



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET SW SUITE 23T85  
ATLANTA, GEORGIA 30303-8931**

April 30, 2001

Florida Power & Light Company  
ATTN: Mr. T. F. Plunkett  
President - Nuclear Division  
PO Box 14000  
Juno Beach, FL 33408-0420

SUBJECT: TURKEY POINT NUCLEAR PLANT - NRC INSPECTION REPORT  
50-250/00-06, 50-251/00-06

Dear Mr. Plunkett:

On March 31, 2001, the NRC completed an inspection at your Turkey Point Units 3 and 4. The enclosed report documents the inspection findings which were discussed on April 5, 2001, with Mr. D. Jernigan and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the inspectors identified two issues of very low safety significance (Green). One of these issues was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a Non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny this Non-cited violation, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Turkey Point facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records ( PARS) component of the NRC's document system (ADAMS). Adams is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

Leonard D. Wert, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Docket Nos. 50-250, 50-251  
License Nos. DPR-31, DPR-41

Enclosure: Inspection Report Nos. : 50-250/00-06, 50-251/00-06  
w/Attachment: NRC's Revised Reactor Oversight Process

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-250, 50-251

License Nos: DPR-31, DPR-41

Report Nos: 50-250/00-06, 50-251/00-06

Licensee: Florida Power & Light Company (FPL)

Facility: Turkey Point Nuclear Plant, Units 3 & 4

Location: 9760 S. W. 344<sup>th</sup> Street  
Florida City, FL 33035

Dates: December 31, 2000 - March 31, 2001

Inspectors: C. Patterson, Senior Resident Inspector  
J. Reyes, Resident Inspector  
J. Starefos, Resident Inspector (Browns Ferry)  
G. Kuzo, Senior Radiation Specialist (Sections 2PS2, 2PS3,  
and 20S1)  
J. Wallo, Security Specialist (Sections 3PP1, 3PP2, 4OA1)  
S. Rudisail, Project Engineer (Section 4OA1)  
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J. Lenahan, Senior Reactor Inspector (Section 4OA5)

Approved by: L. Wert, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000250-00-06, IR 05000251-00-06 on 12/30/2000 - 3/31/2001, Florida Power & Light, Turkey Point Nuclear Power Plant, Units 3 & 4. Findings in flood protection measures and non-routine plant evolutions.

The inspection was conducted by the resident inspectors and several Region II inspectors; a senior radiation specialist, a security specialist, two emergency preparedness inspectors, a senior reactor inspector and a project engineer. The inspectors identified two Green findings, one of which was a non-cited violation. The significance of the findings is indicated by their color (Green) which was determined by the Significance Determination Process (see Attachment; NRC's Revised Reactor Oversight Process).

### Inspector Identified Findings

#### **Cornerstone: Initiating Events**

- Green. Some of the licensee's corrective actions in response to a previous Unit 4 loss of offsite power incident were not thorough. The incident involved a flooded manhole and an electrical cable fault. NRC inspector questioning led to the identification of numerous manhole sump pump and drain deficiencies. The licensee's periodic inspections of the manholes were not adequate to identify water intrusion. Subsequently, it was identified that 55 of 126 manholes contained accumulations of water.

The finding was of very low safety significance because the conditions did not have any adverse impact other than slightly increasing the probability of initiating a reactor trip or other event. (Section 1RO6)

#### **Cornerstone: Barrier Integrity**

- Green. The licensee's review of a recent reactor trip involving two dropped control rods focused on the cause of the trip and did not fully review all aspects of Technical Specification compliance. A Non-cited violation was identified for failure to complete the Quadrant Power Tilt Ratio determination within the time period required in Technical Specification 3.2.4.

The safety significance of this finding was very low because, although the time requirements were not met, the power distribution during this period remained within the design values assumed in the Updated Final Safety Analysis Report (Section 1R14).

## Report Details

Summary of Plant Status: Unit 3 operated at full power until March 6, 2001, when power was reduced to 40% to perform turbine valve testing and heat exchanger cleaning. Unit 3 was returned to full power on March 9, 2001, and remained at full power for the remainder of the report period.

Unit 4 was manually tripped from 45% power on January 25, 2001, due to two dropped control rods. The unit was in the process of reducing power due to a dropped control rod when the second rod dropped. Following repairs to a leaking part length control rod conoseal, the unit was returned to power on January 31, 2001.

### 1. REACTOR SAFETY

**Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity (Reactor-R), and Emergency Preparedness (EP)**

#### 1R04 Equipment Alignment

##### a. Inspection Scope

The inspectors verified by partial walkdown inspections, the alignment of redundant trains/systems when the other train/system was out-of-service. The inspectors reviewed the licensee's flow path verification procedure, Updated Final Safety Analysis Report (UFSAR) system description, and system drawings to determine the system was correctly aligned. The inspectors verified the required intake cooling water (ICW) flow with one component cooling water (CCW) heat exchange out-of-service per procedure 4-OP-019, Intake Cooling Water System, Section 7.8. The inspectors verified the clearance boundary for the 3A CCW pump did not adversely affect the flowpath of the other CCW pump.

- Unit 4 CCW heat exchangers with 4C CCW heat exchanger out-of-service
- Electric Fire Pump while Diesel Driven Fire Pump was out of service for maintenance
- 3B and 3C CCW pumps while the 3A CCW pump bearings were replaced

##### b. Findings

No findings of significance were identified.

#### 1R05 Fire Protection

##### a. Inspection Scope

On January 2, 2001, the inspectors evaluated the effectiveness of the fire brigade during response to a small fire in the radiation controlled area laundry facility. The inspectors verified the initial communications and activation from the control room. At the fire location, the inspectors verified the fire brigade had donned protective equipment and brought sufficient equipment to extinguish the fire. The fire was promptly extinguished and no significant damage occurred to plant systems.

The inspectors toured the plant areas listed below to evaluate, on a sampling basis, conditions related to licensee control of transient combustibles and ignition sources; the material condition and operational status of selected fire protection systems, equipment and features; and the condition of selected fire barriers used to prevent fire damage or fire propagation. The inspector also verified that selected equipment required by the licensee's fire hazard analysis was maintained in the location designated by licensee drawings.

- Zone 19, Unit 3 West Electrical Penetration Room
- Zone 20, Unit 3 South Electrical Penetration Room
- Zone 70, 4160V Switchgear 3B Room
- Zone 71, 4160V Switchgear 3A Room
- Zone 62, Unit 3 & 4 Computer Room
- Zone 102, Unit 4 Battery Rack B Room
- Zone 103, Unit 3 Battery Rack A Room

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors verified that the licensee's flooding mitigation plans and equipment were consistent with the licensee's design requirements and the risk analysis assumptions. A flooded manhole was a contributor to an electrical cable fault that resulted in a loss of a Unit 4 startup transformer (Licensee Event Report 50-251/00-04-00). The inspectors reviewed selected portions of the licensee's corrective action for the previously identified flooded manholes.

b. Findings

One finding of very low safety significance (Green) was identified. Some of the licensee's corrective actions associated with water intrusion into manholes, which was involved in a Unit 4 loss of offsite power incident, were not thorough.

LER 50-251/00-04-00 described an October, 2000, incident in which Unit 4 experienced a loss of offsite power due to actuation of a control relay associated with a startup transformer. Condition Report (CR) 00-2013 addressed the incident and included corrective actions for water intrusion into electrical manholes. One of the NRC inspectors observed water coming out of a cable conduit in an area near the flooded manhole and questioned the licensee's actions regarding the extent of water intrusion into manholes. CR 00-2397 was initiated. Subsequently, several deficiencies were identified associated with the condition of the manholes. The licensee's periodic inspections of the manholes were not adequate to identify water intrusion. Only 48 of the 126 manholes were listed in the site manhole inspection procedure. The inspector also identified that some manhole inspections were, by procedure, limited to verification that the manhole cover was secure. 55 of 126 manholes contained significant accumulations of water and some cables were submerged. Some of these cables could

have initiated a reactor trip or transient if degraded. Numerous sump pump deficiencies and clogged drains were also identified.

Corrective actions for CR 00-2397 included establishment of a periodic inspection of all manholes not addressed by the licensee's previous corrective actions.

This finding, if left uncorrected, would become a more significant concern and could increase the frequency of an initiating event since some of the cables are associated with mitigating systems or could initiate a reactor trip. The licensee's review concluded that temporary submergence of cables would not cause degraded conditions since most of the important cables can withstand temporary submergence. The finding was determined to be of very low safety significance (Green) by phase 1 of the Initiating Events section of the Significance Determination Process. Because the identified water intrusion conditions had not caused chronic electrical grounds or any safety-related equipment failures (other than the contribution to the startup transformer relay issue), the inspectors concluded that the manhole conditions did not represent a condition adverse to quality and the issue did not constitute a violation of regulatory requirements.

#### 1R11 Licensed Operator Requalification

##### a. Inspection Scope

On March 20, 2001, the inspector observed operator requalification testing activities for one licensed reactor operator. The inspector observed the operator and the examiner while three job performance measures were performed in the plant. The inspector reviewed licensee documentation to verify feedback was provided to the operator. NRC inspectors completed additional crew performance observations during an emergency preparedness drill as described in Section 1EP1.

##### b. Findings

No findings of significance were identified.

#### 1R12 Maintenance Rule Implementation

##### a. Inspection Scope

The inspectors assessed the effectiveness of maintenance on selected structures, systems, and components scoped into the maintenance rule, and verified procedural requirements specified in procedure O-ADM 728, Maintenance Rule Implementation. The inspector reviewed the characterization of failures, safety significance classifications, and the appropriateness of performance criteria and corrective actions. The inspectors attended an expert panel meeting to verify that maintenance rule issues were properly addressed in the periodic evaluation reports. The equipment problems reviewed were:

- CR 00-2411                      3 CD Instrument Air Compressor Trip
- CR 01-0277                      4160 Volt Breaker Failure for 4B High Head Safety Injection (HHSI) Pump



- CR 00-1769 4A Emergency Diesel Generator (EDG) Bearing - Metallic Flakes
- CR 00-1908 Residual Heat Removal (RHR) Heat Exchanger Flow Control Valve
- CR 00-2397 Underground Conduits
- CR 01-0183 Part Length Control Rod Drive Mechanism (CRDM) Leak

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the following emergent work activities, as described in the referenced CRs or work orders (WOs). The inspectors verified that the activities were adequately planned and controlled, as described in O-ADM-210, On-Line Maintenance/Work Coordination and O-ADM-225, On-Line Risk Assessment and Management. The inspectors verified that, as appropriate, contingencies were in place to reduce risk, minimize time spent in increased risk configurations, and to avoid initiating events. The inspectors verified that the on-line risk monitoring program was updated when equipment was removed from service, including specifically on February 15, 2001, when the 3A EDG was taken out of service for the monthly operability run.

- CR 01-0183 Part Length CRDM Leak
- CR 00-2397 Underground Conduits
- CR 00-2313 3A ICW Pump
- 3-OSP-023.1 3A EDG Monthly Operability Test
- CR 01-0625 3A ICW Pump Failed Inservice Test
- CR 00-2411 3 CD Instrument Air Compressor Trip

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions and Events

a. Inspection Scope

Unit 3 Downpower

During the Unit 3 downpower and operation at reduced power that occurred March 7-9, 2001, the inspectors made periodic tours of the control room and plant areas to verify proper personnel performance. The inspectors attended an evening shift turnover meeting, reviewed control room logs, chart recorders, and other indicators to verify deficient conditions were entered into the corrective action program.

Unit 4 Manual Trip

The inspectors performed a detailed review of the manual reactor trip that occurred on Unit 4 on January 25, 2001. During the performance of surveillance procedure 4-OSP-028.6, RCCA Periodic Exercise, shutdown bank B control rod H-6 fell from 224 steps to 120 steps. Troubleshooting activities were conducted to determine the cause of the dropped rod. Later, during a power reduction, another control rod (H-4), dropped. A manual reactor trip was promptly initiated due to two dropped control rods in different control rod banks. The inspectors performed an independent review of the event, including development of a time line of the event from the control room logs. The inspectors also reviewed the troubleshooting procedure, 0-GMI-102.1, Troubleshooting and Repair Guidelines, to verify that the procedure was adequate.

b. Findings

One finding of very low safety significance (Green), which included a Non-cited violation, was identified. The licensee's review focused on the cause of the manual trip and did not fully review all aspects of Technical Specification (TS) compliance and TS Limiting Conditions for Operations (LCO) entries. A non-cited violation was identified for failure to meet the TS 3.2.4 time requirements for a Quadrant Power Tilt Ratio (QPTR) calculation.

The inspectors reviewed the licensee's Post Trip Review Restart Report and raised several questions regarding timeliness of entries into TS LCOs and TS compliance. Several issues were subsequently identified that had not been fully addressed by the review or the initial resolution of Condition Report (CR) 01-0179:

There was a delay in recognition that an entry into TS 3.03 was required. During the operations crew turnover around 7:15 p.m. it was noted that the shutdown bank was not fully withdrawn as required by TS 3.1.3.5. At that time, which was several hours after the event was initiated, the licensee determined that TS 3.03 was the correct TS LCO since more than one shutdown bank control rod was not fully withdrawn. Although the TS 3.03 entry was not recognized promptly, the required actions for a TS 3.03 entry were met by the licensee's actions to reduce power due to the dropped rod. The initial resolution of CR 01-0179 did not contain corrective actions to address this issue.

The verification of shutdown margin (SDM) did not take into account that a shutdown rod bank was not fully withdrawn. The inspector reviewed the SDM calculations performed per 0-OP-028.2, Shutdown Margin Calculation and noted an inaccuracy in the calculation. At the time, shutdown rod bank B was inserted a few steps. The procedure calculated the rod worth for any control rods inserted for control bank C or D. However, no procedure step or allowance was considered for the shutdown bank insertion. The licensee's process has the operators perform a verification for adequate SDM by verifying no dilution has occurred and reactor engineering performs a calculation. However, neither of these actions accounted for the small shutdown rod insertion. The inspector reviewed the integral rod worth curves for a shutdown bank inserted to 225 steps. The rod worth was nearly zero for this small insertion.

The TS 3.2.4 requirement for a QPTR calculation every hour was missed on one occasion. Although the power distribution during this time remained within the values assumed in the UFSAR, the TS requirements were not met. These issues were

subsequently addressed in CR 01-0156.

This issue, if left uncorrected, would become a more significant concern because the licensee's initial review did not identify corrective actions for problems involving TS requirements and procedures associated with reactivity controls. However, the safety significance of the specific issues was very low. Although the operators did not promptly recognize that TS 3.03 was applicable, the actions taken to reduce power resulted in compliance with TS 3.03. Additionally, although the small amount of shutdown rod bank B insertion was not accounted for in the SDM verification, the actual impact on SDM accuracy was limited since the integral rod worth was very small. For the third issue, although the TS time requirements were not met, the power distribution during this time remained within the values assumed in the UFSAR and the verification was performed within a reasonable period of time. This issue was determined to be of very low safety significance (Green) by phase 1 of the Significant Determination Process.

The failure to meet the TS time requirement for QPTR calculation constituted a violation of regulatory requirements. TS 3.2.4.a requires that, with QPTR above 1.02 but less than 1.09, QPTR is to be calculated at least once per hour until the QPTR is reduced to within its limit or thermal power is reduced to less than 50 percent. At 4:10 p.m., QPTR was calculated to be 1.03. The next QPTR calculation was performed at 6:27 p.m. and QPTR was 1.06. Power remained above 50 percent during this time. Because this issue is of low safety significance and was been entered into the licensee's corrective action program (CR 01-0516), this finding is considered a Non-Cited Violation in accordance with Section VI.A.1 of the NRC Enforcement Policy. The violation is identified as NCV 50-251/00-06-01; Failure to Meet Technical Specification Time Requirement for Quadrant Power Tilt Ratio Calculations.

## 1R15 Operability Evaluations

### a. Inspection Scope

The inspectors reviewed selected operability evaluations affecting mitigating systems and barrier integrity to determine that operability was justified and no unrecognized increase in risk had occurred. The inspectors verified procedural requirements as described in O-ADM-518, Condition Reports. The inspectors attended the Plant Nuclear Safety Committee (PNSC) meeting and verified that the failed weld on the 3B EDG radiator fan guard which was reviewed as a non conformance/use-as-is was reviewed by PNSC as required by O-ADM-518. The evaluations reviewed were as follows:

- CR 01-0234 Spent Fuel Pool Storage Boraflex Degradation
- CR 01-0232 3B EDG Radiation Fan Guard Cracked Weld
- CR 00-2411 3CD Instrument Air Compressor Trip
- CR 01-0162 "A" Auxiliary Feedwater (AFW) Turbine Casing Leak
- CR 01-0046 Seismic Qualification of B AFW Pump Tachometer
- CR 00-2353 HSI Pump Bearing Failure

### b. Findings

No findings of significance were identified.

1R16 Operator Workaroundsa. Inspection Scope

The inspector reviewed the operator workarounds summarized on the licensee's list dated March 26, 2001, to determine if the cumulative effects would negatively impact operator actions during a plant transient. Through interviews, the inspector verified that operations personnel remained sensitive to outstanding operator workarounds.

Engineering personnel were interviewed to verify that the cumulative evaluations were performed as described by licensee procedure ODI-CO-016, Attachment 6, Operator Workaround Screening Checklist.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modificationsa. Inspection Scope

The inspectors evaluated Plant Change/Modifications (PC/Ms) to verify that the modified system designs had not been degraded, and that the modifications had not left the plant in an unsafe condition. The acceptability of the post modification testing requirements and weld materials for the repair of the part length control rod drive mechanism (CRDM) was reviewed in detail, including discussions with Nuclear Reactor Regulation (NRR) personnel. The following PC/Ms were reviewed:

PC/M 00-043	EDG Governor Modification
PC/M 01-008	Installation of Welded Plug on Abandoned Part Length CRDM

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testinga. Inspection Scope

For the post maintenance tests listed below, the inspectors reviewed the test procedure and either witnessed the testing and/or reviewed test records to determine whether the scope of testing adequately verified that the work performed was correctly completed and demonstrated that the affected equipment was functional and operable.

The inspectors observed operation of a 4160 volt breaker in the training building to ascertain why this breaker might operate once but fail on a second start. The inspectors also reviewed the EDG response curve with the electrical supervisor following the governor replacement to verify proper response of the EDG.

- 3-OSP-050.2 RHR System IST
- 0-OSP-016.26 Electric Driven Fire Pump Operability Test
- 0-OSP-202.3 4B HHSI Pump Failure to Start
- 4-OSP-23.1.2 3B EDG Test After Governor Modification
- 3-OSP-030.1 CCW Pump IST
- 4-OSP-206.1 Main Steam Line B Steam Dump to Atmosphere Control Valve (CV-4-1607)

b. Issues and Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

During the short outage following the manual reactor trip on January 25, 2001, the inspectors routinely verified plant outage activities. Backshift observations were conducted on January 28, 2001. The inspectors verified that control room operators were attentive to their duties and complied with plant procedures.

On January 29, 2001, the inspectors observed the control room operators perform the Unit 4 Pressurizer Fill and Vent. The inspectors reviewed the related procedures with control room supervisors and reactor operators prior to the evolution. The inspectors verified the control room manning was appropriate to perform the evolution as described in the licensee's procedure, 4-OP-041.8, Filling and Venting the Reactor Coolant System. The inspectors also verified compliance with Technical Specifications such as minimum RHR cooling flow during the evolution.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors verified by witnessing surveillance tests and/or reviewing test data, that the selected testing meet the TS, the UFSAR, and licensee procedure requirements and demonstrated the systems capable of performing their intended safety functions and their operational readiness. The inspectors verified that the resolution of CR 00-2382, involving an operator rounds issue, was appropriate. The inspectors also evaluated operations procedure usage to determine if performance was consistent with procedural requirements for documenting procedural step completion.

The inspector observed/reviewed the following surveillances:

- 0-OSP-202.3 Safety Injection Pump and Piping Venting, Monthly Pump Run.
- 3-OSP-023.1 Diesel Generator Operability Test
- 4-OSP-075.1 AFW Train 1 Operability Verification, Pump 'A'
- 3-OP-067 Process Radiation Monitoring System R 11/12
- 3/4-OSP-201.3 NPO Daily Logs
- 3-OSP-075.2 AFW Train 2 Operability Verification

b. Findings

No findings of significance were identified.

1EP1 Exercise Evaluation

a. Inspection Scope

The inspectors reviewed the objectives and scenario for the Turkey Point Nuclear Plant biennial, full-participation 2001 emergency response exercise to determine whether they were designed to suitably test major elements of the licensee's emergency plan.

During the period February 20 - 23, 2001, the inspectors observed and evaluated the licensee's performance in the exercise, as well as selected activities related to the licensee's conduct and self-assessment of the exercise. The exercise was conducted on February 21, 2001 from 7:30 a.m. to 1:45 p.m. Licensee activities inspected during the exercise included those occurring in the Control Room Simulator (CRS), Technical Support Center (TSC), Operational Support Center (OSC), and Emergency Operations Facility (EOF). The NRC's evaluation focused on the risk-significant activities of event classification, notification of governmental authorities, onsite protective actions, offsite protective action recommendations, and accident mitigation. The inspectors also evaluated command and control, the transfer of emergency responsibilities between facilities, communications, adherence to procedures, and the overall implementation of the emergency plan. The inspectors attended the post-exercise critique to evaluate the licensee's self-assessment process, as well as the presentation of critique results to plant management.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The inspector reviewed changes to the Radiological Emergency Plan (REP), as promulgated in Revision 36, against the requirements of 10 CFR 50.54(q) to determine whether any of those changes decreased REP effectiveness. Changes made via Revision 36 were very limited and did not involve modifications to the emergency action levels.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstones: Occupational Radiation Safety (OS) and Public Radiation Safety (PS)**

2OS1 Access Control to Radiologically Significant Areas

.1 Radiological Controls

a. Inspection Scope

During the week of January 29, 2001, the inspectors reviewed and evaluated implementation of selected radiological controls and ALARA program initiatives for the ongoing Unit 4 (U4) Short Notice Outage (SNO) reactor head coil stack repair activities. For selected U4 SNO tasks, electronic dosimeter alarm set-points were evaluated and personnel dosimetry results reviewed. In addition, radiation controls for the Radioactive Waste Building high radiation area (HRA) and locked-high radiation area (LHRA) storage sites and storage casks were reviewed and discussed in detail. Implementation of administrative and engineering controls and Health Physics (HP) personnel knowledge of HRA and LHRA requirements were evaluated.

Licensee activities were reviewed against Updated Final Safety Analysis Report (UFSAR), Technical Specification (TS), and 10 CFR Part 20 details. Implementation of the following Health Physics Administrative (HPA) procedures and Radiation Work Permits (RWPs) were examined and discussed:

- 0-HPA-021, Health Physics Restricted Area Key Control, revised 05/12/98.
- RWP 01-1015, Radwaste Building/Dry Storage Warehouse: Troubleshoot/Repair Flux Map Equipment, initiated 01/01/01.
- RWP 01-8004, Reactor Cavity (LHRA)/Top of Reactor Head, RPI Stack Leak Repair Including All Support Work, initiated 01/26/01.
- RWP 01-8005, Mechanical Maintenance, Perform Maintenance on Valves and Pumps, Initiated 01/01/01.
- RWP 01-8013, Perform Maintenance on Flux Map System and Support, initiated 01/27/01.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

During the week of January 29, 2001, the inspectors reviewed selected condition reports (CR), Nuclear Assurance Quality Reports, and Self-Assessments of activities conducted within radiologically significant areas. The inspectors verified that corrective actions were implemented commensurate with safety significance for the following documents:

- Self-Assessment HP 00-02, December 2000
- Quality Report Number 01-0011, Access Control to Radiologically Significant Areas, dated 01/25/01
- CR 00-1875, HRA posting obstructed, initiated 10/09/00/
- CR 00-1975, Debris discovered in U4 containment fuel transfer canal, initiated 10/18/00
- CR 00-1975, Debris discovered in U4 containment fuel transfer canal, initiated 10/18/00
- CR 00-1996, Very HRA, Improper U4 reactor sump door lower crash bar, initiated 10/14/00
- CR 00-2015, Analysis Requirements for air sample collected from the U4 cavity drain valve area, initiated 10/20/00
- CR 01-0159, U4 flux map system improperly positioned for removal/replacement, initiated 01/24/01

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation

.1 Radioactive Material Processing

a. Inspection Scope

Radiation protection program activities for characterization, temporary storage, and preparation of radioactive waste (radwaste) for subsequent transport to licensed processing or burial facilities were inspected. Radioactive waste stream samples used for waste classification were verified. Radiochemical sample analysis results used to determine scaling factors and calculations to account for difficult-to-measure (DTM) radionuclides for selected calendar year 1999-2000 dry active waste, reactor coolant system filter, and primary resin waste streams were reviewed and discussed. During the week of January 29, 2000, the inspectors toured solid radioactive waste processing and on-site storage facilities; observed and evaluated material condition and housekeeping; and reviewed and verified radwaste inventories and radiation surveys for selected radioactive waste containers and storage areas.

The current status of solid radioactive waste processing equipment and storage areas were verified against UFSAR and Process Control Program (PCP) details. Program guidance and implementation were evaluated against 10 CFR Parts 20 and 61; TS, and the following HPA and Health Physics Surveillance (HPS) procedures:

- 0-HPA-045, Process Control Program, revised 08/12/99.
- 0-HPS-040.2, Characterizing Radioactive Waste for Disposal, revised 08/19/99.

b. Findings

No findings of significance were identified.



## .2 Transportation Activities

### a. Inspection Scope

Radiation protection program activities associated with packaging, and transportation of radioactive waste/materials were evaluated. Shipping paper details and supporting documentation were reviewed and examined for accuracy and completeness. Quality assurance program activities and selected quality control records associated with use of Type B containers as required by 10 CFR 71, Subpart H, were reviewed and discussed. Training of selected personnel involved in preparation and shipping of radioactive waste during calendar years 1999 and 2000 were evaluated. Records of the following radioactive waste or radioactive material shipments were reviewed and discussed:

- 2000-069, Radioactive Material, Not Otherwise Specified (n.o.s.), 7, UN2982, Fissile Excepted, Reportable Quantity (RQ), De-watered Reactor Coolant System (RCS) Filters, 12/08/00.
- Radioactive material, excepted package, limited quantity of material, 7, UN 2910, U-4 Waste Stream, 11/03/00.
- 1999-033, Radioactive Material, n.o.s., 7, UN2982, Fissile Excepted, RQ, De-watered Primary Resin, 07/28/99.
- 1999-026, Radioactive Material, n.o.s., 7, UN2982, Fissile Excepted, RQ, De-watered RCS Filters, 06/16/99.
- 2001-07, Radioactive Material, n.o.s. 7, UN2912, Fissile Excepted, Contaminated Laundry, 02/01/01.

Transportation activities were evaluated against 10 CFR Parts 20 and 71, and 49 CFR Parts 170 -189 requirements; and the following licensee HPA, HPS, and approved vendor transportation operation (TR-OP) procedures:

- TR-OP-035, Handling Procedure for Chem-Nuclear Systems (CNS) Transport Cask CNS8-120B, Certificate of Compliance No. 9168, Revision Date, 11/02/99.
- 0-HPA-044, Shipment of Radioactive Material, revised 09/23/99.
- 0-HPS-044.1, Exclusive Use Vehicle Inspection, revised 09/08/99.
- 0-HPS-044.5, Marking and Labeling Radioactive Material Packages for Transport, revised 03/18/98.
- 0-HPS-044.7, Placarding of Radioactive Material Loads, revised 03/17/98.
- 0-HPS-044.8, Radioactive Material Shipment Surveys, revised 02/17/95.
- 0-HPS-044.9, Radioactive Material Documentation, revised 09/15/99.

### b. Findings

No findings of significance were identified.

## .3 Problem Identification and Resolution

### a. Inspection Scope

Selected CRs, associated with radioactive waste storage and processing, and radioactive waste/material transportation activities were reviewed. The inspectors verified that corrective actions were implemented commensurate with safety significance with the following documents:

- CR 00-2095, Radwaste Shipment sent to Chem-Nuclear Disposal, initiated 10/02/00
- CR 00-2230, Abnormal Dose Rates Discovered Outside of Radioactive Waste Building High Level Storage Area gate, initiated 11/22/00
- CR 00-2351, Inaccurate Postings Associated with U4 RCS filter room, initiated 12/15/00

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program and Control of Radioactive Material

.1 Meteorological Monitoring

a. Inspection Scope

Meteorological monitoring program guidance and operations were evaluated. Meteorological tower siting, material condition, and functionality were evaluated. Operability of local and control room data readouts, and control room recording instruments were verified. Control room operator knowledge of emergency procedure details regarding primary and backup meteorological data in the event of a radiological emergency were evaluated. Meteorological monitoring system records for semiannual calibrations conducted June 2000 and December 2000, and selected weekly meteorological system Inspection Logs for December 2000 - January 2001, were reviewed and discussed.

Program implementation was evaluated against TS requirements; UFSAR descriptions; guidance provided in Safety Guide 23, Onsite Meteorological Programs, dated 02/17/72, and Regulatory Guide 1.21, Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants, Rev. 1; and details in the following licensee procedures:

- Land Utilization Department - Lab Administrative Directive Manual, (MET-DIR) - 001, Meteorological System Walkdowns and Inspections, Rev. 0.1
- MET-DIR -002, Meteorological Outage Notification and System Calibration, Rev. 0
- EPIP 20126, Off-site Dose Calculations, revised 06/01/00
- Quality Instruction 12-PTN-1, Control of Measuring and Test Equipment, revised 04/27/99

b. Findings

No findings of significance were identified.

### 3. SAFEGUARDS

#### Cornerstone: Physical Protection (PP)

##### 3PP1 Access Authorization

###### a. Inspection Scope

The inspectors evaluated licensee procedures, Fitness For Duty (FFD) reports, and licensee audits. Additionally, the inspectors interviewed five representatives of licensee management and five escort personnel concerning their understanding of the behavior observation portion of the personnel screening and FFD program. In interviewing these personnel, the inspectors evaluated the effectiveness of their training and abilities to recognize aberrant behavioral traits. Licensee compliance was evaluated against requirements in the Turkey Point Nuclear Plant Physical Security Plan and associated procedures, and 10 CFR Part 26, Fitness For Duty Programs.

###### b. Findings

No findings of significance were identified.

##### 3PP2 Access Control

###### a. Inspection Scope

The inspectors observed access control activities on January 30 and February 1, 2001, and equipment testing was conducted on January 31, 2001. In observing the access control activities, the inspectors assessed whether officers could detect contraband prior to it being introduced into the protected area. The protective barriers for the Final Access Control facility were inspected to ensure compliance with protection standards in the Physical Security Plan. Additionally, the inspectors assessed whether the officers were conducting access control equipment testing in accordance with regulatory requirements through observation, review of procedures, and log entries. Preventative and post maintenance procedures were evaluated and observed as performed. Lock, combination, and key control procedures were evaluated, as well as, aspects of the site access authorization program. Licensee compliance was evaluated against requirements in the Turkey Point Nuclear Plant Physical Security Plan and associated procedures, and 10 CFR Part 73.55, Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage, and Part 73.56, Personnel Access Authorization Requirements for Nuclear Power Plants.

###### b. Findings

No findings of significance were identified.

#### 4. OTHER ACTIVITIES (OA)

##### 4OA1 Performance Indicator Verification

###### .1 Mitigating Systems Cornerstone

###### a. Inspection Scope

The inspectors verified the accuracy of the performance indicators for the residual heat removal system, auxiliary feedwater, high head safety injection, and emergency diesel generators which were reported to the NRC. The inspectors reviewed data applicable to four quarters of operation beginning with the first quarter of 2000 and ending the fourth quarter of 2000. The inspectors reviewed Operations logs, Condition Reports, Work Orders, and Maintenance Rule records to ensure the data reported was complete and accurate.

###### b. Findings

No findings of significance were identified.

###### .2 Emergency Preparedness Cornerstone

On February 22, 2001, licensee records were reviewed to determine whether the submitted PI statistics (through the fourth quarter of 2000) were calculated in accordance with the guidance contained in Section 2.4 (Emergency Preparedness Cornerstone) of NEI 99-02, Revision 0, "Regulatory Assessment Performance Indicator Guideline."

###### Emergency Response Organization (ERO) Drill/Exercise Performance PI

###### a. Inspection Scope

The inspector assessed the accuracy of the PI for ERO drill and exercise performance (DEP) over the past eight quarters through review of a sample of drill and event records. Documentation was reviewed for (1) a Notification of Unusual Event declared on October 21, 2000; (2) an ERO drill conducted in November 2000; and (3) control room simulator evaluations conducted in the second quarter of 2000 to verify the licensee's reported data regarding successes in emergency classifications, notifications, and protective action recommendations.

###### b. Findings

No findings of significance were identified.

ERO Drill Participation PIa. Inspection Scope

The inspector assessed the accuracy of the PI for ERO drill participation during the previous 8 quarters through review of the training records for 8 of the 66 personnel assigned to key positions in the ERO as of the end of the fourth quarter of 2000.

b. Findings

No findings of significance were identified.

Alert and Notification System Reliability PIa. Inspection Scope

The inspector assessed the accuracy of the PI for the alert and notification system reliability through review of a sample of the licensee's records of the biweekly silent tests and quarterly full-cycle tests conducted from January 1 to December 31, 2000.

b. Findings

No findings of significance were identified.

.3 Safeguards Cornerstonea. Inspection Scope

The inspector evaluated Florida Power and Light (FPL) programs for gathering and submitting data for the Fitness-for-Duty, Personnel Screening, and Protected Area Security Equipment Performance Indicators. The evaluation included FPL's tracking and trending reports and security event reports for the Performance Indicator data submitted from the first quarter 2000 to the fourth quarter of 2000. Licensee performance was evaluated against requirements in NEI 99-02, Revision 0, Regulatory Assessment Performance Indicator Guideline.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of ProblemsWater in Manholes

Some of the licensee's corrective actions associated with water intrusion into manholes, which was involved in an October, 2000, Unit 4 loss of offsite power incident, were not thorough. NRC inspector questioning resulted in the identification of deficiencies associated with the manhole inspection procedure process and the scope of manhole inspections. (Section 1R06 of this report describes this finding in detail).

### Manual Reactor Trip

The licensee's review of a reactor trip focused on the cause of the dropped rods and a subsequent part length control rod conoseal leak. Although the event review report was self-critical of the human performance error regarding the fuses, it did not fully address some other aspects. NRC inspectors prompted more thorough review of Technical Specification compliance, Limiting Condition for Operation entries, and Shutdown Margin accuracy issues. (Section 1R14 of this report describes this finding in detail).

### 4OA3 Event Follow-up

#### .1 (Closed) LER 50-251/01-01-00, Manual Reactor Trip due to Two Dropped Rods

The details of the NRC inspection of this incident are discussed in Section 1R14. Detailed NRC review of procedural requirements for controlling troubleshooting activities was completed. The inspectors concluded that personnel performance issues had caused the second control rod to be dropped. The errors involving communication of troubleshooting activities did not constitute a violation of regulatory requirements. The inspectors also verified that the licensee had initiated a number of corrective actions to address the deficiencies noted. These actions included training for operators addressing timely completion of action items.

The LER stated that the TS 3.2.4 requirement to complete a QPTR calculation every hour was missed for the second hour. This issue is dispositioned as a Non-cited violation in Section 1R14 of this report. This LER is closed.

#### .2 (Closed) LER 50-250/00-01-00, Steam Generator Tube Plugging Places Steam Generator 3B in Category C-3.

During a refueling outage in March 2000, eddy current testing of the Unit 3 Steam Generator tubes identified degradation in a sampling of tubes. In accordance with plant TS 3/4.4.5, an NRC notification was made. The licensee expanded the inspection scope as required. A total of 69 tubes were plugged based on the inspection. Five tubes were plugged due to mechanical wear. The other 64 tubes contained possible corrosion degradation or original manufacturing indications. A conference call was held between the licensee, Region II, and NRR to discuss the inspection results and actions taken. It was discussed that this was the first inspection in which extensive rotating probe of the hot leg top of tube sheet area was conducted. This fact explained why this was the first time some of these indicators were identified. The number of tubes plugged in each steam generator was well below the 20% allowed (out of 3,214 tubes for each generator) by the UFSAR. No violations of regulatory requirements were identified. This LER is closed.

3 (Closed) LER 50-250,251/ 00-02-00: Entry into Technical Specification LCO 3.0.3 While Performing Load Center Under-voltage Relay Surveillance.

The licensee identified that during surveillance testing of the under-voltage trip relays for the 480 Volt Load Centers, the procedure had inadvertently placed the plant in a condition prohibited by TS, requiring entry into TS 3.0.3 on numerous previous occasions. Entry into 3.0.3 is required due to reducing the number of operable under-voltage or degraded-voltage channels on a load center below the minimum of two required operable channels as described by TS 3.3.2, Engineered Safety Features Actuation System Instrumentation. During performance of the surveillance, the two channels are made inoperable several times. However, the actual period of any one time which the two channels was inoperable due to testing was a maximum of 90 seconds. Additionally, during the testing if a degraded condition would occur at the load center, the degraded condition would be sensed on the other load center of the same power train, and consequently, the trip signal would initiate sequencer action.

This issue is documented in the licensee's corrective action program as CR 00-1248. The inspectors reviewed CR 00-1248, the surveillance procedure, and the under-voltage and degraded-voltage protection logic with Engineering. The inspectors verified that load center protection was still available during the time the two channels were in the trip condition, and verified that the channels remained in the trip condition for not more than 90 seconds at any one time. Since adequate load center protection was still maintained, all safety functions remained functional and there was no impact on safety. The inspectors also verified completion of corrective actions. A license amendment to TS 3.3-2 was approved by the NRC on December 20, 2000. It permits operation of the units with both channels of under-voltage protection bypassed for up to 8 hours to allow performance of the monthly surveillance, without placing the units in TS 3.0.3.

Because of the short duration of the TS 3.03 entries, TS 3.03 requirements were not violated during the previous instances. At the time of the incidents, entries into TS 3.03 were to be reported to the NRC. The failure to report the previous entries into TS 3.03 constituted a minor violation of NRC requirements that is not subject to enforcement in accordance with Section VI of the NRC's Enforcement Policy. This LER is closed.

4OA5 Other

Review of Institute of Nuclear Power Operations (INPO) Report

The inspectors reviewed the final report of the INPO for the May 2000 evaluation. There were no safety significant issues discussed that warranted additional NRC attention.

(Closed) Inspector Followup Item (IFI) 50-250,251/99-05-02, Evaluate Acceptability of Concrete Temperature at Interface Between Reactor Structural Steel Supports and Shield Wall and Long Term Effects on Concrete

This issue concerned the long term effect of elevated temperature at the interface between the reactor vessel structural steel supports and the concrete in the primary shield wall. The inspectors conducted an in-office review of the licensee's engineering

evaluation PTN-ENG-LRAM-99-0055, Revision 2, Aging Management Review, Containment Structure and Internal Structural Components.

The inspectors concurred with the licensee's evaluation and conclusions. The inspectors determined that temperature design considerations for the primary shield wall were previously evaluated in the original design calculations and were adequately evaluated. No performance deficiencies or violations of NRC requirements were identified. Based on this in-office review, this item is closed.

#### 40A6 Meetings

##### Exit Meeting Summary

The inspectors presented the inspection results to Mr. D. Jernigan and other members of licensee management on April 5, 2001. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

### **PARTIAL LIST OF PERSONS CONTACTED**

#### Licensee

E. Avella, Work Control Manager  
S. Franzone, Licensing Manager  
G. Hollinger, Protection Services Manager  
R. Hovey, Site Vice-President  
D. Jernigan, Plant General Manager  
T. Jones, Maintenance Manager  
J. Kirkpatrick, Training Manager  
M. Lacal, Operations Manager  
D. Lowens, Quality Assurance Manager  
E. Thompson, License Renewal Project Manager  
D. Tomaszewski, Site Engineering Manager  
S. Wilsa, Health Physics/Supervisor  
A. Zielonka, System Engineering Manager

#### NRC

L. Wert, Chief Reactor Project Branch 3  
K. Barr, Chief Plant Support Branch



**ITEMS OPENED AND CLOSED**Opened and Closed:

50-251/00-06-01            NCV    Failure to Meet TS Time Requirement for QPTR  
Calculation (Section 1R14)

Closed:

50-251/01-01-00            LER    Manual Reactor Trip due to Two Dropped Rods (Section  
4OA3.1)

50-250/00-01-00            LER    Steam Generator Table Plugging Places Steam Generator  
3B in Category C-3 (Section 4OA3.2)

50-250,251/00-02-00        LER    Entry Into Technical Specification LCO 3.0.3 While  
Performing Load Center Under-voltage Relay Surveillance  
(Section 4OA3.3)

50-250,251/99-05-02        IFI    Evaluate Acceptability of Concrete Temperature at  
Interface Between Reactor Structural Steel Supports and  
Shield Wall and Long Term Effects on Concrete (Section  
4OA5)

## NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

### Reactor Safety

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

### Radiation Safety

- Occupational
- Public

### Safeguards

- Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.

Attachment