



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

July 30, 2009

Florida Power and Light Company  
ATTN: Mr. Mano Nazar, Senior Vice President  
Nuclear and Chief Nuclear Officer  
P.O. Box 14000  
Juno Beach, FL 33408-0420

SUBJECT: TURKEY POINT NUCLEAR PLANT – INTEGRATED INSPECTION REPORT  
05000250/2009003 AND 05000251/2009003

Dear Mr. Nazar:

On June 30, 2009, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Turkey Point Units 3 and 4. The enclosed inspection report documents the inspection results, which were discussed on July 23, 2009, with Mr. W. Jefferson and other members of your staff.

The inspection examined activities conducted under your license as they related 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.

The report documents three NRC identified findings and four self-revealing findings of very low safety significance (Green). Five of these findings were determined to involve violations of NRC requirements. However, because of very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-001; 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 Turkey Point. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Resident Inspector at Turkey Point. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 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/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

*/RA/*

Marvin D. Sykes, Chief  
Rector Projects Branch 3  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000250/2009003 and 05000251/2009003  
w/Attachment: Supplemental Information

cc w/encls: (See page 3)

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cc w/encl:

Alison Brown  
Nuclear Licensing  
Florida Power & Light Company  
Electronic Mail Distribution

Niel Batista  
Emergency Management Coordinator  
Department of Emergency Management  
Department of Emergency Management  
and Homeland Security  
Electronic Mail Distribution

Robert J. Hughes, Director  
Licensing and Performance Improvement  
Florida Power & Light Company  
Electronic Mail Distribution

William Jefferson, Jr.  
Site Vice President  
Turkey Point Nuclear Plant  
Florida Power and Light Company  
Electronic Mail Distribution

Michael Kiley, Plant General Manager  
Turkey Point Nuclear Plant  
Florida Power and Light Company  
Electronic Mail Distribution

Abdy Khanpour, Vice President  
Engineering Support  
Florida Power and Light Company  
Electronic Mail Distribution

Mitch S. Ross  
Vice President and Associate General  
Counsel  
Florida Power & Light Company  
Electronic Mail Distribution

Marjan Mashhadi, Senior Attorney  
Florida Power & Light Company  
Electronic Mail Distribution

William A. Passetti, Chief  
Florida Bureau of Radiation Control  
Department of Health  
Electronic Mail Distribution

Craig Fugate  
Director  
Division of Emergency Preparedness  
Department of Community Affairs  
Electronic Mail Distribution

Mano Nazar  
Senior Vice President and Chief Nuclear  
Officer  
Florida Power & Light Company  
Electronic Mail Distribution

Peter Wells  
Vice President, Safety Assurance  
Florida Power and Light Company  
Electronic Mail Distribution

Mark E. Warner  
Vice President  
Nuclear Plant Support  
Florida Power & Light Company  
Electronic Mail Distribution

Senior Resident Inspector  
Turkey Point Nuclear Generating Station  
U.S. Nuclear Regulatory Commission  
9760 SW 344th St.  
Florida City, FL 33035

Attorney General  
Department of Legal Affairs  
The Capitol PL-01  
Tallahassee, FL 32399-1050

Mike A. Shehadeh, P.E.  
City Manager  
City of Homestead  
Electronic Mail Distribution

County Manager of Miami-Dade County  
111 NW 1st Street, 29th Floor  
Miami, FL 33128

CP&L

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Letter to Mano Nazar from Marvin D. Sykes dated July 30, 2009

SUBJECT: TURKEY POINT NUCLEAR PLANT – INTEGRATED INSPECTION REPORT  
05000250/2009003 AND 05000251/2009003

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C. Evans, RII EICS

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos.: 50-250, 50-251

License Nos.: DPR-31, DPR-41

Report No: 05000250/2009003, 05000251/2009003

Licensee: Florida Power & Light Company (FP&L)

Facility: Turkey Point Nuclear Plant, Units 3 & 4

Location: 9760 S. W. 344th Street  
Homestead, FL 33035

Dates: April 1 to June 30, 2009

Inspectors: J. Stewart, Senior Resident Inspector  
M. Barillas, Resident Inspector  
T. Hoeg, Senior Resident Inspector, St. Lucie

Accompanied by: J. Uribe, Nuclear Safety Professional Development Program

Approved by: M. Sykes, Branch Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

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## SUMMARY OF FINDINGS

IR 05000250/2009-003, 05000251/2009-003; 4/1/2009 – 6/30/2009; Turkey Point Nuclear Power Plant, Units 3 and 4; Equipment Alignment, Fire Protection, Maintenance Effectiveness, Plant Modifications, Refueling and Other Outage Activities

The report covered a three month period of inspection by resident inspectors and region based health physicists and reactor inspectors. Five Green NCVs and two Green findings were identified. The significance of most findings is identified by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP); the cross-cutting aspect was determined using IMC 305, Operating Reactor Assessment Program; and that findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," and Revision 4, dated December, 2006.

### A. NRC-Identified & Self-Revealing Findings

#### Cornerstone: Initiating Events

(Green). A Self-revealing Finding was identified when the licensee did not manage maintenance activities adequately to identify and repair a damaged rod control drive component on Unit 3 prior to setting the reactor vessel closure head on the reactor vessel flange. As a result, the subsequently filled reactor coolant system had to be drained again to 2 feet below the reactor vessel flange (a high risk activity) placing the unit in the licensee's risk condition Yellow for repairs. The licensee documented this in condition report (CR) 2009-10284.

The finding was more than minor because it affected the Human Performance attribute of Initiating Events cornerstone and the licensee's risk assessment failed to anticipate that the maintenance activity could result in another plant draining evolution with its inherent risk of an initiating event of loss of inventory or shutdown cooling. With appropriate mitigating equipment available, the finding screened to be of very low safety significance (Green). The finding affected the cross cutting area of Human Performance, Work Practices, Supervisory & Management Oversight (H.4(c)) because the licensee did not appropriately provide oversight of work activities, including contractors, such that nuclear safety is supported. (1R20)

(Green). A Self-revealing Non-cited Violation of Technical Specification (TS) 6.8.1 was identified for failure to follow procedures that assure that valves are maintained in the proper positions. As a result of mis-positioning of letdown system valves, a spill of reactor coolant from the Unit 3 letdown system occurred onto the auxiliary building roof and a security officer was contaminated. The licensee documented this in CR 2009-14469.

The finding was more than minor because it affected the Human Performance attribute of Initiating Events cornerstone and if failure to implement valve position controls were left uncorrected it would have the potential to lead to a more significant safety concern.

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The inspectors evaluated the finding using NRC Inspection Manual 0609, Attachment 0609.04, SDP Phase 1. Because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, the finding was screened as Green. The cross-cutting element of Human Performance, Work Practices, Human Performance & Error Prevention (H.4(a)), was affected when the licensee did not properly document activities regarding the failure to position valves in accordance with a specified valve lineup. (1R04)

#### Cornerstone: Mitigating Systems

(Green). A Self-Revealing Non-cited violation of TS 3.7.1.5 requirements was identified when the Unit 3 C main steam isolation valve (MSIV) failed to close on demand on May 4, 2009. Licensee evaluation has found the root cause of the failure to be an inadequate post maintenance test after maintenance that resulted in the air throttle valve for the MSIV being left in the closed position. When identified, the licensee placed the throttle valve in the correct position and tested the valve stroke time satisfactorily. The licensee documented this in CR 2009-13568.

The finding was more than minor because it affected the Configuration Control attribute of the Mitigating Systems cornerstone and the failure of the MSIV to close when demanded challenged the integrity of the main steam system for isolating steam system or generator tube ruptures. The inspectors evaluated the finding using NRC Inspection Manual 0609, Attachment 0609.04, SDP Phase 1 and SDP Phase 2. An initial SDP Phase 2 screening of the finding revealed a greater than green result for Large Early Release Probability (LERF) and Phase 3 was required. A Regional Senior Reactor Analyst performed a Phase 3 evaluation of the performance deficiency and classified the finding of very low safety significance (Green). The major assumption was predicated on the information in NUREG 1806, Technical Basis for Revision of the Pressurized Thermal Shock (PTS) Screening Limit in the PTS Rule (10CFR50.61), which indicated that the possibility of core damage was remote following an extreme cool down due to a Main Steam Line Break without isolation. The cross-cutting aspect of Human Performance, Work Practices, Human Performance & Error Prevention (H.4(a)) was affected when personnel did not practice error prevention techniques such as self and peer checking, and properly document activities. (1R04)

(Green). The inspectors identified a Green finding for failure to correct failed lighting in a Unit 4 electrical penetration room that prevented the hourly rover from adequately compensating for fire detection that was out of service. The inspectors determined that maintaining lighting in areas of degraded fire protection features is not a specific NRC requirement. The licensee documented this in CR 2009-17533.

The finding was more than minor because it affected the External Event attribute of the Mitigating Systems cornerstone and failure to correct a problem that impacted the ability of fire watch personnel to adequately compensate for out of service fire detection equipment could reasonably be viewed as a precursor to a significant fire event. The inspectors evaluated this finding using NRC Inspection Manual Chapter 0609, Appendix F, Fire Protection Significance Determination. The finding was screened as Green because the assigned fire degradation rating was low. The finding has a cross-cutting

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aspect in the area of Problem Identification and Resolution, Corrective Action Program, Appropriate & Timely Corrective Actions (P.1(d)) because the licensee did not document and correct a problem that was previously identified. (1R05)

(Green) The inspectors identified a Non-cited violation of 10 CFR50, Appendix B, Criterion III, Design Control when maintenance personnel failed to follow procedure during reassembly of 3B main steam isolation valve and did not maintain proper configuration of a safety-related component. The licensee documented this in CR 2009-11481.

The finding was determined to be more than minor because it was associated with the Design Control attribute of the Mitigating Systems cornerstone, and it affected the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences, such as the 3B MSIV. Using Manual Chapter 0609, Attachment 0609.04, Phase 1 screening, this issue was determined to be of very low safety significance because the design deficiency did not result in loss of operability. The cross-cutting element of Human Performance, Work Practices (H.4.(b)) was affected when the licensee did not effectively communicate expectations regarding procedural compliance and contractor personnel did not follow procedures. (1R12)

(Green) A Self-revealing Non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V was identified for failing to implement procedures that assure design control during an alteration to the 4C intake cooling water pump motor, a safety-related component. As a result, the running Unit 4 C intake cooling water pump experienced a high temperature condition and was stopped by operators. The pump may not have been able to complete its design function with the alteration that restricted the cooling air flow for the motor during painting activities. The licensee documented this in CRs 2009-15970 and 2009-16336.

The finding was more than minor because it affected the Human Performance attribute of the Mitigating Systems cornerstone and the licensee did not complete an engineering evaluation of the modification causing a high temperature condition on the motor to assure that the motor could perform its design functions. Also, NRC Inspection Manual Chapter 0612, Appendix E, Example 4.a was applicable (failure to perform an engineering evaluation with missed opportunities for licensee identification) and the finding was more than minor. The finding screened as Green using NRC Inspection Manual Chapter 0609, Attachment 0609.04, SDP Phase 1 screening because the finding did not result in a loss of function of a single train of TS equipment for greater than the allowed outage time of 14 days. The finding affected the cross-cutting area of Human Performance, Work Practices, Supervisory & Management Oversight (H.4(c)) because the licensee did not ensure supervisory oversight of work activities, including contractors, such that nuclear safety is supported. (1R18)

Cornerstone: Barrier Integrity

(Green) The inspectors identified a Non-cited violation of TS 3.4.10 requirements on Unit 3 regarding required components, when plant operation continued although a structural flaw in Class 2 main steam isolation valve steam trap piping had been identified. As a

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result of using an incorrect drawing in assessing the leak, plant operation continued although a plant shutdown should have been initiated. The licensee documented this in CR 2009-15284.

The finding was more than minor because it affected the RCS equipment and barrier performance attribute of the Barrier Integrity cornerstone and the un-isolable through wall leak challenged the integrity of the main steam system for isolating steam generator tube ruptures. Using Manual Chapter 0609, Attachment 0609.04, Phase 1 screening, this finding was determined to be of very low safety significance because all containment barrier characterization answers marked as No. The cross-cutting element of Human Performance, Decision Making, Conservative Assumptions & Safe Actions (H.1 (b)) was affected when the licensee did not use conservative assumptions in evaluating a Class 2 component flaw and its TS implications, and did not demonstrate that continued operation with the crack was safe in order to proceed.  
(1R20)

B. Licensee Identified Violations

None

## REPORT DETAILS

### Summary of Plant Status:

Unit 3 started the period in Mode 5 for refueling outage 24. On April 11, 2009, the licensee found that control rod D-6 could not be moved when demanded due to contact between the vessel head and the rod extension tube. Efforts were undertaken to repair the damaged rod control components, thus extending the outage. Unit 3 was critical on May 4 at 0638 hours. Unit 3 was shutdown and returned to Mode 5 on May 5 after a steam leak was identified on the C main steam isolation valve drain piping. The leak was repaired and the unit was critical at 2151 hours on May 8. Unit 3 returned to power operation on May 9 and was at full power on May 15, 2009.

Unit 4 operated at full power throughout the inspection period with the following exception: On May 27, reactor power reduced to 40 percent for secondary system maintenance. The unit was returned to full power on June 1.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity (Reactor-R)

#### R01 Adverse Weather Protection

##### a. Inspection Scope

During the week of June 1, the inspectors reviewed and verified the status of licensee actions in accordance with their procedural requirements for hurricane season. The inspectors used licensee procedures 0-ONOP-103.3, Severe Weather Preparations, 0-ADM-116, Hurricane Season Preparation, 0-ADM-216, PTN and PTF Shared System Work Control and Switchyard Access, 0-SMM-102.1, Flood Protection Stoplog and Penetration Seal Inspection, 0-EPIP-20106, Natural Emergencies and 0-EPIP-20101, Duties of Emergency Coordinator in making their assessment. Licensee procedure 0-ONOP-004.6, Degraded Switchyard Voltage, was reviewed and discussed with operators to assure that actions taken when switchyard voltage is outside of limits or cannot be predicted (post-trip) were appropriate. Licensee procedure 0-ADM-225, Online Risk Assessment and Management was reviewed to verify that appropriate actions are specified for risk management of degraded grid conditions. The inspectors performed site walk downs and tours of vulnerable areas to verify no activities that would prevent the licensee from making storm preparations, if needed. Inspectors also verified operability of safety related cables submerged in water that are contained in manholes. Background information includes: CR 00-2397;01-0358 and 01-0176. The inspectors reviewed the Hurricane Season Preparation exemption list and verified that the open exemptions were being documented in the corrective action program with a plan in place to correct them prior to a hurricane event. The following areas of the site were specifically inspected:

- Unit 3 and 4 turbine areas
- Diesel fuel oil storage tank berm area
- Component cooling water pumps and heat exchangers

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- High head safety injection pumps

b. Findings

No findings of significance were identified.

R04 Equipment Alignment

.1 Partial Equipment Walkdowns

a. Inspection Scope

The inspectors conducted three partial alignment verifications of the safety-related systems listed below. These inspections included reviews using operating procedures and piping and instrumentation drawings, which were compared with observed equipment configurations to verify that the critical portions of the systems were correctly aligned to support operability. The inspectors also verified that the licensee had identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and that these issues were in the corrective action program.

- Unit 3, Auxiliary feedwater system using licensee procedure 3-OSP-075.5, Auxiliary Feedwater System Flowpath Verification following two component misposition occurrences documented in condition reports CR 2009-15022 (fire deluge control valve) and CR 2009-15067 (R11/R12 radiation monitor power supplies)
- Unit 4, Safety injection systems, including selected portions of high head safety injection and residual heat removal, using licensee procedure 4-OSP-202.1, Safety Injection/Residual Heat Removal Flowpath Verification following two component misposition occurrences documented in condition reports CR 2009-15022 (fire deluge control valve) and CR 2009-15067 (R11/R12 radiation monitor power supplies)
- Unit 4, auxiliary feedwater using licensee procedure 4-OP-075, Auxiliary Feedwater System, Attachment 1, Dual Train configuration with C AFW pump aligned to Train 1, in preparation for maintenance on the A AFW pump and turbine

b. Findings

1. Introduction: (Green) A self-revealing Non-cited Violation of very low safety significance was identified following a spill of reactor coolant from demineralizer piping onto the Turkey Point auxiliary building roof. The spill was an unmonitored release into outdoor areas and caused a security officer walking in the area to become contaminated.

Description: On April 08, 2009, operations personnel were completing a system valve lineup using procedure 3-OP-047, which specified that two valves, 3-226A & 3-328B, be opened. Personnel did not follow the procedure and left the valves closed when restoring the CVCS-Charging and Letdown system lineup following maintenance. Although a note had been made in the equipment lineup, no tagging of the out-of-

position valves was done to ensure the correct lineup was in place when operating the demineralizer system.

On May 12, 2009, when operators attempted to rinse the 3D demineralizer, an unexpected increase in CVCS letdown pressure (pressure increased to 425psig) was observed that caused by the 3D demineralizer outlet valve (3-328B) to be misaligned in the closed position. Because the demineralizers are cross-tied, this caused an overpressure in the 3E demineralizer including the resin fill line and valve (3-240) leaked reactor coolant through the valve gasket onto the auxiliary building roof. Approximately 2 gallons of coolant spilled onto the roof. The unmonitored release was estimated to have spread over a 10 square feet area and was not initially identified during investigation of the overpressure indication. A security officer performing routine surveillance in the area of the spill became contaminated when he inadvertently walked through the liquid release. The leak was found by licensee personnel investigating the cause of the security officer contamination.

When identified, the licensee cleaned up the spill and took action to prevent release of the discharge to nearby storm drains.

Analysis: The performance deficiency associated with this finding was the failure of plant operators to follow procedures when conducting a valve lineup, instead leaving two normally open valves, closed with no out-of-position controls such as a tagout. The finding was more than minor because it affected the Configuration Control attribute of Initiating Events cornerstone and if failure to implement valve position controls were left uncorrected it would have the potential to lead to a more significant safety concern. The inspectors evaluated the finding using NRC Inspection Manual 0609, Attachment 0609.04, SDP Phase 1 Screening. Because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, the finding was screened as Green. The cross-cutting aspect of Human Performance, Work Practices, Human Performance & Error Prevention (H.4(a)), was affected when the licensee did not properly document activities regarding the failure to position valves in accordance with a specified valve lineup.

Enforcement: TS 6.8.1 requires that procedures required by the FPL Quality Assurance Topical Report (QATR) be implemented. The QATR includes procedures listed in Appendix A of NRC Regulatory Guide 1.33, Revision 2, dated February 1978, which lists chemical and volume control system procedures, including letdown. The licensee implements this requirement using procedure 3-OP-047, Charging and Letdown, which states requirements for positioning of letdown valves, including 3-226A and 3-238B, both of which are to be maintained open. Contrary to the above, on April 8, 2009, operators completed a charging and volume control alignment using 3-OP-047 and failed to align valves 3-226A and 3-238B, in the designated open position. As a result, on May 12, 2009, parts of the letdown system were over-pressurized causing leakage of reactor coolant onto the auxiliary building roof. When discovered by observation of the high pressure condition by operators and by contamination of a security officer's shoes, the licensee cleared the overpressure condition, properly aligned the valves, and cleaned a spill of reactor coolant on the auxiliary building roof. The issue was documented in the licensee's corrective action program as CR 2009-14469. Because the licensee has

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entered the issue into their corrective action program and the finding is of very low safety significance, this violation is being treated as a Non-cited violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy. NCV 05000250, 251/2009-003-01, Failure to implement procedures for conducting a valve alignment causes spill of reactor coolant and contamination of a plant employee.

2. Introduction: (Green) A Self-Revealing Non-cited Violation of TS requirements was identified when the 3C main steam isolation valve (MSIV) failed to close on demand on May 4, 2009. A licensee evaluation found the root cause of the failure to be an inadequate post-maintenance test that resulted in the air throttle valve for the MSIV being left in the closed position.

Description: On May 4, 2009, at 2000 hours with Unit 3 in Mode 2, substantial steam leakage was observed from the Unit 3 C main steam isolation valve. At 0330 on May 5, control room operators entered TS 3.7.1.5 for an inoperable MSIV. The licensee initiated a plant shutdown and cooldown and when attempting to close the C MSIV, the valve did not stroke closed within the expected 5 second stroke time. Additional attempts to close the valve, including insertion of a manual main steam isolation signal and pulling fuses to air support systems did not result in immediate valve closure. After approximately one hour from the initial closure attempt, the valve shut without further operator action.

The licensee investigation found that on April 6, 2009, a packing adjustment had been made to valve 3-5304, MSIV Instrument Air Throttle Valve. The valve is normally throttled to set the stroke closed time for the MSIV to within 3 to 5 seconds. Instead, during/following the maintenance, an operator did not identify the valve as throttled and placed the valve in the closed position after the packing adjust, thus preventing normal operation of the MSIV. A valve manipulation sheet in the work package was improperly completed; a maintenance technician had signed his name in the valve identification space and the valve description had been left blank. The completed valve manipulation sheet had been reviewed and approved by a senior reactor operator (SRO). Following the maintenance, no stroking of the MSIV was done to assure that the stroke timing of the valve had been adequately retained. The licensee subsequently tested the valve satisfactorily and revised procedures to require a stroke test of the MSIVs prior to restart from the refueling outage.

Turkey Point FSAR, Section 10.2(b) states that the main steam isolation valves provide safety related isolation capability for the steam generators for main steam line breaks and steam generator tube ruptures.

Analysis: Failure to properly control the position of air throttle valve 3-5304 to assure operability of the 3C MSIV was a performance deficiency. Incomplete documentation of the valve manipulation sheet was a contributing deficiency. The finding was more than minor because it affected the Human Performance attributes of Mitigating Systems cornerstone and the failure of the MSIV to close challenged the integrity of the main steam system for isolating steam system or generator tube ruptures. The inspectors evaluated the finding using NRC Inspection Manual 0609, Attachment 0609.04, SDP Phase 1 and SDP Phase 2. An initial SDP Phase 2 screening of the finding revealed a

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greater than green result for Large Early Release Probability (LERF) and a Phase 3 was required. A regional Senior Reactor Analyst performed a Phase 3 evaluation of the performance deficiency and classified the finding of very low safety significance (Green). The major assumption was predicated on the information in NUREG 1806, Technical Basis for Revision of the Pressurized Thermal Shock (PTS) Screening Limit In the PTS Rule (10CFR50.61), which indicated that the possibility of core damage was remote following an extreme cool down due to a Main Steam Line Break without isolation. The dominant accident sequence involved a Steam Generator Tube Rupture, no isolation of the ruptured generator, long term failure of High Pressure Injection to the core, and failure to place Residual Heat Removal in service. A four day exposure time was used in the evaluation and external events were considered in the evaluation. The cross-cutting aspect of Human Performance, Work Practices, Human Performance & Error Prevention (H.4(a)) was affected when personnel did not practice error prevention techniques such as self and peer checking, and properly document activities.

Enforcement: TS 3.7.1.5 requires that with one main steam isolation valve inoperable, subsequent operation in Mode 2 or 3 may continue provided the isolation valve is maintained closed. Contrary to the above, on May 4, 2009, the Unit 3 C main steam isolation valve was not operable after the throttle isolation valve had been re-positioned closed on April 4, 2009, and the MSIV was opened for Mode 2 and Mode 3 operations. Subsequently, after 8 hours and 38 minutes, the MSIV was closed. The licensee documented the failure to comply with TS in condition report CR 2009-13568 and a cause evaluation was initiated. Because this issue is of very low safety significance and has been entered into the licensee's corrective action program, the violation is being treated as a Non-cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000250, 251/2009-03-02, Failure to Implement TS Requirements Resulting From Loss of Configuration Control Of The 3C Main Steam Isolation Valve.

## .2 Complete System Walkdown

### a. Inspection Scope

The inspectors conducted a detailed review of the alignment and condition of the Unit 3 residual heat removal (RHR) system to verify that the existing alignment of the system was consistent with the design. To determine the correct system alignment, the inspectors reviewed the plant TS, procedures, drawings, and the Final Safety Analysis Report (FSAR). The inspectors walked supports and restraints associated with selected RHR piping inside the Unit 3 containment using FPL drawings 5613-P-586-S and 5613-P-587-S. The inspectors reviewed the following:

- Valves were correctly positioned and did not exhibit leakage that would impact the functions of any given valve. The inspectors verified that a packing leak from valve, FCV-3-605 had been repaired under work order 37022066.
- Electrical power was available as required.
- Major system components were correctly labeled, lubricated, cooled, ventilated, etc.
- Hangers and supports were correctly installed and functional.
- Essential support systems were operational.
- Ancillary equipment or debris did not interfere with system performance.

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- Valves were locked as required by the licensee's locked valve program.

Design and equipment issues were reviewed to determine if the identified deficiencies significantly impacted the system's functions. Items included in this review were the operator workarounds, First Quarter 2009 System Health Report, the system description, pump vibration data, condition reports and outstanding maintenance work orders (WOs). In addition, the inspectors reviewed the licensee's corrective action program to ensure that the licensee was identifying and resolving equipment alignment problems in a timely manner.

b. Findings

No findings of significance were identified.

R05 Fire Protection

a. Inspection Scope

.1 Fire Area Walkdowns

The inspectors toured the following six plant areas to evaluate conditions related to control of transient combustibles and ignition sources, the material condition and operational status of fire protection systems including fire barriers used to prevent fire damage and propagation. The inspectors reviewed these activities using provisions in the licensee's procedure 0-ADM-016, Fire Protection Plan, and 10 CFR Part 50, Appendix R. The licensee's fire impairment lists, updated on an as-needed basis, were routinely reviewed. In addition, the inspectors reviewed the condition report database to verify that fire protection problems were being identified and appropriately resolved. The following areas were inspected:

- Auxiliary feedwater pump room
- High head safety injection pump room
- Control room
- Unit 4, east electrical penetration room
- Unit 3, west electrical penetration room
- Unit 4: 4160 volt switchgear rooms

b. Findings

Introduction: The inspectors identified a Green finding for failure to take timely action to correct failed lighting in a fire zone that prevented the hourly rover from adequately compensating for fire detection equipment that was out of service.

Description: From March 3 to June 15, fire detection equipment in the electrical penetration rooms had been disabled to allow metalizing work at the plant without spurious fire alarms due to metalizing smoke. The detection equipment was to be compensated for by an hourly fire watch rove. On June 12, 2009, during a plant tour

with the fire protection impairment hourly rover, the inspectors observed that the Unit 4 west electrical penetration room (Zone 27) had no lighting in the room. As a result, fire precursors or signs of ignition in the room might have been missed by the hourly rover. The inspector questioned the rover regarding how long this condition had existed and was informed that the condition had existed for a couple of days. The inspector asked the rover if this deficiency had been brought to the attention of the supervisor and the inspector was told it had been. The inspectors also noted that the fire watch rover did not carry a flashlight. Subsequently, the inspectors asked for a work order or condition report addressing the burnt out lights in the electrical penetration room and a generic CR, initiated in 2008, was provided addressing lighting around the site. The inspectors brought this to the shift manager's attention, who took immediate action to have the lighting restored in the electrical penetration room. Condition Report 2009-17533 was written to address this deficiency. The inspectors had been told that operators do not routinely enter this plant area.

Analysis: The inspectors determined that the licensee's failure to document and correct burnt out lighting in the Unit 4 electrical penetration room was a performance deficiency and over a number of days, fire watch hourly rovers, compensating for failed fire detection, were not able to adequately perform compensatory measures due to the lighting deficiency. The finding was more than minor because it affected the External Event attribute of the Mitigating Systems cornerstone and failure to correct a problem that impacted the ability of fire watch personnel to adequately compensate for out of service fire detection equipment could reasonably be viewed as a precursor to a significant fire event. The inspectors evaluated this finding using NRC Inspection Manual Chapter 0609 Appendix F, Fire Protection Significance Determination. The finding was screened as Green because the assigned fire degradation rating was low. The finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, Appropriate & Timely Corrective Actions (P.1(d)) because the licensee did not document and correct a problem that was previously identified.

Enforcement: Maintaining lighting in areas of degraded fire protection features is not an NRC requirement, therefore no violation of regulatory requirements occurred. However, the Turkey Point Fire Protection Program requires that fire watch personnel be responsible to identify and report any indication of combustion or poor housekeeping. Plant personnel did not promptly correct burnt out lighting in an electrical penetration room that had failed fire detection, and the lack of lighting could prevent fire watch personnel from identifying indication of combustion or poor housekeeping. When identified to the licensee by the inspectors, the lighting was promptly restored and the issue was documented in the corrective action program as CR 2009-17533. FIN 05000250, 251/2009-03-03, Failure to Maintain Lighting Impedes Compensatory Measure for Failed Fire Detection.

R07 Heat sink Performancea. Inspection Scope

The inspectors conducted a detailed tour and inspection of the plant cooling canal system and discussed maintenance of the system with cognizant licensee personnel. Use of a drainage ditch and pumping was verified to assure minimal impact to the natural flow of ground water toward Biscayne Bay. Sink holes and flow reversals were particularly observed and discussed, including the licensee's plans to monitor cooling canal integrity.

b. Findings

No findings of significance were identified.

R11 Licensed Operator Regualification Program.1 Resident Inspector Quarterly Reviewa. Inspection Scope

On May 7, 2009, the inspectors observed and assessed licensed operator continuing training in the plant specific simulator. The simulated events were done using Nuclear Training Department Lesson Plan 750001601, Dropped Rod/Loss of All Feedwater/ATWS. The inspectors observed the operator's use of procedures 3-ONOP-059.8, Power Range Nuclear Instrumentation Malfunction; 3-ONOP-028.3, Dropped RCC; 3-ONOP-100, Fast Load Reduction; 3-EOP-FR-S.1, Response to Nuclear Plant Generation/ATWS; and 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink. The operator's actions were checked to be in accordance with licensee procedures. Event classifications (Alert and Site Area Emergency) were checked for proper classification and simulated state notification in accordance with licensee procedures 0-EPIP-20101, Duties of the Emergency Coordinator; and 0-EPIP-20134, Offsite Notifications and Protective Action Recommendations. The simulator board configurations were compared with actual plant control board configurations concerning recent plant modifications. The inspectors specifically evaluated the following attributes related to operating crew performance and the licensee evaluation:

- Clarity and formality of communication
- Ability to take timely action to safely control the unit
- Prioritization, interpretation, and verification of alarms
- Correct use and implementation of off-normal and emergency operating procedures; and emergency plan implementing procedures
- Control board operation and manipulation, including high-risk operator actions
- Oversight and direction provided by supervision, including ability to identify and implement appropriate TS actions and emergency plan classification and notification
- Crew overall performance and interactions
- Evaluator's critique and findings

b. Findings

No findings of significance were identified.

R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the following two equipment problems and associated condition reports to verify that the licensee's maintenance efforts met the requirements of 10 CFR 50.65 (Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants) and licensee administrative procedure 0-ADM-728, Maintenance Rule Implementation. The inspectors' efforts focused on maintenance rule scoping, characterization of maintenance problems and failed components, risk significance, determination of (a) (1) classification, corrective actions, and the appropriateness of established performance goals and monitoring criteria. The inspectors also interviewed responsible engineers and observed some of the corrective maintenance activities. The inspectors checked that when operator actions were credited to prevent failures, the operator was dedicated at the location needed to accomplish the action in a timely manner, and that the action was governed by applicable procedures. Furthermore, the inspectors verified that equipment problems were being identified and entered into the corrective action program. The inspectors used licensee maintenance rule data base, system health reports, and the corrective action program as a source of information on tracking and resolution of issues.

- Unit 3 residual heat removal system; review included detailed check of first quarter 2009 system health report

b. Findings

Introduction: (Green) The inspectors identified a Non-cited violation for failure to comply with 10 CFR50, Appendix B, Criterion III, Design Control when maintenance personnel failed to follow procedure during reassembly of 3B main steam isolation valve, leading to a failure to maintain proper configuration of a safety-related component.

Description: NRC issued Information Notice 90-79, regarding failures of main steam isolation check valves due to disc separation. Turkey Point issued a plant change modification (PC/M) in 1990, 90-203, to improve the valve design to preclude possible disengagement of the disc from the swing arm. This modification added a disc/nut washer locking device and a washer to washer weld to assure retention of the MSIV disc hexagonal nut was appropriately torqued and in the proper position to preclude backing off the disc stud. The 3B MSIV was improperly configured when overhauled in 1995 with the pant leg washer welded to the nut and the washer tabs in the extended position. In 2009, during valve disassembly, maintenance personnel discovered the as-found condition of the disc nut was contrary to the position described in the procedure. Instead of following procedural requirements to identify and correct the configuration problem at the time, the workers proceeded and failed to follow step 6.7.1.6 in the procedure, N/A'ed the step, and re-assembled the valve to the as found condition, contrary to the design

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configuration captured on FPL drawing 5610-M-5-44. The issue was documented in Turkey Point's corrective action program as CR 2009-11481. In reviewing the licensee's work activity, the inspectors identified that the licensee had not maintained configuration control and had not properly evaluated continued operability of the mis-configured MSIV. The licensee subsequently evaluated that the washer to nut weld would prevent loosening of the nut should the nut-weld crack, and that this configuration would hold for one operating cycle.

Analysis: The failure of maintenance personnel to follow safety related work instructions during reassembly of 3B main steam isolation valve was a performance deficiency. The finding was determined to be more than minor because it was associated with the design control attribute of the mitigating systems cornerstone, and it affected the cornerstone objective to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences, such as the 3B MSIV. Using Manual Chapter 0609, Attachment 0609.04, Phase 1 screening, this issue was determined to be of very low safety significance (Green) because the design deficiency did not result in loss of operability or functionality. The MSIV isolated to mitigate steam break events and steam generator tube ruptures. The cross-cutting element of Human Performance, Work Practices (H.4(b)) was affected when the licensee did not effectively communicate expectations regarding procedural compliance and contractor personnel did not follow procedures.

Enforcement: 10 CFR 50, Appendix B, Criterion III states, in part, that measures shall be established to assure that the design bases are correctly translated into specifications, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and that deviations are controlled. Contrary to the above, as of May 9, 2009, deviations from the measures established to assure that the design bases are correctly translated were not controlled when the 3B main steam isolation valve was improperly configured in recovering from an overhaul. Specifically, the maintenance workers allowed an improper design change to continue without seeking management's attention for evaluation as required by FPL procedure QI-3-PTN-1, Design Control. The failure resulted in a loss of configuration for the safety related Unit 3 B main steam isolation valve. When identified to the licensee by the inspectors, the licensee documented the problem in the corrective action program and completed an evaluation for operability until the configuration issue can be resolved. Because this violation is of very low safety significance and was entered into the licensee's corrective action program as Condition Report CR 2009-11481, this violation is being treated as a Non-cited violation consistent with the NRC Enforcement Policy: NCV 05000250, 251/2009-003-04, Failure to Assure That Design Controls Were Maintained During Maintenance On The 3B Main Steam Isolation Valve (MSIV).

R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors completed in-office reviews and control room inspections of the licensee's risk assessment of seven emergent or planned maintenance activities. The inspectors verified the licensee's risk assessment and risk management activities using

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the requirements of 10 CFR 50.65(a)(4); the recommendations of Nuclear Management and Resource Council 93-01, Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Revision 3; and Procedures O-ADM-068, Work Week Management and O-ADM-225, On Line Risk Assessment and Management. The inspectors also reviewed the effectiveness of the licensee's contingency actions to mitigate increased risk resulting from the degraded equipment. The inspectors evaluated the following risk assessments during the inspection:

- May 14, Unit 3 risk when 3B emergency core cooling was out of service for failing PMT (CR 2009-14595) and one containment spray pump was removed from service for planned maintenance.
- May 26, Unit 3 risk when 3B emergency diesel generator was removed from service for surveillance testing and one breaker to the Unit 3 startup transformer was to be removed from service for maintenance. With high grid risk associated with the startup transformer work, this work was delayed until the diesel was fully operable.
- May 28, Unit 4 risk when the 4C 4kV bus was de-energized for FME removal in cubicle 4AC01 and 3C 4kV bus was energized by the 4C transformer.
- June 2, Unit 3 and 4 risk when switchyard breaker 8W92 was undergoing maintenance and high voltage testing.
- June 9, Unit 3 risk during 3B emergency diesel generator 24 hour surveillance
- June 23, Unit 4 risk when A auxiliary feedwater pump was out of service for planned maintenance and C AFW pump was placed on Train 1.

b. Findings

No findings of significance were identified.

R15 Operability Evaluations

a. Inspection Scope

For the seven operability evaluations described in the condition reports (CR) listed below, the inspectors evaluated the technical adequacy of licensee evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors reviewed the final safety analysis report to verify that the system or component remained available to perform its intended function. In addition, when applicable, the inspectors reviewed compensatory measures implemented to verify that the plant design basis was being maintained. The inspectors also reviewed a sampling of condition reports to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations.

- CR 2009-11823, operability of containment isolation valve POV-3-2600 verified by successful completion of licensee procedure 3-OSP-051.5, Local Leak Rate Test, as found, penetration 35.

- CR 2009-12155, operability of residual heat removal injection piping when whip restraint was identified not fully anchored to an adjacent wall. Licensee drawing 5613-P-586-S, Residual Heat Removal System Inside Containment, and procedure STD-C-011, Acceptance Criteria for As-built Safety Related Piping and Supports were used in the inspector's evaluation.
- CR 2009-15439, operability of discharge structure after walkdown to identify any issues involving structural integrity or the use of wood. No issues were identified. The licensee has monitored corrosion of the discharge structure under CR 2003-900, Severe degradation observed on various components that comprise the Unit 3 discharge structure.
- CR 2009-11481, operability of POV-3-2605 when the disc nut pant leg washer was discovered welded to the nut and the locking tabs were in the extended position. PC/M 90-203, 5610-M-5-44, and 0-CMM-072.1 were used during the review.
- CR 2009-10634, operability of POV-3-4882 actuator for closure of valve with reduced margin on closing force.

b. Findings

No findings of significance were identified.

R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary system modification and permanent plant modifications listed below to ensure that that the modifications did not adversely affect safety system availability or reliability. The inspectors reviewed plant modifications for systems that were ranked high in risk for departures from design basis and for inadvertent changes that could challenge the systems to fulfill their safety function. For the permanent modification, the inspectors reviewed the licensee's 10 CFR 50.59 screening to assure that NRC approval was not required prior to installation of the modification. The inspectors specifically checked material compatibility of added components, seismic qualification, adverse containment effects, and structural integrity. The inspectors conducted plant tours and discussed system status with engineering and operations personnel to check for the existence of modifications that had not been appropriately identified and evaluated.

- PC/M 09-003, Unit 3 Inside Containment Vent Valve Installation (NRC Generic Letter 2008-01) (permanent modification)
- RTS No. 08-0281P related to procedure 0-GMM-043.8, Reactor Vessel Head Lifting (RIS 2008-28) (permanent modification)
- Use of 0-ADM-732, Protective Coatings, when altering air flow to Unit 3 or 4 intake cooling water pump motors (temporary modification)

b. Findings

Introduction. (Green) A self-revealing Non-cited violation (NCV) was identified for failing to implement procedures that assure design control during an alteration to the 4C intake cooling water pump motor, a safety-related, ASME Class 1 component.

Description. On May 28, 2009, the Unit 4 C intake cooling water pump experienced a motor high temperature alarm and operators turned off the pump. On investigation, licensee personnel identified that the C pump motor coolers had been altered by clogging the air intakes and vents with filter materials, restricting flow. The inspectors determined that the alterations had been installed by painters in preparation for using needle guns and other paint removal tools on the pump motor housing to prevent paint chips from being drawn into the motor coolers. The inspector inquired on the safety reviews for the alteration, including 10 CFR 50.59 review, inspection, seismic qualification, transient combustible loading, and restoration plans, but the only documentation identified was a general engineering approval to place filter media on the air intakes to circulating water, travelling screen, and intake cooling water motors. The engineering approval had been signed on February 20, 2009 and it contained no instructions for assuring adequate cooling flow to assure motor operability and had no provisions preventing blocking of motor coolers for multiple pumps concurrently. The documentation also required operations review and approval and walkdown which were not completed. Routine operator rounds in the area did not identify the alteration or the lack of controls and the TS for an inoperable ICW pump had not been entered. When the high temperature alarm was investigated, the filter media was immediately removed and the issue was documented in the licensee corrective actions program as CR 2009-15970. The Turkey Point UFSAR specifies the intake cooling pumps and system as a Class 1 system subject to design controls.

Analysis. The inspectors determined that the licensee's failure to implement design control measures when covering the operating C intake cooling water pump motor air cooling intake and vents was a performance deficiency. The finding was more than minor because it affected the Human Performance attribute of the Mitigating Systems cornerstone and the licensee did not complete an engineering evaluation of the modification causing a high temperature condition on the motor to assure that the motor could perform its design functions. Also, NRC Inspection Manual Chapter 0612, Appendix E, Example 4.a was applicable (failure to perform an engineering evaluation with missed opportunities for licensee identification) and the finding was more than minor. The finding screened as Green using NRC Inspection Manual Chapter 0609, Attachment 0609.04, SDP Phase 1 screening because the finding did not result in a loss of function of a single train of TS equipment for greater than the allowed outage time of 14 days. The finding affected the cross-cutting aspect of Human Performance, Work Practices, Supervisory & Management Oversight, because the licensee did not ensure supervisory oversight of work activities, including contractors, such that nuclear safety is supported H.4(c).

Enforcement. 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, requires, in part, that activities affecting quality be accomplished in accordance with procedures. FPL implements temporary changes to safety related

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structures by implementing 0-ADM-503, Control and Use of Temporary System Alterations. Contrary to the above, on May 28, 2009, air cooling flow to the 4C intake cooling water pump motor had been blocked, causing a motor high temperature condition due to materials installed over the air vents absent of design controls, with no implementation of 0-ADM-503 requirements. When revealed to the licensee by a high temperature alarm, the motor was stopped, the alteration was removed, and the issue was entered into the corrective action program as CRs 2009-15970 and 2009-16336. Because the failure to implement the subject procedure is of very low safety significance and has been entered in the licensee's corrective action program, this violation is being treated as a Non-cited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000250, 251/2009-03-05, Failure To Implement Design Controls When Modifying Safety Equipment During Painting Activities.

R19 Post Maintenance Testing

a. Inspection Scope

For the five post maintenance tests listed below, the inspectors reviewed the test procedures 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 operable. The inspectors verified that the requirements of licensee procedure 0-ADM-737, Post Maintenance Testing, were incorporated into testing plans.

- Unit 3, Work Order 34016626-01, POV-3-2600 diaphragm leaks, replaced the air regulator and installed a new black sealite, tested by licensee procedure 3-OSP-051.5, Local Leak Rate Test, as found penetration 35.
- Unit 3, Work Order 38018294-03 installed tubing runs to support auxiliary feedwater Train 2 operation, tested by licensee procedure 3-OSP-075.7, Auxiliary Feedwater Train 2 Backup Nitrogen Test.
- Unit 3, Work Order 38011915-01, POV-3-2605, 3B MSIV actuator surveillance and overhaul; PMT completed per 0-ADM-502, Inservice Test Program.
- Unit 3, Work Order 37024514-01, RHR Low Head Safety Injection to Loop B Motor Operator Valve operator overhaul to change grease; PMT performed using )-GME-102.14, Accelerated MOVATS Testing of Safety-Related Limitorque Motor Operated Valve Actuators and 0-ADM-502, Inservice Test Program.
- Work Order 36024070, A standby steam generator feed pump motor replacement and calibration; tested using licensee procedures 0-OSP-074.3, Standby Steam Generator Feedwater Pumps Availability Test, PDM-I-003, Vibration Program and 0-ADM-737, Post Maintenance Testing.

b. Findings

No findings of significance were identified.

R20 Refueling and Other Outage Activities

.1 Unit 3 Refueling Outage

For the Unit 3 refueling outage that started on March 16, the inspectors evaluated activities as described below, to verify the licensee considered risk in developing schedules, adhered to administrative risk reduction methodologies, and adhered to operating license and TS requirements that maintained defense-in-depth.

.3 Licensee Controls of Outage Activities

a. Inspection Scope

During the outage, the inspectors observed the items or activities described below to verify that the licensee maintained defense-in-depth commensurate with the outage risk-control plan for key safety functions and applicable TS when taking equipment out of service.

- Unit 3 reactor cold leg vent path during draining to below the reactor vessel flange
- Equipment clearance order 75-13, Unit 3 auxiliary feedwater nitrogen backup
- Equipment clearance order 81-01, Unit 3 A heater drain pump isolation

The inspectors also reviewed that the licensee's configuration changes were controlled in accordance with the outage risk control plan and that control-room operators were kept cognizant of the plant configuration. The inspectors specifically checked redundant electric power sources and inventory availability during the reduced inventory periods.

The inspectors checked the licensee's preparations for reduced inventory operations, including ability to close the equipment hatch within time constraints, control of reactor parameters, including reactor coolant temperature using core exit thermocouples, procedure compliance for control of reactor water level, and oversight of draining evolutions. The licensee did not drain to the mid-loop condition during the outage.

The inspectors also reviewed the licensee's responses to emergent work and unexpected conditions, to verify that resulting configuration changes were controlled in accordance with the outage risk control plan, and to verify that control-room operators were kept cognizant of the plant configuration.

b. Findings

Introduction: (Green) A Self-revealing Finding was identified when the licensee did not manage maintenance activities adequately to identify and repair a damaged rod control drive assembly prior to setting the reactor vessel closure head on the reactor vessel flange. As a result, the subsequently filled reactor coolant system had to be again drained to 2 feet below the reactor vessel flange (a high risk activity) placing the unit in the licensee's risk condition Yellow for repairs.

Description: On April 3, 2009, one contracted maintenance person, one FPL supervisor, and one health physics technician entered the Unit 3 refueling cavity to set the reactor

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vessel closure head (RVCH) on the reactor vessel flange. The activity was part of the recovery from refueling outage 24. During alignment of the internal vessel components, one control rod extension shaft was not aligned with the head and was caught on a RVCH funnel, causing transfer of an estimated 8000 pounds of RVCH weight from the form the polar crane hoist to the extension. The extension rod plastically deformed. When the contact was observed, the head lowering was stopped and the head was raised slightly to relieve the stress and allow for an examination. It appeared to the workers that the deformation was elastic and relaxed after the head was lifted (extension returned to normal). No formal evaluation or troubleshooting occurred and station management, including the management designated representative for the job, was not informed. The technicians proceeded to direct lowering of the head onto the flange resulting in the deformed extension shaft being inserted into the drive shaft of the vessel head.

On April 11, 2009, during hot control rod testing, rod D-6 failed to move when demanded. The licensee documented the failure in a condition report and began troubleshooting, later identifying D-6 as a stuck control rod assembly. On April 14, Unit 3 reactor coolant system was drained to 2 feet below the reactor vessel flange for removal of the closure head. This activity was needed to access the stuck RCCA extension for removal and replacement. The draining of Unit 3 reactor coolant system was designated a high risk activity by the licensee because of the potential to lose inventory or shutdown cooling and the licensee entered their risk condition Yellow, as required by procedures. Additionally, a significant expenditure of radiation exposure was made in freeing the stuck rod assembly from the RVCH, an activity that required an individual to enter the reactor head and upper internals for corrective maintenance.

The inspectors found that had the workers that had observed the deformation of the extension stopped, and not lowered the RVCH, troubleshooting and repair of the extension shaft could have been accomplished without an additional draining evolution to reduced inventory. The risk and radiation exposure would have been substantially reduced. Contact between the RVCH and vessel internals causing deformation of the internals had previously occurred at Turkey Point as documented in CR 1997-1459, although binding of internal components due to this cause had not occurred. FPL procedure 0-ADM-003, Outage Planning, Scheduling, and Implementation, states, in Step 5.3.13.1(a), that the outage schedule should minimize the overall time that the plant is in a reduced inventory condition.

The licensee documented this in condition report 2009-10284 and identified a need to revise procedures for setting the reactor vessel closure head to assure that any potential damage to an RCCA extension is evaluated prior to setting the head on the vessel flange.

Analysis: The performance deficiency occurred when the licensee did not adequately plan the RVCH setting activity such that contact with an RCCA was resolved prior to setting the head. Not stopping and investigating the inadvertent bumping and deformation of a RCCA extension shaft resulted in an additional RCS draining evolution and additional time in the reduced inventory condition, thus increasing overall plant risk exposure time. The finding was greater than minor because the licensee's risk

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assessment failed to anticipate that the maintenance activity could result in another plant draining evolution with its inherent risk of loss of inventory or shutdown cooling. The Initiating Events Cornerstone objective to limit the likelihood of events that upset plant stability was affected. NRC Manual Chapter 0609, Attachment 1 was used to assess the finding and with all mitigating equipment maintained available when the plant was drained, the finding screened to be of very low safety significance (Green). Additionally, the finding affected the cross cutting aspect of Human Performance, Work Practices, Supervisory & Management Oversight (H.4(c)) component because the licensee did not appropriately provide oversight of work activities, including contractors, such that nuclear safety is supported.

Enforcement: No violation of regulatory requirements occurred. The inspectors determined that failure to anticipate the consequence of setting the reactor vessel head with the damaged RCCA extension shaft while not in conformance with the licensee's risk management planning was not required by the regulations. The licensee entered this issue in their corrective actions program as CR 2009-10284, and initiated a formal cause evaluation. FIN 05000250, 251/2009-003-06, Inadequate Evaluation Of Damaged Rod Control Extension Results In High Risk Evolution And Risk Condition Yellow.

## .6 Monitoring of Heatup and Startup Activities

### a. Inspection Scope

The inspectors reviewed activities during reactor restart and power escalation to verify that reactor parameters were within safety limits and that the startup evolutions were done in accordance with pre-approved procedures and plans. The inspectors conducted a thorough walkdown of containment prior to reactor restart to verify that the licensee was identifying and correcting leaks, to verify operability of the containment sump, and that other critical components were properly aligned.

### b. Findings

Introduction: (Green) The NRC identified that the licensee was not timely in implementing TS 3.4.10 requirements regarding the structural integrity of ASME Class 2 piping and TS required components.

Description: On 2000 hrs on May 4, 2009, with Unit 3 in Mode 2, licensee personnel observed substantial steam leakage from the base of the 3C main steam isolation valve. Initially, licensee personnel believed that the leakage could be from a threaded connection, however the drawing being used in making this assessment was not up to date and the threaded connection had been removed years earlier. Because the licensee could not restore the integrity of the piping, at 0330 on May 5, licensee personnel identified a need to comply with TS 3.4.10. TS 3.0.3 was then identified as an appropriate TS. The licensee initiated a plant shutdown and cooldown to Mode 5 where the TS did not apply. Subsequently, licensee inspectors identified a circumferential crack in a pipe nipple attached to the MSIV bottom. The crack was in ASME Code Class 2

piping that provided a steam trap that was not isolable from the MSIV. The piping was repaired and restored to ASME compliance.

The inspectors in reviewing the licensee actions found that the prompt determination of operability made when the leak was discovered at 8:00 pm on May 4, and the decision to not enter the TS, was made using an incorrect drawing. Further, the inspectors found that the weld at the base of the MSIV had leaked earlier during recovery from the outage and a weld repair had been attempted. Also, in their investigation of the flaw, licensee personnel identified that the steam trap piping replacement had not been engineered correctly, such that an interference aggravated the flaw making the steam leak worse. NRC Inspection Manual Part 9900, Operability Determinations & Functional Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety, states, in section C.11, Flaw Evaluation, that "If detailed non-destructive examination is necessary and cannot be completed within the time frame for an immediate operability determination, the component should be declared inoperable and the appropriate TS action statement entered." Turkey Point FSAR, Section 10.2(b) states that the main steam isolation valves provide safety related isolation capability for the steam generators for main steam line breaks and steam generator tube ruptures. When the leak was discovered at 8:00 pm, neither TS 3.4.10 for ASME Class 2 components, nor TS 3.7.1.5 for an inoperable main steam isolation valve were entered. TS 3.7.1.5 would have prohibited Mode 2 or 3 operations with the MSIV open (not closed). TS 3.4.10 would have forced entry into TS 3.0.3 causing the licensee to initiate a shutdown and cooldown within one hour. The licensee placed Unit 3 in Mode 3 approximately 8 hours and 38 minutes after discovery of the steam leak.

Analysis: Failure to implement TS 3.0.3 requirements to place the plant in a hot shutdown condition within the specified time when TS 3.4.10 requirements did not apply was a performance deficiency. The finding was more than minor because it affected the RCS equipment and barrier performance attribute of the Barrier Integrity cornerstone and the un-isolable crack challenged the integrity of the main steam system for isolating steam generator tube ruptures. Using Manual Chapter 0609, Attachment 0609.04, Phase 1 screening, this finding was determined to be of very low safety significance because all containment barrier characterization answers marked as No. The cross-cutting element of Human Performance, Decision Making, Conservative Assumptions & Safe Actions, was affected when the licensee did not use conservative assumptions in evaluating a Class 2 component flaw and its TS implications, and did not demonstrate that continued operation with the crack was safe in order to proceed (H.1(b)).

Enforcement: TS 3.4.10 requires that the structural integrity of ASME Code Class 2 components be maintained and with the structural integrity of any Class 2 component not conforming, restore the structural integrity of the affected component or isolate the affected component prior to increasing reactor coolant system temperature above 200 degrees F. Further, TS 3.7.1.5 allows Mode 2 or 3 operation so long as an inoperable MSIV be maintained closed. TS 3.0.3 requires that when a limiting condition for operation is not met, within one hour initiate action to place the unit in hot standby within the next 6 hours. Contrary to the above, on May 5, 2009, the Unit 3, C MSIV steam trap drain, an ASME Class 2 component, was identified with an ASME code non-conforming flaw (crack), by virtue of a steam leak, and with the plant at power in Mode 2, the MSIV

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was neither maintained closed nor was action taken to place the unit in Mode 3 within six hours as required. Subsequently, after 8 hours and 38 minutes, a shutdown to Mode 3 and a cooldown was initiated to a temperature where the TS was no longer applicable. The flaw was subsequently repaired and restored to ASME code compliance. The licensee documented the failure to comply with TS in condition report CR 2009-15284. Because this issue is of very low safety significance and has been entered into the licensee's corrective action program, the violation is being treated as a Non-cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000250, 251/2009-03-07, Failure To Implement TS Requirements Regarding Structural Integrity Of Code Class 2 Main Steam Isolation Components.

.7 Identification and Resolution of Problems

a. Inspection Scope

On a daily basis, the inspectors reviewed outage related issues to assure they had been entered into the licensee's corrective action program and resolved as appropriate. The inspectors verified that the licensee reviewed open deficiencies at the end of the outage to assure that significant issues had been addressed.

b. Findings

No findings of significance were identified.

R22 Surveillance Testing

a. Inspection Scope

The inspectors either reviewed or witnessed the following six surveillance tests to verify that the tests met the TS, the UFSAR, and the licensee's procedural requirements and demonstrated that the systems were capable of performing their intended safety functions and their operational readiness. In addition, the inspectors evaluated the effect of the testing activities on the plant to ensure that conditions were adequately addressed by the licensee staff and that after completion of the testing activities, equipment was returned to the positions/status required for the system to perform its safety function. The tests reviewed included inservice tests (IST) and reactor coolant system leakage detection surveillance. Inservice testing was validated using the licensee's Inservice Testing Program Fourth Ten Year Interval, dated March 11, 2004. The inspectors verified that surveillance issues were documented in the corrective action program.

- 3-OSP-023.1, Diesel Generator Operability Test
- 3-OSP-206.3, Inservice Valve Testing Hot Standby to Cold Shutdown for containment isolation valve, Letdown Stop Valve CV-3-204
- 3-OSP-051.5, Local Leak Rate Tests, section 7.55 Containment Penetration 55
- 3-OSP-203.1, Train A Safeguards Integrated Test, Section 7.3, Loss of Offsite Power Coincident with Safety Injection

- 4-OSP-063.1, Unit 4 Safeguards Actuation System Logic Test, section 7.1, Train A Logic Matrix Test
- 4-OSP-063.2, Unit 4 Containment Isolation System Logic Test, section 7.1, Train A Logic Matrix Test

b. Findings

No findings of significance were identified.

4 OTHER ACTIVITIES

OA2 Problem Identification and Resolution

.1 Daily Review

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a screening of items entered daily into the licensee's corrective action program. This review was accomplished by reviewing daily printed summaries of condition reports and by reviewing the licensee's electronic condition report database. Additionally, a reactor coolant system unidentified leakage was checked on a daily basis to verify no substantive or unexplained changes.

b. Findings

No findings of significance were identified.

.2 Annual Sample Review

a. Inspection Scope

The inspectors selected the following condition report for detailed review and discussion with the licensee. The condition reports were reviewed to ensure that an appropriate evaluation was performed and appropriate corrective actions were specified and prioritized. Other attributes checked included disposition of operability and resolution of the problem including cause determination and corrective actions. The inspectors evaluated the condition reports in accordance with the requirements of the licensee's corrective actions process as specified in NAP-204, Condition Reporting. The inspectors reviewed the cumulative effects of the operator workarounds that were in place to verify that those effects could not increase an initiating event frequency, affect multiple mitigating systems, or affect the ability of operators to properly respond to plant transients and accidents. The inspectors also reviewed operator workarounds to verify that the licensee was identifying operator workaround problems at an appropriate threshold and entering them in the corrective action program.

- CR 2009-3904, Component mispositioned when operator opened incorrect breaker during ECO release

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, the inspectors reviewed the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector corrective actions item screening discussed in section 4OA2.1 above, plant status reviews, plant tours, document reviews, and licensee trending efforts. The inspectors' review nominally considered the six month period of January through June 2009. Corrective actions associated with a sample of the issues identified in the licensee's corrective action program were reviewed for adequacy.

b. Assessment and Observations

No findings of significance were identified. The inspectors noted a trend in occurrences of problems in configuration management, including the following:

- CR 2009-10386, MOV 3-744B was left with an open stroke of 87% when 90-95% open prior to limit out was specified in work order 37024514-01.
- CR2009-16541, During RPS testing per 0-PMI-049.1, one Unit 4 undervoltage trip circuit was left in bypass greater than two hours as specified in TS 3.3.1, Table 3.3.1, functional Unit 19, Action 8, because the procedure had not been updated to reflect a temporary modification to the undervoltage time delay circuitry.
- CR 2009-18558, High point vents were installed on ECCS piping during the Unit 3 outage, however, compliance with TS surveillance 4.5.2.b, venting of ECCS discharge piping, was not updated, resulting in a missed surveillance.

OA5 Other Activities

2. Annual Assessment Meeting Summary

On April 28, 2009, the NRC's Region III, Director Division of Reactor Projects, Chief of Reactor Projects Branch 3, Chief of Operator licensing Branch, and the resident staff assigned to the Turkey Point Nuclear Plant met with local elected officials and interested members of the public to discuss the NRC's Reactor Oversight Process (ROP). The major topics addressed were: the NRC's assessment program, the results of the Turkey Point Nuclear Plant 2008 assessment, and future NRC inspection activities. This meeting was open to the public.

Enclosure

OA6 Exit

Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. Jefferson and other members of licensee management on July 23, 2009. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary information. The licensee did not identify any proprietary information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee personnel:

J. Antignano, Fire Protection Supervisor  
C. Cashwell, Radiation Protection Manager  
R. Coffey, Maintenance Manager  
M. Crosby, Quality Manager  
J. Hamm, Engineering Manager  
R. Tomonto, Licensing Manager  
L. Hardin, Emergency Preparedness Manager  
W. Jefferson, Site Vice-President  
M. Kiley, Plant General Manager  
E. Lyons, Engineering Programs Supervisor  
S. Shaffer, Assistant Operations Manager  
N. Bach, Chemistry Manager  
R. Wright, Operations Manager

#### NRC personnel:

M. Sykes, Chief, Reactor Projects Branch 3, Division of Reactor Projects (DRP)  
K. Kennedy, Director, Division of Reactor Safety, RII  
L. Reyes, Regional Administrator, RII  
L. Wert, Director, Division of Reactor Projects, RII

### **LIST OF ITEMS OPENED, CLOSED AND DISCUSSED**

#### **Opened and Closed**

05000250, 251/2009-003-01	NCV	Failure to Implement Procedures for Conducting A Valve Alignment Causes Spill of Reactor Coolant And Contamination Of A Plant Employee.
05000250, 251/2009-003-02	NCV	Failure To Implement TS Requirements Resulting From Loss Of Configuration Control Of The 3C Main Steam Isolation Valve.
05000250, 251/2009-003-03	FIN	Failure To Maintain Lighting Impedes Compensatory Measure For Failed Fire Detection.
05000250, 251/2009-003-04	NCV	Failure To Assure That Design Controls Were Maintained During Maintenance On The 3B Main Steam Isolation Valve (MSIV).
05000250, 251/2009-003-05	NCV	Failure to Implement Design Controls When Modifying Safety Equipment During Painting Activities

05000250, 251/2009-003-06 FIN Inadequate Evaluation Of Damaged Rod Control  
Extension Results In High Risk Evolution And Risk  
Condition Yellow

05000250, 251/2009-003-07 NCV Failure to implement TS requirements  
Regarding structural integrity of code class 2 main steam  
isolation components