaded thru studs were used for clamps in this line. |
| 3.              | Condensate Storage Tank (CST) supply line to AFW is stainless steel. However, several bolts on body/bonnets of valves are carbon steel and rusting.                                |
| 4.              | Safety Injection (SI) test line 3-940M has four flange bolts with insufficient thread engagement.  |
| 5.              | One spring can was bottomed-out (totally compressed) near RCP-3-307 Seal Bypass Valve on Excessive Letdown Line.   |
| 6.              | One spring support has one clamp bolt missing and the rod is loose (spring not set) near 3-FDWR-007 Condensate Line.   |

7. One support for CST line at EL.32' near column J-32, Unit 4 has a bent rod and is in contact with the electrical conduit.

Two items of special interest on Table 3 were noted. Support 5177-162-80117-R-332-03 has an irregular part used to join the sway strut and clamp. The part appears to be a machined stainless steel pin with the general shape of a punch. No documentation was produced during the inspection to indicate that use of the pin was authorized by engineering. The other item of note was that the pipe clamps of several large bore lines used studs which were threaded along their entire length and double nuts on both ends. Current standard practice uses a bolt rather than all-thread studs. The inspectors questioned this application and requested to see the manufacturer's catalog for verification of installation practices. The licensee's engineer did show the Pacific Scientific Catalog Drawing No. 1802005, dated March 1978, which permits the studs with threads at two ends for nuts to be used. But the all-thread studs are still not permitted to be used. The licensee was requested to verify if the all-thread studs are used at the load pins for the above snubbers.

Table 4  
Maintenance Related Deficiencies

| <u>Item No.</u> | <u>Description</u>   |
|-----------------|--|
| 1.              | Safety Inspection Level Transmitter Isolation and 3-881B Accumulator LT 922 Root Valve Leaks   |
| 2.              | Instrument Root Valve Leaks. Location: while standing in front of Unit 3 "A" Containment Cooler, 10 feet high on the Pressurizer Housing at the 58' level. |
| 3.              | Reactor Coolant Pump seal leakoff FIC-3-155 is leaking and has a makeshift gland seal nut/strong back device.  |
| 4.              | PCV-3-455A modification of 10/21/88 was left with wires protruding from the actuator, hanging from overhead and bundled on the electrical panel.           |

#### 9. Findings and Results

The discrepancies shown in Tables 1 and 2 between the field and as-built drawings or other documents were discussed with the licensee's engineers and QC inspectors. Pending the licensee review and revisions to the drawings and calculations, this item is identified as UNR 50-250, 251/89-01-01, Pipe Support Discrepancies Between Field Conditions and As-Built Drawings. The deficiencies shown in Table 3 such as the irregular parts, defective rods, spring can bottom-out, etc., will be identified as Inspector Follow-up Item (IFI) 50-250, 251/89-01-02, Piping and Pipe Support Deficiencies. The deficiencies shown in Table 4 about the valve leaks will be identified as IFI 50-250, 251/89-01-03, Piping System Maintenance.

## 10. Exit Interview

The inspection scope and results were summarized on January 13, 1989, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection results listed below. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

The management committed during the exit meeting to expedite the processes and find the solutions on all open items and to send out engineers to check the items listed on Table 4. The licensee was informed that Violation 50-250, 251/88-28-01 was closed. The new open items are listed below:

(Open) UNR 50-250, 251/89-01-01, Pipe Support Discrepancies Between Field Conditions and As-Built Drawings.

(Open) IFI 50-250, 251/89-01-02, Piping and Pipe Support Deficiencies.

(Open) IFI 50-250, 251/89-01-03, Piping System Maintenance

(Open) IFI 50-250, 251/89-01-04, Spent Fuel Pool Cooling System.

