



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

Report Nos.: 50-250/92-15 and 50-251/92-15

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 Units 3 and 4

Inspection Conducted: May 30 through June 26, 1992

Inspectors:

*R. C. Butcher*  
 R. C. Butcher, Senior Resident Inspector

*G. A. Schnebly*  
 G. A. Schnebly, Resident Inspector

*L. Trocine*  
 L. Trocine, Resident Inspector

7/10/92  
 Date Signed

7/10/92  
 Date Signed

7/10/92  
 Date Signed

Approved by:

*K. D. Landis*  
 K. D. Landis, Chief  
 Reactor Projects Section 2B  
 Division of Reactor Projects

7/15/92  
 Date Signed

SUMMARY

Scope:

This routine resident inspector inspection involved direct inspection at the site in the areas of monthly surveillance observations, monthly maintenance observations, operational safety, and plant events. Backshift inspections were performed on June 2, 3, 4, 7, 14, and 16, 1992.

Results:

Within the scope of this inspection, the inspectors determined that the licensee continued to demonstrate satisfactory performance to ensure safe plant operations. Violations or deviations were not identified, but the following weakness was noted.

Weakness - Failure to repair degraded equipment on a timely basis (paragraph 10.a).

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \* T. V. Abbatiello, Site Quality Manager
- R. J. Earl, Quality Assurance Supervisor
- R. J. Gianfrennesco, Support Services Supervisor
- E. F. Hayes, Instrumentation and Controls Maintenance Supervisor
- R. G. Heisterman, Mechanical Maintenance Supervisor
- \* D. E. Jernigan, Technical Manager
- \* H. H. Johnson, Operations Supervisor
- V. A. Kaminskas, Operations Manager
- \* J. E. Knorr, Regulatory Compliance Analyst
- \* R. S. Kundalkar, Engineering Manager
- J. D. Lindsay, Health Physics Supervisor
- G. L. Marsh, Reactor Engineering Supervisor
- \* L. W. Pearce, Plant General Manager
- M. O. Pearce, Electrical Maintenance Supervisor
- T. F. Plunkett, Site Vice President
- D. R. Powell, Services Manager
- R. N. Steinke, Chemistry Supervisor
- F. R. Timmons, Security Supervisor
- \* M. B. Wayland, Maintenance Manager
- J. D. Webb, Outage Manager (Acting)
- \* E. J. Weinkam, Licensing Manager

Other licensee employees contacted included construction craftsman, engineers, technicians, operators, mechanics, and electricians.

#### NRC Resident Inspectors

- R. C. Butcher, Senior Resident Inspector
- \* G. A. Schnebli, Resident Inspector
- \* L. Trocine, Resident Inspector

- \* Attended exit interview on June 26, 1992.

Note: An alphabetical tabulation of acronyms used in this report is listed in the last paragraph in this report.

### 2. Other NRC Inspections Performed During This Period

<u>Report No.</u>	<u>Dates</u>	<u>Area Inspected</u>
50-250,251/92-14	June 1-5, 1992	Confirmatory Measurements (Mobile Laboratory Van)



### 3. Plant Status

#### Unit 3

At the beginning of this reporting period, Unit 3 was operating at 87% power in order to extend the unit run time until the beginning of the August 24, 1992, refueling outage. Unit 3 had been on line since May 12, 1992. The following evolutions occurred on this unit during this assessment period:

- On June 11, 1992, at 4:45 a.m., power ascension from 87% to 100% was commenced for the performance of TP-840. (Refer to paragraph 7 for additional information.)
- On June 11, 1992, at 9:00 a.m., reactor power reached 100%.
- On June 11, 1992, at 1:10 p.m., reactor power was reduced to 99% for the performance of TP-840.
- On June 11, 1992, at 8:00 p.m., power reduction was commenced in order to resume reduced power operation.
- On June 12, 1992, at 2:10 a.m., reactor power reached 87%, and extended reduced power operation at this power level was recommenced in order to extend the unit run time until the beginning of the August 24, 1992, refueling outage.
- On June 14, 1992, at 8:31 a.m., control rod H-12 dropped into the core, and a turbine runback to 68% reactor power was received. (Refer to paragraph 10.c for additional information.)
- On June 14, 1992, at 9:29 a.m., a 1-hour soak at 70% power was commenced followed by power ascension.
- On June 14, 1992, at 1:30 p.m., reactor power reached 87%, and extended reduced power operation at this power level was recommenced in order to extend the unit run time until the beginning of the August 24, 1992, refueling outage.
- On June 17, 1992, at 7:27 p.m., Unit 3 experienced a turbine runback to 60% power due to an indicated dropped rod signal. (Refer to paragraph 10.d for additional information.)
- On June 17, 1992, at 8:10 p.m., rod withdrawal was commenced to restore rod position to be above the rod insertion limit and to reduce the accumulation of flux penalty minutes.
- On June 17, 1992, at 9:30 p.m., reactor power reached 87%, and extended reduced power operation at this power level was recommenced in order to extend the unit run time until the beginning of the August 24, 1992, refueling outage.



Unit 4

At the beginning of this reporting period, Unit 4 was operating at 100% power and had been on line since May 7, 1992. The following evolutions occurred on this unit during this assessment period

- On June 12, 1992, at 3:05 p.m., reactor power was reduced to 99% for the performance of TP-841. (Refer to paragraph 7 for additional information.)
- On June 12, 1992, at 8:45 p.m., 100% reactor power was re-achieved.

4. Followup on Items of Noncompliance (92702)

A review was conducted of the following noncompliances to assure that corrective actions were adequately implemented and resulted in conformance with regulatory requirements. Verification of corrective action was achieved through record reviews, observation, and discussions with licensee personnel. Licensee correspondence was evaluated to ensure the responses were timely and corrective actions were implemented within the time periods specified in the reply.

(Closed) VIO 50-250,251/92-07-03, Inadequate Review of a Test Release Work Scope Resulting in the Inadvertent Release of Primary Coolant through the 4B Charging Pump Vent Valve and Resulting in the Contamination of Two Licensed Operators.

The licensee responded to this violation by a letter dated May 26, 1992, and the licensee's root cause determination and corrective actions were reviewed by the inspectors. The licensee attributed this event to personnel error in that site personnel failed to include the 4B charging pump vent valve (4-276E) on the clearance test release in the closed configuration and in that the personnel performing the evolution failed to adequately check the 4B charging pump clearance and understand the evolution being performed. Upon discovery of the leak, the vent valve was immediately closed. The contaminated personnel and the Unit 4 charging pump room were decontaminated, and the personnel directly involved with this event were disciplined. A night order was issued to all operations personnel discussing this event, and the event and its causes were discussed at operations meetings. A Nuclear Problem Report (92-025) was also generated. In addition, a QA finding was issued for failure to provide a procedure for an activity which affected a safety/quality-related system and presented a personnel hazard. The licensee's corrective actions with regard to this issue appear to be adequate. This violation is closed.

5. Followup on Inspector Followup Items (92701)

Actions taken by the licensee on the items listed below were verified by the inspectors.

(Closed) IFI 50-250,251/92-04-01, Licensee's Program to Ensure Significant Changes to the Environs are Incorporated into the FSAR.

The licensee revised procedure O-ADM-034, Oil and Hazardous Material Emergency Response Plan and Environmental Survey, to define the responsible department and evaluation criteria at Turkey Point for reviewing environmental changes around the facility. The procedure requires that at least once annually the site Safety/Environmental Supervisor review, identify, and evaluate any changes to the environment within a ten mile radius of the site. The evaluation criteria for site changes is similar to that defined in TI 2515/112, Licensee Evaluations of Changes to the Environs Around Licensed Reactor Facilities. Any change that is evaluated to affect the FSAR is then forwarded to the Engineering Department who has the responsibility to incorporate FSAR changes. This item is closed.

6. Onsite Followup and In-Office Review of Written Reports of Nonroutine Events and 10 CFR Part 21 Reviews (90712/90713/92700)

The Licensee Event Reports and/or 10 CFR Part 21 Reports discussed below were reviewed. The inspectors verified that reporting requirements had been met, root cause analysis was performed, corrective actions appeared appropriate, and generic applicability had been considered. Additionally, the inspectors verified the licensee had reviewed each event, corrective actions were implemented, responsibility for corrective actions not fully completed was clearly assigned, safety questions had been evaluated and resolved, and violations of regulations or TS conditions had been identified. When applicable, the criteria of 10 CFR Part 2, Appendix C, were applied.

a. (Closed) LER 50-250/92-02, Failure to Trip Steam Flow/Feedwater Flow Mismatch Bistables.

This issue was previously discussed in IR 50-250,251/92-07 and was identified as NCV 50-250,251/92-07-04. This LER is closed.

b. (Closed) LER 50-250/92-04, Diesel Fuel Oil Analysis Performed Using Non-Technical Specifications ASTM Analysis.

This issue was previously discussed in IR 50-250,251/92-10 and was identified as NCV 50-250,251/92-10-02. This LER is closed.

c. (Closed) LER 50-250/92-05, Two Main Steam Isolation Valves Inoperable Due to Isolated Backup Nitrogen Supply and Therefore Not in Compliance With the Technical Specifications.

This issue was previously discussed in IR 50-250,251/92-10 and identified as VIO 50-250,251/92-10-03. This LER is closed.

## 7. Monthly Surveillance Observations (61726)

The inspectors observed TS required surveillance testing and verified that the test procedures conformed to the requirements of the TSs; testing was performed in accordance with adequate procedures; test instrumentation was calibrated; limiting conditions for operation were met; test results met acceptance criteria requirements and were reviewed by personnel other than the individual directing the test; deficiencies were identified, as appropriate, and were properly reviewed and resolved by management personnel; and system restoration was adequate. For completed tests, the inspectors verified testing frequencies were met and tests were performed by qualified individuals.

The inspectors witnessed/reviewed portions of the following test activities:

- TP-840, Steam Generator Moisture Carryover Measurement Test Using a Chemical Tracer, for Unit 3 and
- TP-841, Steam Generator Moisture Carryover Measurement Test Using a Chemical Tracer, for Unit 4.

As required by TSs 3.6.1.6, 4.6.1.6.1, and 4.6.1.6.2, the licensee is currently performing the twentieth year tendon surveillance for Unit 3 per procedure O-SMM-051.2, Containment Tendon Inspection. This surveillance is performed every five years, and this year's surveillance involves the inspection of 12 randomly selected tendons (3 dome, 4 vertical, and 5 hoop) in order to assess the containment post tensioning system for predicted prestress losses, corrosion protection, and material properties. A controlled group of tendons was inspected during previous surveillances.

Inspection of the vertical tendons has been completed, and all lift-off forces were above the predicted lower limit. The first two randomly selected hoop tendons have also been inspected, and both yielded forces below the predicted lower limit (6.63 kips per wire). Tendons 13H33 and 64H61 lifted off at 94.4% and 95.5% of this limit, respectively. As a result, the tendons adjacent to these two randomly selected tendons below the predicted lower limit were also inspected. Tendons 13H32 and 13H34 lifted off at 99.2% and 97.8% of the limit, respectively; and tendons 64H60 and 64H62 lifted off at 96.4% and 92.6% of the limit, respectively. The average lift-off force for these 6 hoop tendons was 96.0% of the predicted lower limit.

In accordance with the TS requirements, the lift-off forces of these 6 hoop tendons were restored to the required level of integrity (the predicted lower limit) within the 15-day LCO. The licensee is currently performing an engineering evaluation to show compliance with current regulatory guidance for assessing lift-off forces and will provide special reports to the NRC within 30 days. In addition, due to the high number of hoop tendons with lift-off forces below the predicted lower



limit, the licensee plans to conduct a study to determine the reason for the apparent accelerated loss of prestress.

At this point in the surveillance; there have been no two adjacent tendons below 95% of the predicted lower limit, and no individual tendon has been identified to be below 90% of the predicted lower limit. The average of the lift-off forces for the tendon groups (dome, vertical, or hoop) has been above the minimum required prestress limit (6.29 kips per wire), and the trend of averages at this time indicates that the lift-off forces will be above the minimum required prestress limit during the next 5 year surveillance. Following completion of the Unit 3 containment tendon surveillance project near the end of July 1992, the licensee plans to begin the Unit 4 containment tendon surveillance project.

The inspectors determined that the above testing activities were performed in a satisfactory manner and met the requirements of the TSs. Violations or deviations were not identified.

#### 8. Monthly Maintenance Observations (62703)

Station maintenance activities of safety-related systems and components were observed and reviewed to ascertain they were conducted in accordance with approved procedures, regulatory guides, industry codes and standards, and in conformance with the TSs.

The following items were considered during this review, as appropriate: LCOs were met while components or systems were removed from service; approvals were obtained prior to initiating work; activities were accomplished using approved procedures and were inspected as applicable; procedures used were adequate to control the activity; troubleshooting activities were controlled and repair records accurately reflected the maintenance performed; functional testing and/or calibrations were performed prior to returning components or systems to service; QC records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were properly implemented; QC hold points were established and observed where required; fire prevention controls were implemented; outside contractor force activities were controlled in accordance with the approved QA program; and housekeeping was actively pursued.

The inspectors witnessed/reviewed portions of the following maintenance activities in progress:

- thermography of Unit 3 charging pump vent valves;
- repair various leaks on 3A EDG air start system valves 3-70-255A, 3-70-414A, 3-70-263A, and 3-70-279A;
- perform monthly PMs on 3A EDG; and



- overhaul/repair 3B2 intake well traveling screen.

For those maintenance activities observed, the inspectors determined that the activities were conducted in a satisfactory manner and that the work was properly performed in accordance with approved maintenance work orders. Violations or deviations were not identified.

#### 9. Operational Safety Verification (71707)

The inspectors observed control room operations, reviewed applicable logs, conducted discussions with control room operators, observed shift turnovers, and monitored instrumentation. The inspectors verified proper valve/switch alignment of selected emergency systems, verified maintenance work orders had been submitted as required, and verified followup and prioritization of work was accomplished. The inspectors reviewed tagout records, verified compliance with TS LCOs, and verified the return to service of affected components.

By observation and direct interviews, verification was made that the physical security plan was being implemented. The implementation of radiological controls and plant housekeeping/cleanliness conditions were also observed.

Tours of the intake structure and diesel, auxiliary, control, and turbine buildings were conducted to observe plant equipment conditions including potential fire hazards, fluid leaks, and excessive vibrations.

The inspectors walked down accessible portions of the following safety-related systems/structures to verify proper valve/switch alignment:

- A and B emergency diesel generators,
- control room vertical panels and safeguards racks,
- intake cooling water structure,
- 4160-volt buses and 480-volt load and motor control centers,
- Unit 3 and 4 feedwater platforms,
- Unit 3 and 4 condensate storage tank area,
- auxiliary feedwater area,
- Unit 3 and 4 main steam platforms, and
- auxiliary building.

The licensee routinely performs QA/QC audits/surveillances of activities required under its QA program and as requested by management. To assess the effectiveness of these licensee audits, the inspectors examined the status, scope, and findings of the following audit reports:



pressurized. During subsequent investigation, valve 3-40-074 (drain valve, lube oil cooler to lube oil transfer pump suction) was found to be almost three turns open in lieu of fully closed as required by clearance 0-92-05-022. The valve was found to stick at this position, and a great deal of force was required to close the valve further. Once the valve was turned past this point, it operated normally. The valve was closed, and the leak was isolated at 2:20 p.m. Because off-site governmental agencies were notified of the oil release to the closed cooling canal system, this event was reported to the NRC at 1:56 p.m. per 10 CFR 50.72(b)(2)(vi). The licensee's failure to repair equipment that had been identified since August 1990 as being degraded on a timely basis is considered a weakness.

- b. At 10:17 a.m. on June 9, 1992, the 4B reactor trip bypass breaker was racked in and closed in accordance with 4-OSP-049.1, Reactor Protection System Logic Test; and a 2-hour LCO per TS 3.3.1, Table 3.3-1, Item 19, Action Statement 8, was entered. At 10:40 a.m., while attempting to re-close the 4B reactor trip breaker from the console during this surveillance, the 4B reactor trip breaker failed to close and was declared out of service. This put the unit in a 6-hour to hot shutdown LCO per the same TS. During the investigation, the licensee identified a blown 10-amp fuse in the breaker close circuit. The fuse was replaced, and the breaker was cycled and timed satisfactorily. At 12:00 p.m., the 4B reactor trip breaker was declared back in service, and the 4B bypass breaker was racked out.
- c. At 8:31 a.m. on June 14, 1992, control rod H-12 in group 2 of Unit 3's control bank D dropped into the core while rods in this bank were being moved from 201 steps to 200 steps. A turbine runback from 87% to 70% reactor power was received due to actuation of the rod bottom bi-stable on control rod H-12, and a 1-hour action statement per TS 3.1.3.1 was entered. The dropped rod was verified by observation of the rod bottom light, the turbine runback annunciator (B 7/1), and the deflection of the power range detectors and their associated axial flux meters. Automatic actions such as the arming of the steam dumps to the condenser and the turbine runback automatic rod insertion were also verified. The runback was automatically stopped by the load limit at 70% turbine load, and control bank D automatically stepped in to 137 steps. Reactor power was stabilized at 68% by 8:35 a.m. Actions were also initiated to maintain the T(ave)/T(ref) deviation less than 3 degrees F and to return flux to the target band. An investigation was begun, and no obvious problems were identified in the rod control logic or power cabinets. No urgent or non-urgent failure alarms were received, and no blown fuses were identified. At 9:02 a.m., the licensee commenced rod retrieval. Control rod H-12 was successfully withdrawn to 137 steps at 9:21 a.m., and the 1-hour action statement was exited. At 9:29 a.m., flux was returned to the target band; and because only 56 minutes of penalty time were accumulated within the previous 24-hour

<u>Audit Number</u>	<u>Number of Findings</u>	<u>Type of Audit</u>
QAO-PTN-92-020	-	Corrective Action
QAO-PTN-92-023	3	May Performance Monitoring Audit
QAO-PTN-92-024	-	Security Response, Communications, Compensatory Measures, and Access Authorization

No additional NRC followup actions will be taken on the findings referenced above because they were identified by the licensee's QA program audits and corrective actions have either been completed or are currently underway. Plant management has also been made aware of these issues.

As a result of routine plant tours and various operational observations, the inspectors determined that the general plant and system material conditions were satisfactorily maintained, the plant security program was effective, and the overall performance of plant operations was good. Violations or deviations were not identified.

#### 10. Plant Events (93702)

The following plant events were reviewed to determine facility status and the need for further followup action. Plant parameters were evaluated during transient response. The significance of the event was evaluated along with the performance of the appropriate safety systems and the actions taken by the licensee. The inspectors verified that required notifications were made to the NRC. Evaluations were performed relative to the need for additional NRC response to the event. Additionally, the following issues were examined, as appropriate: details regarding the cause of the event; event chronology; safety system performance; licensee compliance with approved procedures; radiological consequences, if any; and proposed corrective actions.

- a. On June 7, 1992, the operations staff had noted a decrease in the Unit 3 lube oil reservoir, and at 11:30 a.m., oil was found to be leaking from a badly rusted section of pipe at a rate of approximately 10.5 gallons per hour. The pipe runs from the lube oil storage tank to the Unit 3 lube oil reservoir. Over the previous 24 hours, approximately 1,000 gallons of main turbine lube oil had leaked into the closed cooling water canal system. When the failed pipe was identified, several bags of absorbent were spread over the ground, and the licensee utilized an oil drum to collect any further leakage. The degradation of this pipe had been recognized in August of 1990 as documented by PWO WA900821115814, and the section of piping involved had been isolated by clearance 0-92-05-022 and should not have been

period, power ascension was approved. Following a 1-hour soak at 70%, reactor power was increased at a rate of 3% per hour; and 87% reactor power was achieved at 1:30 p.m. The inspectors will follow up on the licensee's ongoing corrective actions and root cause investigations during future inspections.

- d. At 7:27 p.m. on June 17, 1992, RPI indication for rod C-9 in Unit 3's shutdown bank A went to 0, and the rod bottom light came on. This resulted in several annunciators and a turbine runback. The unit stabilized at approximately 60% power with control bank D rods at 98 steps. Although no actions were taken to restore the RPI position, the rod bottom light signal cleared, and the position indication for rod C-9 returned to 229 steps at 7:49 p.m. Rod position was verified by a flux map, and the RPI was declared out of service at 8:00 p.m. Rod withdrawal was commenced at 8:10 p.m. in order to restore rod position to be above the rod insertion limits per TS 3.1.3.6 and to reduce the accumulation of flux penalty minutes. The rods cleared the rod insertion limits at 8:11 p.m., and flux was returned to the target band at 8:18 p.m. Within the previous 24-hour period, 50 penalty minutes had been accumulated. Power escalation was commenced at 8:20 p.m., and the unit was stabilized at 87% power at 9:30 p.m.

This event was attributed to a loose fuse holder in RPI rack No. 4. The fuse holder was replaced with a spare, and normal voltage readings were restored. The RPI for rod C-9 was kept out of service for a period of observation to ensure that the problem would not return. It was returned to service at 11:00 a.m. on the following day.

- e. At 4:40 a.m. on June 21, 1992, Unit 4's steam generator liquid sample line process radiation monitor R-19 alarmed high. Plant operators verified automatic actions and checked plant parameters to provide alarm validation. Because the condenser air ejector process radiation monitor (R-15), steam generator levels, and steam flow feedwater flow mismatch did not indicate the presence of a steam generator tube rupture; the R-19 trip was considered to be inadvertent, and it was determined that the high alarm was caused by increased background activity in the area of the R-19 detector during routine RCS sampling. R-19 was reset at 4:45 a.m. Another RCS sample was taken at 5:35 a.m., and R-19 tripped again. It was discovered that local background reading had increased from 0.2 to 8.0 millirem per hour during sampling. These events were not considered to be reportable at the time because the automatic actions of R-19 were not considered to be ESF actuations. However, at 5:00 p.m. on the following day, the Technical Manager questioned this decision. As a result, the licensee conservatively notified the NRC Operations Center of this issue at 8:30 p.m. on June 22, 1992, per 10 CFR 50.72(b)(2)(ii). A subsequent review by the licensing department concluded that this possibly reportable issue was in fact not reportable, and the licensee plans to retract the event notification. The inspectors

will follow up on the licensee's ongoing root cause investigations during future inspections.

Violations or deviations were not identified. The inspectors considered that operations personnel conducted routine plant evolutions and responded to non-routine events in a proficient and professional manner.

#### 11. Exit Interview (30703)

The inspection scope and findings were summarized during management interviews held throughout the reporting period with the Plant General Manager and selected members of his staff. An exit meeting was conducted on June 26, 1992. The areas requiring management attention were reviewed. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection. Dissenting comments were not received from the licensee. Violations or deviations were not identified. The inspectors had the following observation:

Within the scope of the inspection, the inspectors determined that the licensee continued to demonstrate satisfactory performance to ensure safe plant operations.

Weakness - Failure to repair degraded equipment on a timely basis (paragraph 10.a).

#### 12. Acronyms and Abbreviations

ADM	Administrative
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
EDG	Emergency Diesel Generator
ESF	Engineered Safety Feature
F	Fahrenheit
FSAR	Final Safety Analysis Report
IFI	Inspector Followup Item
IR	Inspection Report
kips	Thousands of pounds
LCO	Limiting Condition for Operation
LER	Licensee Event Report
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OSP	Operations Surveillance Procedure
PN	Preventive Maintenance
PTN	Plant Turkey Nuclear
PWO	Plant Work Order
QA	Quality Assurance
QAO	Quality Assurance Organization
QC	Quality Control
RCS	Reactor Coolant System
RPI	Rod Position Indicator
SMM	Surveillance Maintenance-Mechanical



T(ave)	Temperature (Average)
T(ref)	Temperature (Reference)
TI	Temporary Instruction
TP	Temporary Procedure
TS	Technical Specification
VIO	Violation
WA	Work Authorization