



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

July 31, 2012

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

**SUBJECT: TURKEY POINT NUCLEAR PLANT – NRC INTEGRATED INSPECTION  
REPORT 05000250/2012003 AND 05000251/20120003**

Dear Mr. Nazar:

On June 30, 2012, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Turkey Point Nuclear Plant Units 3 and 4. The enclosed integrated inspection report documents the inspection findings, which were discussed on July 16, 2012, with M. Kiley 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.

The NRC identified a finding of very low safety significance during this inspection. This finding was determined to involve a violation of NRC requirements. Additionally, a licensee identified violation, which was determined to be of very low safety significance, is listed in this report. The NRC is treating these violations as non-cited violations consistent with Section 2.3.2 of the Enforcement Policy. If you contest these non-cited violations, 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 20555-0001; 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 Nuclear Plant. If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this report, with the basis of your disagreement, to the Regional Administrator, Region II and the NRC Resident Inspector at Turkey Point Nuclear Plant.

M. Nazar

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

Sincerely,

/RA/

Daniel W. Rich, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000250/2012003, 05000251/2012003  
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

M. Nazar

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Letter to Mano Nazar from Dan Rich dated July 31, 2012

SUBJECT: TURKEY POINT NUCLEAR PLANT – NRC INTEGRATED INSPECTION  
REPORT 05000250/2012003 AND 05000251/2012003

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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: 05000250/2012003, 05000251/2012003

Licensee: Florida Power & Light Company (FPL)

Facility: Turkey Point Nuclear Plant, Units 3 & 4

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

Dates: April 1, 2012 – June 30, 2012

Inspectors: J. Stewart, Senior Resident Inspector  
M. Barillas, Resident Inspector  
R. Hamilton, Senior Health Physicist (4OA2, 4OA7)  
W. Pursley, Health Physicist (4OA2, 4OA7)  
M. Speck, Senior Emergency Preparedness Inspector (1EP2-5, 4OA1)  
D. Jones, Senior Reactor Inspector (1R17, 4OA5)  
T. Su, Reactor Inspector (1R17)  
R. Patterson, Reactor Inspector (1R17)  
A. Alen, Reactor Inspector (1R17)  
P. Braxton, Reactor Inspector (1R17)  
J. Dymek, Reactor Inspector (1R17)  
R. Williams, Reactor Inspector (4OA5)

Accompanied by: T. Lichatz, NSPDP, Basic Qualified

Approved by: D. Rich, Branch, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000250/2012003, 05000251/2012003; 04/01/2012 – 06/30/2012; Turkey Point Nuclear Power Plant, Units 3 and 4; Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

The report covered a three month period of inspection by resident and region based inspectors. One Green NCV was identified. The significance of most findings is identified by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, Significance Determination Process (SDP). The cross-cutting aspect was determined using IMC 305, Operating Reactor Assessment Program. The 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.

### A. Inspector Identified Findings

Cornerstone: Mitigating Systems

(Green) The inspectors identified a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for the licensee's failure to perform an analysis for the removal of the Unit 3 main steam pipe whip restraints. These restraints are credited for mitigating high energy line breaks with a potential consequence of an unrestrained pipe break outside of containment. The licensee entered the issue into the corrective program as action request AR1757120 and revised the modification package to reinstall the pipe whip restraints prior to Unit 3 start-up.

The team determined that the licensee's failure to perform an analysis, as required by procedure ENG-QI 1.0, Design Control, for the permanent removal of main steam pipe whip restraints is a performance deficiency. The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone attribute to ensure the availability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the lack of pipe whip restraints would adversely affect the capability of equipment required to mitigate high energy line break events. The team screened the finding in accordance with IMC 0609, Significance Determination Process, Attachment 4, Phase 1-Initial Screening and Characterization of Findings, and determined the finding was of very low safety significance because it was a design deficiency confirmed not to result in a loss of safety function, since the deficiency was identified and corrected before the modification was implemented. The team identified a crosscutting aspect in the decision making component of the human performance area. [H.1(b)]. (Section 1R17)

### A. Licensee Identified Violations

A violation of very low safety significance identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violation and associated corrective actions are listed in Section 4OA7 of this report.

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## REPORT DETAILS

### Summary of Plant Status:

Unit 3 remained shutdown for the entire period for refueling and planned power up-rate modifications.

Unit 4 began the period operating at full power. Reactor power was reduced to 40% on May 19 for planned secondary system testing. Reactor power was returned to full power on May 20.

#### 1. REACTOR SAFETY

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

#### 1R01 Adverse Weather Protection (02.01 Summer Readiness of Offsite and Alternate AC Power Systems; 02.02 Readiness for Seasonal Extreme Weather Conditions; and 02.04 Readiness to Cope with External Flooding)

##### a. Inspection Scope

The inspectors reviewed and verified the status of licensee actions in preparation for hurricane season. The inspectors reviewed the completion status of licensee procedure 0-ONOP-103.3, Severe Weather Preparations. Licensee procedure 0-ADM-116, Hurricane Season Readiness, Section 4.1, Hurricane Season Preparation, was verified completed with exceptions tracked in the licensee's corrective action program. The inspectors walked down portions of the Turkey Point flood protection barrier and verified the licensee had implemented surveillance procedure 0-SMM-102.1, Flood Protection Stoplog and Penetration Seal Inspection, to assure that vulnerabilities had been identified and evaluated by the licensee. Licensee procedures 0-EPIP-20106, Natural Emergencies, and 0-EPIP-20101, Duties of Emergency Coordinator, were reviewed to assure that storm management plans could be implemented. Licensee procedure 0-ONOP-004.6, Degraded Switchyard Voltage, was discussed with operators to assure that if switchyard voltage was outside of limits or could not be predicted (post-trip) appropriate communications would occur and actions would be taken to restore voltage within operating limits. The inspectors performed site walk downs and tours of vulnerable areas (listed below) to verify that no activities would prevent the licensee from making timely storm preparations. The inspectors reviewed the Hurricane Season Preparation open items list and verified that the open exemptions were being documented in the corrective action program with a plan to correct them prior to a hurricane event. On June 26, the inspectors toured the plant switchyard and discussed storm preparedness with FPL transmission personnel. Areas specifically walked down included:

- Switchyard
- Unit 3 A and B 4160 volt switchgear rooms
- Unit 4 emergency diesel generator building

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b. Findings

No findings were identified. Flood barrier exceptions were being tracked in the corrective action program for reference should a storm approach.

1R04 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. The inspectors routinely verified that alignment issues were documented in the corrective action program.

- Unit 4, auxiliary feedwater train 1 lineup checked using licensee procedure, 4-OSP-075.5, Auxiliary Feedwater System Flow Path Verification, and system drawings, 5610-M-3075, sheet 2 and 5614-M-3075, sheet 2, Auxiliary Feedwater System. The walk down was completed during equipment clearance order 3-075-04 for planned maintenance on auxiliary feedwater valves AFPD-3-006 and AFPD-3-008.
- Unit 4, 4A and 4B emergency diesel generators and the station blackout cross-tie using 4-OP-023, Emergency Diesel Generator, and 4-NOP-022, Emergency Diesel Generator Fuel Oil System, while the Unit 4 startup transformer was removed from service to support Unit 3 maintenance.
- Unit 4, boric acid system to assure ability to emergency borate, if needed, while refilling the Unit 3 refueling water storage tank following maintenance. The walk down was done using licensee procedure 4-OSP-046.3, CVCS – Boration Systems Flowpath Verification, and drawing 5610-M-3046, sheet 1, Chemical and Volume Control System, Boric Acid System. Emergency operating procedure 4-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS, was used in preparing for the walk down.

b. Findings

No findings were identified.

## 1R05 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, ignition sources, and 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 were routinely reviewed. In addition, the inspectors reviewed the condition report database to verify fire protection problems were being identified and appropriately resolved. The inspectors routinely observed operation of the fire alarm panel in the main control room, including operator response to alarms. The following areas were inspected:

- Unit 3 component cooling water (CCW) room with flame detection removed from service
- Unit 3 Feedwater Platform elevation 39' during hot work
- Unit 4 emergency diesel generator building
- Unit 4 B motor control center room
- Boric acid storage tank room
- Unit 3 A 4160 volt switchgear room

### b. Findings

No findings were identified.

#### .2 Annual Fire Drill

### a. Inspection Scope

On May 31, the inspectors observed the licensee fire brigade's response to reported smoke on the south-end of the dress-out building inside the radiation controlled area. The inspectors verified that control room communications with the fire brigade were established and announcement of the fire location and sounding of alarms were made in a timely manner. The inspectors checked the brigade's communications, ability to set-up and execute fire operations, and their use of firefighting equipment. Six plant operators responded in full fire response gear and additional responders were available to dress if needed. The inspectors verified licensee referenced procedure 0-EPIP 20101, Duties of Emergency Coordinator, for classification and notification which were not required. The smoke was verified to have dissipated and no fire was found by the fire brigade. The inspectors verified that the licensee implemented the aspects described below.

- The brigade, including the fire brigade leader, consisted of a minimum of five team members. Six brigade members responded fully dressed in gear and additional operators were available to dress, if needed.
- The team members acquired and donned the appropriate turnout gear including self contained breathing apparatus (SCBA) which were properly donned.
- Control room personnel verified and announced the fire location. The fire alarm was sounded and fire brigade personnel were dispatched. Pre-fire strategies and the emergency response classification guide were referenced by control room supervisors.
- The fire brigade leader maintained control. Members were briefed (including potential hazards), a plan of attack was developed and responders received assignments. A second qualified brigade leader provided support.
- Fire brigade arrived at the scene in a timely manner, taking an appropriate access route.
- Command and control was established near the fire location. Communications were established and maintained with control room personnel.
- Communications were effective between the control room, command post, plant operators and fire brigade response teams.
- Fire hose lines were capable of reaching the fire area.
- The fire brigade arrived with sufficient firefighting equipment to perform its fire fighting duties.
- A post-fire critique was held to identify strengths and areas for improvement.
- All fire-fighting equipment associated with the event was returned to a state of readiness following completion of response. The inspectors checked that fire readiness was quickly restored.

b. Findings

No findings were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors verified heat exchanger performance monitoring for the safety related heat exchangers listed. The licensee's testing verified an adequate heat transfer from component cooling to the intake cooling water system by first determining the actual fouling factor of the heat exchangers, then comparing the value against design requirements. The inspectors checked that monitoring and trending of heat exchanger performance was done at an appropriate interval and that the licensee routinely verified the operational readiness of the system should it be needed for accident mitigation. The inspectors verified that the licensee employed the heat transfer method described in EPRI-NP-7552, Heat Exchanger Performance Monitoring Guidelines. The inspectors walked down portions of the cooling systems for integrity checks and to assess operational lineup and material condition. On a routine frequency, the inspectors monitored the licensee's maintenance associated with heat exchanger cleaning and biofouling prevention. On April 2, the inspectors observed activities associated with 4C

component cooling water pump and motor replacement, including upgrade of the pump seals. On June 18, the inspectors observed engineering perform the heat exchanger performance test required by technical specifications in accordance with the following procedures:

Unit 4: 4-OSP-030.4, Component Cooling Water Heat Exchanger Performance Test.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program

.1 Resident Inspector Quarterly Review- Extended Power Uprate (EPU) Training

a. Inspection Scope

The inspectors completed the following three evaluations of licensed operator performance in the plant specific simulator.

On April 25, the inspectors assessed licensed operator performance in the plant specific simulator as it relates to Unit 3 extended power uprate conditions. Event simulations were accomplished using a training scenario which started at EPU conditions, then involved a simulated heater drain pump trip, followed by loss of vacuum, steam generator feedwater pump trip, and a large break loss of coolant accident. Operators responded to the events using off-normal procedures 3-ONOP-089, Turbine Runback; 0-ONOP-100, Fast Load Reduction due to Condenser Vacuum Leak; and plant emergency procedures 3-EOP-E-0, Reactor Trip and Safety Injection.

On May 22, the inspectors assessed licensed operator performance in the plant specific simulator. Event simulations were accomplished using evaluation scenario 750204900 which started at EPU conditions, then involved a simulated failed pressure transmitter followed by an increasing leakage from a reactor coolant pump seal. The operators responded to the seal leak using FPL off-normal procedure 3-ONOP-041.1. The seal package eventually failed causing a reactor trip and safety injection requiring use of 3-EOP-E-0, Reactor Trip or Safety Injection. Subsequently, a leaking tube in the 3A steam generator ruptured and operators responded by transitioning to 3-EOP-E-3, Steam Generator Tube Rupture. Operator performance was evaluated by licensee evaluators as part of the annual requalification requirement.

On June 3, the inspectors assessed licensed operator performance in the plant specific simulator as it relates to Unit 3 EPU conditions. Event simulations were accomplished using an exam evaluation scenario which started at EPU conditions, then involved a simulated reactor coolant pump failure, loss of one safety parameter display system (QSPDS) channel, and a steam generator tube rupture/loss of coolant accident. Operators responded to the events using off-normal procedures 3-NOP-042, QSPDS Inadequate Core Cooling Monitor; 3-GOP-100, Fast Load Reduction; emergency procedures 3-EOP-E-0, Reactor Trip and Safety Injection; and 3-EOP-E-3, Steam

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Generator Tube Rupture. Operator performance was evaluated by licensee evaluators as part of the annual requalification requirement.

In each case, the inspectors verified that the classification and simulated state notifications were performed 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 shift supervisor, including ability to identify and implement appropriate technical specifications (TS) actions and emergency plan classification and notification
- Crew overall performance and interactions
- Evaluator's critique and findings
- Remediation was appropriate when performance did not meet the licensee's prescribed standards

b. Findings

No findings were identified.

.2 Observations of Operator Performance in the Main Control Room

The inspectors routinely observed conduct of control room activities such as surveillance testing, response to alarms, communications, and coordination of activities. These observations were conducted to verify operator compliance with station operating protocols, such as use of procedures, control and manipulation of components, and communications. On April 30, the inspectors observed response to fire alarm point 45 in the main control room. A plant operator and the fire watch shift supervisor were promptly dispatched to the Unit 4 emergency diesel building to confirm the alarm. The inspector later toured the affected area to verify the alarm was spuriously caused by smoke from an outdoor operating diesel engine exhaust. On June 30, the inspectors observed conduct of the operations shift turnover in the main control room during which the 4A emergency diesel generator surveillance was being conducted.

b. Findings

No findings were identified.

1R12 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 interviewed responsible engineers and observed some of the maintenance activities associated with the listed items. On June 28, the inspectors observed the licensee's expert panel discussion of the listed items including plans to return both items to a (2) monitoring. Routinely, 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 sources of information on tracking and resolution of issues.

- AR 1730554 System 007, insufficient preventative maintenance for vital and non-vital motor control centers resulted in failure and unplanned unavailability for 3D vital motor control center (A(1) actions maintained in AR 1771733-04)
- AR 1675539 System 003, lack of established test program for molded case circuit breakers (120 vac and 125 vdc) (A(1) action plan maintained in AR 1771733-02)

b. Findings

No findings were identified.

1R13 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 five emergent or planned maintenance activities. The inspectors verified the licensee's risk assessment and risk management activities using 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; procedures 0-ADM-068, Work Week Management; WM-AA-1000, Work Activity Risk 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 and the licensee assessment of aggregate risk using FPL procedure OP-AA-104-1007, Online Aggregate Risk. The inspectors evaluated the following risk assessments during the inspection:

- April 4, 2012, Unit 3 risk when the 3A intake cooling water header was removed from service under work order 40071470-03. The inspectors verified the ability to maintain spent fuel pool cooling during intake cooling water valve maintenance.
- April 25, 2012, Unit 4 risk when 3A high head safety injection pump was removed from service for pump replacement with the Unit 3 refueling water storage tank drained for maintenance.
- May 1, 2012, Unit 4 risk when the Unit 4 startup transformer was removed from service to support Unit 3 main condenser replacement activities.
- June 8, 2012, Unit 3 yellow risk when two intake cooling pumps were unavailable to support replacement of intake cooling valve 3-50-309.
- June 18, 2012, Unit 4 risk when 3B high head safety injection pump was removed from service for planned discharge valve maintenance while 3B emergency diesel generator fuel oil transfer pump was out of service for replacement.

b. Findings

No findings were identified.

1R15 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 Updated Final Safety Analysis Report (UFSAR) 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.

- AR 1767549 Unit 3 B intake cooling water pump fail to trip from control room handswitch. The inspectors verified the operability of the 3B 4160 volt emergency power supply to support Unit 4 full power operations. FPL drawing 5613-E-27, Sheet 2B1, Mechanical Auxiliaries, Intake Cooling Water Pump 3B, was used in the evaluation.
- AR 1747529 Unit 3 chemical volume control system to auxiliary spray operability when snubber 3-1136 failed its functional test.
- AR 1765520, Unit 3 and Unit 4, flood protection with identified wall breaches identified during licensee's 0-ADM-116, Hurricane Season Readiness, walkdown. The inspectors reviewed documentation and staging of temporary structures and sandbags provided should a hurricane induced flood event occur.

b. Findings

No findings were identified.

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed selected samples of evaluations to confirm that the licensee had appropriately considered the conditions under which changes to the facility, UFSAR, or procedures may be made, and tests conducted, without prior NRC approval. The inspectors reviewed evaluations for six changes and additional information, such as drawings, calculations, supporting analyses, the UFSAR, and TS to confirm that the licensee had appropriately concluded that the changes could be accomplished without obtaining a license amendment. The six evaluations reviewed are listed in the List of Documents Reviewed.

The inspectors reviewed samples of changes for which the licensee had determined that evaluations were not required to confirm that the licensee's conclusions to "screen out" these changes were correct and consistent with 10CFR50.59. The thirteen "screened out" changes reviewed are listed in the List of Documents Reviewed.

The inspectors evaluated engineering design change packages for nine material, component, and design based modifications to evaluate the modifications for adverse effects on system availability, reliability, and functional capability. The nine modifications are as follows:

- EC 246874, EPU – Main Steam Isolation Valve Upgrade
- EC 246924, EPU – Pressurizer Safety Valve Setpoint Change
- EC 242442, Fast Acting Feedwater Isolation Valve Upgrade
- EC 247012, Modifications to the Normal Hot Leg Recirculation Flowpath for EPU
- EC 273225, Emergency Containment Cooler Auto Start
- EC 247048, Plant Documentation Changes Resulting from Westinghouse Setpoint Scaling Revision
- EC 275011, Auxiliary Feedwater (AFW) Rotating Element and Pump Replacement
- EC 247008, Reduce EDG Generator Volt & Frequency
- EC 247006, Removal of AFW Stops

Documents reviewed included procedures, engineering calculations, modification design and implementation packages, work orders, site drawings, corrective action documents, applicable sections of the living UFSAR, supporting analyses, TS, and design bases information. The inspectors additionally reviewed test documentation to ensure adequacy in scope and conclusion. The inspectors review was also intended to verify that all appropriate details were incorporated in licensing and design bases documents and associated plant procedures.



The inspectors reviewed the following seven sections of the extended power uprate safety evaluation report to evaluate the impact of modifications on safety analysis margins.

- 2.2.4, Safety-related Valves and Pumps
- 2.3.2, Electrical - Offsite
- 2.3.3, Electrical – AC Onsite Power System
- 2.4.1, Reactor Protection, Safety System Actuation, and Control Systems
- 2.5.1.4, Fire Protection
- 2.6.5, Containment Heat Removal
- 2.7.3, Control Room Area Ventilation

The inspectors also reviewed selected corrective action documents and the licensee's self-assessments associated with modifications and 10 CFR 50.59 screening/evaluations to confirm that problems were identified at an appropriate threshold, were entered into the corrective action process, and that appropriate corrective actions were initiated and tracked to completion.

b. Findings

Introduction: The team identified a Green non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for the licensee's failure to perform an analysis for the removal of the main steam pipe whip restraints. These restraints are credited for mitigating high energy line breaks.

Description: In December 1972, the Atomic Energy Commission issued a letter (authored by A. Giambusso) to applicants and licensees on the subject of piping failures outside containment. The Florida Power & Light responses to this letter constitute the Turkey Point licensing bases for high energy line breaks outside containment and are specifically referenced in UFSAR Section 5.4.1, Pipe Whip Restraints Design Basis. The UFSAR states, in part, that to mitigate the consequences of such a break, whip restraints with jet impingement protection were installed where a ruptured pipe could cause subsequent failure of equipment required to mitigate accidents.

Engineering Change (EC) 246874, Replacement of Main Steam Isolation Valve (MSIV) Assemblies, replaces the existing Unit 3 MSIVs with larger valves to support the extended power uprate. The modification was being implemented during the performance of this inspection. The team noted that EC 246874 directed the removal of the safety-related main steam pipe whip restraints. Specifically, EC 246874 stated, in part, that the whip restraints which were designed to hold the main steam lines in place during a pipe rupture outside containment, are no longer required and that the cables and lugs on the pipe are to be removed and scrapped. The team noted that procedure ENG-QI 1.0, Design Control, Section 5.5 (4) states, in part, "that design changes to systems or components shall be evaluated using the same (or equivalent) codes, regulations, and quality assurance requirements employed during original design (or as amended by later license requirements)." Concerning the removal of the pipe whip restraints, the team requested the evaluation that complied with the requirements of

procedure ENG-QI 1.0. The licensee determined that an evaluation had not been performed and entered the issue in the corrective program as action request (AR) 1757120. Subsequently, the licensee elected not to perform the required analysis and planned to revise EC 246874 to reinstall the pipe whip restraints prior to plant start-up such that the design as described UFSAR Section 5.4.1 was maintained.

Analysis: The team determined that the licensee's failure to perform an analysis, as required by ENG-QI 1.0, Design Control, for the permanent removal of main steam pipe whip restraints is a performance deficiency. The performance deficiency was more than minor because it affected the Mitigating Systems cornerstone attribute to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the lack of pipe whip restraints would adversely affect the capability of equipment required to mitigate high energy line break events. The team screened the finding in accordance with IMC 0609, Significance Determination Process, Attachment 4, Phase 1-Initial Screening and Characterization of Findings, and determined the finding was of very low safety significance (Green) because it was a design deficiency confirmed not to result in a loss of safety function, since the deficiency was identified and corrected before the modification was implemented.

The team identified a crosscutting aspect in the decision making component of the human performance area. Specifically, the licensee failed to make conservative assumptions when the engineering staff failed to verify the assumption that the pipe whip restraints were no longer required. [H.1(b)]

Enforcement: 10 CFR Part 50, Appendix B, Criterion III, Design Control, requires, in part, that design control measures provide for verifying or checking the adequacy of the design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods. Contrary to the above, on January 7, 2012, the licensee failed to verify or check the adequacy of the design for high energy line breaks using calculational methods. Specifically, the licensee failed to perform an analysis as required by procedure ENG-QI 1.0, Design Control, for the removal of the main steam line pipe whip restraints that are required to protect safety-related equipment from the effects of high energy pipe breaks. Because this violation was of very low safety significance (Green) and it was entered into the licensee's corrective action program as AR 1757120, this violation is being treated as an NCV, consistent with Section 2.3.2.a of the Enforcement Policy. (NCV 05000250/2012003-01, Failure to Perform an Analysis for the Permanent Removal of Main Steam Pipe Whip Restraints)

## 1R19 Post Maintenance Testing

### a. Inspection Scope

For the six 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 used licensee procedure 0-ADM-737, Post Maintenance Testing, in their assessments.

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- Unit 4: 4-OSP-030.1, Component Cooling Water Pump Inservice Test, following pump seal replacement per work order 33012030-01, 4P211C, replace seals and bearings. The test results were evaluated using requirements in licensee procedure 0-ADM-502, In-service Testing Program.
- Unit 4: leak check and satisfactory performance of 4-OSP-055.1, Emergency Containment Cooler Operational Test, Section 4.4, 4C Emergency Containment Cooler Test, following replacement of solenoid valve SV-4-2925 in accordance with work order 40069053-01.
- Unit 4: leak check verification in accordance with work order 40157655-01 for Unit 4 auxiliary feedwater train 2 backup nitrogen bottle number 5 hose fitting leak repair.
- Unit 4: Valve stroke test using 4-OSP-055.1, Emergency Containment Cooler Operability Test, (Appendix P), following solenoid valve replacement under work orders 40091536-01, Replace SV-4-2920 Due to Age, and 40069051-01, Replace SV-4-2923 Due to Age. FPL drawing 5614-M-3030, Component Cooling Water, Sheet 3 was used in the review.
- Unit 3: Accelerated Diagnostic Testing of Safety Related Limitorque Motor Operated Valve Actuator MOV 3-744A, in accordance with 0-GME-102.14 under work order 40064959-1 after valve maintenance.
- Unit 3: Differential Pressure Testing of Safety Injection MOV-3-869, Hot leg injection flowpath motor operated valve, after completion of work order 40069461-02 maintenance on the valve.

b. Findings

No findings were identified.

1R20 Unit 3 Refueling and Extended Power Uprate Outage 26 (EPU)

a. Inspection Scope

The inspectors observed selected Unit 3 outage activities starting February 26 to determine whether shutdown safety functions were properly maintained as required by technical specifications and plant procedures. The inspectors evaluated specific performance attributes including operator performance, communications, and risk management. The inspectors reviewed procedures and observed selected activities associated with the outage and conducted walkdowns of systems credited to maintain safety margins and defense in depth. The inspectors verified that activities were performed in accordance with the outage plan, plant procedures, and as appropriate, verified that acceptance criteria were met. Conditions adverse to quality documented by the licensee in the corrective action program were checked daily. Also, management activities were monitored to assure adherence to the outage plan and safe resolution of issues. The inspectors specifically evaluated the following activities:

- No fatigue management program waivers were issued in Operations, Maintenance, and Engineering Departments in accordance with the Fatigue Rule in 10 CFR 26.
- Shutdown safety was maintained using licensee procedure 0-ADM-051, Outage Risk Assessment and Control.

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- Equipment clearance order 3-075-04 for planned maintenance on auxiliary feedwater system valves AFPD-3-006 and AFPD-3-008 on April 2, 2012.
- Equipment clearance order 3-019-01 for planned maintenance on 3A intake cooling water header on April 4 through April 6, 2012.
- Verification of both A and B safety trains protected, electrical power supply redundancy, and redundant reactor level indications during reactor coolant system draining to two feet below the vessel flange on June 22, 2012.
- As part of the switchyard walkdown, the inspectors verified the licensee completed switchyard modifications as stated in section 4.0, Regulatory Commitments, of Safety Evaluation Report for Extended Power Uprate Conditions. Specifically, the inspectors verified inductors were installed in the switchyard to reduce the available fault levels and that current transformers in circuit breakers were adjusted to accommodate increased unit outputs under EPU conditions.

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors either reviewed or witnessed the four surveillance tests listed below to verify that the tests met the TS requirements, the UFSAR, the licensee's procedural requirements, and demonstrated that the systems were operationally ready to perform their intended safety functions. 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 alignment required for the system to perform its safety function. Inservice tests (IST) were 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.

- 0-OSP-074.3, Standby Steam Generator Feedwater Pump Availability Test (Pump B)
- 3-OSP-062.2D, Safety Injection Pump 3A Comprehensive Pump Test following pump replacement (IST – baseline)
- 3-OSP-050.2C, Residual heat Removal Train A Comprehensive Test – Cooldown Alignment, Section 4.4, RHR Pump A test following pump replacement (IST – baseline)
- 4-OSP-024.2, 4A Emergency Bus Load Sequencers Manual Test

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

## 1EP2 Alert and Notification System Evaluation

### a. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, Alert and Notification System (ANS) Testing. The applicable planning standard, 10 CFR Part 50.47(b)(5) and its related 10 CFR Part 50, Appendix E, Section IV.D requirements were used as reference criteria. The criteria contained in NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Revision 1, were also used as a reference.

The inspectors reviewed various documents which are listed in the List of Documents Reviewed. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

### b. Findings

No findings were identified.

## 1EP3 Emergency Preparedness Organization Staffing and Augmentation System

### a. Inspection Scope

The inspectors reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection was reviewed to assess the effectiveness of corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, Emergency Preparedness Organization Staffing and Augmentation System. The applicable planning standard, 10 CFR 50.47(b)(2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the List of Documents Reviewed. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

### b. Findings

No findings were identified.

## 1EP5 Correction of Emergency Preparedness Weaknesses

### a. Inspection Scope

The inspectors reviewed the corrective actions identified through the emergency preparedness program to determine the significance of the issues and to determine if repeat problems were occurring. The facility's self-assessments and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. In addition, the inspectors reviewed licensee self-assessments and audits to assess the completeness and effectiveness of all emergency preparedness related corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, Correction of Emergency Preparedness Weaknesses. The applicable planning standard, 10 CFR 50.47(b)(14) and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the List of Documents Reviewed. This inspection activity satisfied one inspection sample for the correction of emergency preparedness weaknesses on a biennial basis.

### b. Findings

No findings were identified.

## 4. OTHER ACTIVITIES

### 4OA1 Performance Indicator Verification

#### a. Inspection Scope

The inspectors sampled licensee submittals relative to the performance indicators (PIs) listed below for the period January 1, 2011, and December 31, 2011. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6, were used to confirm the reporting basis for each data element.

#### Emergency Preparedness Cornerstone

- ERO Drill/Exercise Performance
- ERO Drill Participation
- Alert and Notification System Reliability

For the specified review period, the inspector examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for

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ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the List of Documents Reviewed. This inspection satisfied three inspection samples for PI verification on an annual basis.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution

.1 Routine Review

a. Inspection Scope

As required by Inspection Procedure 71152, Problem Identification and Resolution, and to help identify repetitive or long term equipment problems 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 summaries of condition reports and by reviewing the licensee's electronic condition report database. Additionally, reactor coolant system unidentified leakage was checked on a daily basis to verify no substantive or unexplained changes. The inspectors also routinely attended the operations shift turnover meeting and reviewed equipment status reports to identify issues that would require further inspection. On a sampling basis, the inspectors verified that risk significant equipment issues were identified in the corrective action program and promptly corrected.

b. Findings

No findings were identified.

.2 Annual Sample Review: Unit 4: Apparent Cause Evaluation and Other Actions Associated With Foreign Material Found in the 4B Component Cooling Water Heat Exchanger

a. Inspection Scope

The inspectors selected AR 1730527, Foreign Material Found in the 4B CCW Heat Exchanger, for an in-depth review of the circumstances and the corrective actions that followed. The inspectors reviewed the licensee performance attributes associated with complete, accurate, and timely documentation of the problem which was selected because of its risk significance. The attributes reviewed included disposition of operability and reportability, classification and prioritization of the problem resolution commensurate with safety significance, contributing causes, extent of condition; planning of assigned corrective actions, and that corrective actions taken were

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completed in a timely manner. The inspectors verified that operating experience applicability and applicable lessons learned were communicated to appropriate organizations in accordance with the licensee's program. The inspectors interviewed plant personnel and evaluated the licensee's administration of this selected condition report in accordance with their corrective action program as specified in licensee procedures PI-AA-204, Condition Identification and Screening Process, and PI-AA-205, Condition Evaluation and Corrective Action.

b. Findings and Observations

No findings were identified. The licensee determined the source of the foreign material in the 4B intake cooling water heat exchanger was rubber material from recently installed manual valves. The material fell off of the valve internals due to poor installation of the disc rubber liner. The valve disc rubber liner serves the function of corrosion protection. The licensee looked at the potential adverse impact of the foreign material on reduced intake cooling water flow through the affected heat exchanger and determined the rubber liner did not affect system operability because of safety margin in the system. The licensee looked at extent of condition and determined that all the 30 inch Pratt butterfly valves installed in the intake cooling water system on both units were susceptible to rubber delamination. The licensee's corrective action included removing the rubber liner from these valves and coating the valve disc with an anti-corrosion coating. This maintenance activity was monitored by the inspectors as Unit 3 valves were completed.

.3 Annual Sample Review: Unit 3: Foreign material removed from lower reactor vessel following inspection (AR 1776606)

a. Inspection Scope

The inspectors selected AR 1776606 for an in-depth review of the circumstances and the actions taken by the licensee. The issue was selected because of the potential that foreign material in the reactor could impact fuel integrity or signal degradation of reactor internal components. The inspectors reviewed the licensee performance attributes associated with complete, accurate, and timely documentation of the problem and the results of the initial screening, cause determination, and action assignments. The attributes checked included evaluation and disposition of operability and reportability issues, classification and prioritization of the problem's resolution commensurate with safety significance, evaluation of potential causes, and extent of condition. The inspectors assured that operating experience was employed in the licensee's evaluation and applicable lessons learned were communicated to appropriate organizations in accordance with the licensee's program. The inspectors interviewed plant personnel and evaluated the licensee's administration of this selected condition report in accordance with their corrective action program as specified in licensee procedures PI-AA-204, Condition Identification and Screening Process, and PI-AA-205, Condition Evaluation and Corrective Action.



b. Findings and Observations

No findings were identified. The licensee completed a support and refute matrix to best determine the source of the foreign material found in the reactor core barrel prior to fuel load. The material, a piece of 5/8 inch bolting, was likely from a reactor coolant pump diffuser, however other sources such as introduction from an external source during fuel handling in prior cycles could not be ruled out. The licensee used an evaluation from Unit 4, to assure that degradation of reactor coolant pump diffuser bolting would not result in an integrity concern for the pump nor adversely affect fuel temperature if some flow blockage occurred from material being introduced into the lower fuel assembly area. The licensee continued to evaluate the identified material to conclusively determine the source.

.4 Unit 3: Zinc – 65 Contamination Identified During Reactor Sump Coating Activities

a. Inspection Scope

The inspectors reviewed an event where the licensee had notified the NRC that it had encountered Zn-65 contamination of personnel due to work being performed to repair the coating on the reactor vessel sump liner that became activated from neutron radiation. The event was selected for inspection because it involved: 1) Control of activated dust/particulate from grit blasting in the reactor vessel sump area; 2) The Zn-65 was difficult to detect through normal contamination detection methods; and 3) The licensee was not initially aware that air flow carried the particulate to other areas in the plant through the open equipment hatch and personnel access hatch.

The inspectors considered the following during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability and reportability issues; (3) consideration of extent of condition, generic implications, and previous industry experience; (4) identification of root and contributing causes of the problem; and (5) completion of corrective actions in a timely manner.

The following four related corrective action documents were reviewed during the inspection:

AR 01757509, Low Level Contamination of Personal Clothing  
 AR 01757693, Positive Whole Body Count from Sump  
 AR 01758564, Zn-65 Identified in Surveys of Unit 3 Reactor Sump  
 AR 01760580, Individual Alarms NEB Exit Monitor

b. Findings

No findings were identified. The containment building had two openings that were outdoors that limited the airflow control options available to the Chemistry and Radiation Protection organizations. Chemistry monitored airborne activity levels inside containment and calculated and documented release rates. When the work began, the Radiation Protection organization had established a work enclosure and appropriate

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negative pressure HEPA ventilation to capture resulting dust. During the work, wind passed through containment through the open equipment hatch and out through the personnel air lock into the access area and into the turbine building auxiliary feedwater pump cage. Radiation protection personnel installed a plastic curtain in an attempt to control airflow through the equipment hatch. The curtain was not sufficient and several workers discovered that their clothing was contaminated when they attempted to pass through the gamma sensitive portal monitors. Later a worker in the auxiliary feedwater cage was found contaminated. The licensee responded by performing a whole body count on the worker and performing surveys to determine extent and wiping down and mopping the area where the activity was measureable.

The highest surface contamination level measured in the turbine building auxiliary feedwater pump cage was approximately 13% of the level that would procedurally require posting as a contaminated area. The highest airborne radioactivity measured was approximately 33% of the level where areas are procedurally posted as airborne radioactivity area. During the course of the work, one worker received an uptake while working inside the reactor sump area enclosure and received less than 10 millirem committed effective dose equivalent (CEDE). When it was determined that all the particulate activity could not be contained inside the sump enclosure, the radiation protection organization terminated the grit blasting work until a plan for containment was developed. The inspectors determined that although the containment purge flow was not running for part of the work the flow rate was insufficient to control air flow in anything but calm conditions with the containment purge mechanically limited to 16000 cubic feet per minute. The inspectors determined that since environmental releases, contamination levels, airborne radioactivity levels, and individual uptakes were below levels that would normally require regulatory action, were properly documented and mitigated that there was no performance deficiency on the part of the Radiation Protection and Chemistry organizations.

.5 Semiannual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective actions documents including work request documents, attended shift plant status meetings, and discussed plant operations with the operating staff to identify trends that could indicate the existence of a more significant safety issue. This review was focused on repetitive equipment issues or problems that were not being promptly addressed and corrected. The inspectors review nominally considered the six month period from January 1 to June 30, 2012, but some examples expanded further back in time.

The review also included documents outside the corrective action program, such as system health reports, maintenance rule status reports, daily quality summary reports, the engineering log, surveillance tests, and maintenance lists. The inspectors compared their observations with those in the licensee's trending reports, including the first quarter station and operations department trending reports.

b. Findings

No findings were identified. The inspectors did not identify any trends not observed by the licensee's trending activities.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the plant inspection period, the inspectors conducted observations of security officers and their activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspection activities.

b. Findings

No findings were identified.

.2 Independent Spent Fuel Storage Installation (ISFSI) Walkdown (IP 60855.02.07)

a. Inspection Scope

On June 21, the inspectors toured the ISFSI and observed plant operators perform their daily walk down using the listed procedure. The inspectors observed each cask building temperature indicator and passive ventilation system to be free of any obstruction thus allowing natural draft convection decay heat removal through the air inlet and outlet openings. The inspectors observed associated cask building structures to be structurally intact and security access controls to the ISFSI area to be functional.

- 0-OSP-200.5, Miscellaneous Test, Checks, and Operating Evolutions.

b. Findings

No findings were identified.

.3 Power Uprate (IP 71004) Erosion Corrosion/Flow-Accelerated Corrosion (EC/FAC) Monitoring Programs

a. Inspection Scope

The inspectors reviewed the EC/FAC program to determine whether the licensee had taken required actions to detect adverse effects (wall thinning) on systems and components as a result of operational changes related to the EPU, such as increased

flow in primary or secondary systems, including their interfacing systems. The inspectors reviewed the licensee's implementation of a long term EC/FAC monitoring program to determine whether it was consistent with GL 89-08, Erosion/Corrosion-Induced Pipe Wall Thinning, the guidelines in Electric Power Research Institute Report NSAC-202L-R2, Recommendations for an Effective Flow-Accelerated Corrosion Program, and that responsibility for proper execution of the EC/FAC program was appropriately designated. Additionally, the inspector reviewed procedures and administrative controls to determine whether these procedures and controls would ensure the structural integrity of high energy (single-phase and two-phase) carbon steel systems. The inspector reviewed the established EC/FAC program to determine whether the degradation of piping and components was described in the procedures, and that the examination activities were managed, maintained, and documented.

The inspector reviewed implementing procedures and program administrative documents to determine whether the licensee's EC/FAC program included systematic methods for predicting which systems were susceptible to EC/FAC, the means to inspect those systems identified, and methods to analyze and trend those inspection results. Additionally, the inspector reviewed program documentation to determine whether systematic methods to determine EC/FAC wear rates were included and that future inspections were planned based upon past inspection results.

The inspector reviewed program documentation to determine whether examination activities were performed in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requirements. The inspector reviewed the EC/FAC program to determine whether it contained specific guidance for actions, such as additional inspection (extent of condition), engineering evaluation and repair or replacement of components when wall thinning was detected. The inspector reviewed the examination procedures to determine whether repair or replacement of components determined to or predicted to wear below minimum wall thickness requirements was to be performed in accordance with the ASME Boiler and Pressure Vessel Code, Section XI program or the original design code requirements. The inspector reviewed the specified acceptance criteria for required wall thickness to determine that sufficient margin above the applicable code limits was provided to permit an evaluation and determination of appropriate corrective actions.

The inspector reviewed a portion of the inspection data and analysis of the most susceptible piping components for Units 3 and 4 to determine whether the results were clearly documented. Additionally, the inspector reviewed how the inspection data was trended to determine EC/FAC wear rates and identify the future inspection locations. The inspector reviewed condition reports which identified wall thinning in piping during the current and previous outages which was replaced based on predictive analysis of remaining life.

The inspector reviewed the licensee EC/FAC activity to determine status and effective utilization of the industry sponsored predictive program (CHECWORKS) to verify the selection of the most susceptible locations for inspection, additional locations based on unique operating conditions, and industry experience. The inspector reviewed the program input data to determine whether the information was accurately entered and

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was properly used to conduct the analysis. Additionally, the inspector reviewed changes made to the CHECWORKS model to determine whether steps were taken to identify specific locations that were most likely to be adversely affected by a change in operating variables (temperature, flow) as a result of increased power levels from the EPU.

The inspector selected portions of the Unit 3 high pressure extraction steam system and the Unit 4 feedwater heater drains system for a detailed review of the licensee's EC/FAC monitoring activities and effectiveness. The sample selection was based on the risk priority of those components and systems where accelerated wear rates were predicted to cause wall thinning. The inspector performed a walkdown of portions of the selected systems (piping and components) to verify the as-built configuration matched the plant specific EC/FAC program isometric drawings. The inspector reviewed EC/FAC program component isometrics and specific locations within the selected systems, which had been predicted to be susceptible to wear during the initial EC/FAC program evaluations using the CHECWORKS predictive model. The inspector also reviewed selected locations in these systems that had been identified as susceptible to a projected increase in EC/FAC wear rates using the higher EPU operational variables with the CHECWORKS model. The inspector also noted that significant portions of the systems were in the process of being replaced with FAC-resistant materials.

b. Findings

No findings were identified.

.4 Extended Power Uprate (Inspection Procedure 71004, Power Uprate)

a. Inspection Scope

Listed below are samples that can be credited to the performance of IP 71004, Power Uprate for the Turkey Point Units 3 and 4 extended power uprates:

Modifications (Section 1R17)

- EC 246874, EPU – Main Steam Isolation Valve Upgrade
- EC 246924, EPU – Pressurizer Safety Valve Setpoint Change
- EC 242442, Fast Acting Feedwater Isolation Valve Upgrade
- EC 247012, Modifications to the Normal Hot Leg Recirculation Flowpath for EPU
- EC 273225, Emergency Containment Cooler Auto Start
- EC 247048, Plant Documentation Changes Resulting from Westinghouse Setpoint Scaling Revision
- EC 275011, AFW Rotating Element and Pump Replacement
- EC 247008, Reduce EDG Generator Volt & Frequency
- EC 247006, Removal of AFW Stops

Safety Evaluation Report (Section 1R17)

- 2.2.4, Safety-related Valves and pumps
- 2.3.2, Electrical – Offsite
- 2.3.3, Electrical – AC Onsite Power System

- 2.4.1, Reactor protection, Safety System Actuation, and Control Systems
- 2.5.1.4, Fire Protection
- 2.6.5, Containment Heat Removal
- 2.7.3, Control Room Area Ventilation

Erosion Corrosion/Flow-Accelerated Corrosion Monitoring Programs (Section 40A5.1)

#### 40A6 Exit

##### Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. Kiley and other members of licensee management on July 16. The inspectors noted that proprietary information was reviewed during the course of the inspection and would not be included in the documented report.

#### 40A7 Licensee-Identified Violations

The following Licensee Identified Violation (LIV) of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which met the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a Non-Cited Violation (NCV).

TS 6.12.2 requires, that each High Radiation Area (HRA) with dose rates greater than 1000 mrem/hour at 30 centimeters shall be provided with a locked or continuously guarded door or gate that prevents unauthorized entry. Contrary to the above, on April 28, 2012, while performing assigned locked high radiation area door checks in the Unit 3 containment, a Senior RP Technician identified the Unit 3 reactor sump area door could be partially opened due to the placement of the padlock and chain near the hinge. Immediate corrective actions were taken upon discovery and documented in AR01760652. The violation was evaluated using the Occupational Radiation Safety Significance Determination Process and was determined to be of very low safety significance (Green) because this finding did not involve ALARA planning or work controls, was not an over-exposure, did not have a substantial potential for over-exposure, and the ability to access dose was not compromised.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee personnel:

P. Barnes, Engineering Supervisor  
C. Cashwell, Radiation Protection Manager  
R. Coffey, Work Controls Manager  
M. Crosby, Quality Manager  
M. Epstein, Emergency Preparedness Manager  
J. Garcia, Engineering Manager  
M. Guth, Configuration Management Supervisor  
M. Jones, Operations Manager  
M. Kiley, Site Vice-President  
E. McCartney, Plant General Manager  
G. Melin, Assistant Operations Manager  
G. Mendoza, Chemistry Manager  
M. Moran, EPU Assistant Engineering Manager  
D. Mothena, Emergency Preparedness Corporate Functional Area Manager  
J. Patterson, Fire Protection Supervisor  
J. Pallin, Maintenance Manager  
R. Tomonto, Licensing Manager

#### NRC Personnel:

R. Croteau, Director, Division of Reactor Projects  
S. Rose, Chief (Acting), Reactor Projects Branch 3

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

#### Opened and Closed

05000250/2012003-01	NCV	Failure to Perform an Analysis for the Permanent Removal of Main Steam Pipe Whip Restraints (Section 1R17)
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## LIST OF DOCUMENTS REVIEWED

### **Section 1EP2: Alert and Notification System Evaluation**

#### Procedures and Reports

Turkey Point Radiological Emergency Plan, Rev. 53  
EP-SR-102-1000, Nuclear Division Florida Alert and Notification System Guideline, Rev. 5  
Siren System Availability Test Procedure No. 6.80.01, Rev. K  
Siren Maintenance Procedure No. 6.80.02, Rev. H  
Master Siren Control System Maintenance Procedure No. 6.80.05, Rev. D  
WPS-4000 Series High Power Voice and Siren System Operating and Troubleshooting Manual  
FEMA-43 Report, Public Alert and Notification System for the Turkey Point Plant, December 1984

#### Records and Data

Documentation of Quarterly siren maintenance for 2010 and 2011  
Documentation of bi-weekly siren tests and maintenance for 2010 and 2011  
Siren Annual Maintenance records: 2010 and 2011

#### Corrective Actions – Condition Report (CR)/Action Requests/(AR)

CR 2010-14525: siren failures – lightning  
CR 2010-15279: S-3 radio failure  
AR 01751544, ANS testing forms need updating  
AR 01751218, EP-SR-102-1000 procedure needs updating

### **Section 1EP3: Emergency Preparedness Organization Staffing and Augmentation System**

#### Procedures

EPLAN, Turkey Point Plant Radiological Emergency Plan, Rev. 53  
0-EPIP-20104, Emergency Response Organization Notifications/Staff Augmentations, 1/12/2011  
0-EPIP-1102, Duties of the Recovery Manager, 3/28/2011  
0-EPIP-20101, Duties of the Emergency Coordinator, 10/5/2011  
0-EPIP-20110, Criteria for and Conduct of Owner Controlled Area Evacuation, 3/3/2011  
0-EPIP-1212, Emergency Operations Facility (EOF) Activation and Operation, 7/20/2011  
0-EPIP-20132, Technical Support Center (TSC) Activation and Operation, 12/9/2011  
0-EPIP-20133, Operations Support Center (OSC) Activation and Operation, 03/09/2010  
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EP-AA-100-1001, Guidelines for Maintaining Emergency Preparedness, Rev. 2  
EP-AD-012, Autodialer Maintenance and Testing Instructions, Rev. 4

#### Records and Data

2010 1<sup>st</sup> and 2<sup>nd</sup> quarter drill report  
2011 2<sup>nd</sup> and 3<sup>rd</sup> quarter drill report  
2011 evaluated exercise report  
2012 1<sup>st</sup> quarter drill



2010 Off Hours Test; 03/23/2010, 06/29/2010, 09/21/2010, 12/14/2010  
 2011, Off Hours Test; 01/19/2011, 02/24/2011, 06/21/2011, 09/27/2011, 12/13/2011  
 Emergency Response Organization Teams listing dated 3/31/2012  
 PTN Emergency Response Organization Weekly On Call Roster - 4/2/2012

Corrective Actions – Action Requests (AR)

AR 01707882, ERO Member unable to respond to assigned duty week  
 AR 01687068, Response to IER L 2-11-39, Lack of Timely ERO and Facility Activation  
 AR 01668841, ERO member not able to respond and EP was not notified  
 AR 01658059, Failure to obtain replacement for ERO position  
 AR 01625103, Non-Licensed Operator assigned duties with expired respiratory qualifications  
 AR 01602388, Dialogics system not working properly  
 AR 00593459, Assessment, Adequacy of Interface with State and Local Government  
 AR 01669389, Duty Call Supervisor not contacted at Alert declaration (drill)  
 AR 00477197, ERO responder failed to get a qualified replacement  
 AR 00572350, Lack of obtaining an ERO responder replacement  
 AR 00567440, Some Maintenance personnel cannot pass respirator qualifications  
 AR 00476242, Attention to detail on completing ENF is not meeting expectations  
 AR 01605572, Section 7.1.4.5 (augmentation drills) of Emergency Plan needs clarification

**Section 1EP5: Correction of Emergency Preparedness Weaknesses**

Procedures

EP-AA-100-1007, Evaluation of Changes to the Emergency Plan, Supporting Documents and Equipment (10CFR50.54(Q)), Rev. 0  
 PI-AA-01, Corrective Action Program and Condition Reporting, Rev. 3  
 0-ADM-533, Corrective Action Program Guidance and Performance Assessment and Trending Analysis, Rev. 9  
 NA-AA-203-1000, Performance of Nuclear Oversight Audits, Rev. 6  
 EP-AD-005, Review and Approval of Emergency Plan, Recovery Plan, and Emergency Plan Implementing Procedures, Rev. 22  
 0-ADM-100, Preparation, Revision, Review, Approval and Use of Procedures and Forms, 06/25/2010

Records and Data

Turkey Point Emergency Planning public brochure  
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 Turkey Point Nuclear Oversight Report, 08/15/2011  
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Corrective Actions – Condition Report (CR)/Action Requests (AR)

CR 2010-6235, Core damage estimate discrepancy  
 AR 01734539, Rad monitor out-of-service without EP awareness  
 AR 01701254, Evaluate EAL radiation monitor threshold  
 AR 01721838, EPU impact on EP augmentation

AR 01623288, Difference in core damage terminology in two EIPs  
 AR 00583851, EPIP-20101 changes made without full evaluation  
 AR 1623283, Large delta between the calculated data/field monitoring teams.  
 AR 1623285, Insufficient WebEOC familiarization by the ERO  
 AR 1623298, Review standard exercise objectives for improvement  
 AR 1623311, Ops teams not being accounted for properly  
 AR 1623320, No definition of adverse conditions for OSC evacuation  
 AR 1623356, Authority to invoke 50.54X needs clearer direction  
 AR 1752274, Admin corrections on DEP forms  
 AR 1752146, Drill objectives not indicated SAT or UNSAT  
 AR 1752148, Table B1 in Emergency Plan requires minor clarification  
 AR 1752159, Effectiveness evaluation form not completed for minor EPIP changes  
 AR 1752594, Several closed ARs require added documentation  
 AR 1752620, 3Q11 DEP counting error requires report correction  
 AR 1752709, Actions to reduce missed ERO reports  
 AR 1752711, Need for a term definition/clarification  
 AR 1752713, Potential process hole to evaluate actual event E-plan processes  
 AR 1752714, Simulator scenarios MET data shows little variation  
 AR 1752716, Operating experience review opportunity  
 AR 1752717, EALs duplicated in E-Plan and EIPs. Potential for change errors  
 AR 1752719, Documentation of biennial EPIP review needs enhancement

#### **Section 40A1: Performance Indicator Verification**

##### Procedures

0-ADM-032, NRC Performance Indicators Turkey Point, Rev. 3  
 EP-AD-001, Emergency Preparedness Drill and Exercise Program, Rev. 38  
 EP-AD-005, Review and Approval of Emergency Plan, Recovery Plan, and Implementing Procedures, Rev. 25  
 EP-AD-011, Instructions for Maintaining the Emergency Preparedness NRC Performance Indicators, Rev. 24  
 EP-AD-014, Emergency Preparedness Staff Training, Rev. 3  
 0-EPIP-20134, Offsite Notifications and Protective Action Recommendations, 10/05/2011

##### Records and Data

Documentation of DEP opportunities for 1<sup>st</sup> quarter - 4<sup>th</sup> quarter 2011  
 Documentation of ANS tests for 1<sup>st</sup> quarter - 4<sup>th</sup> quarter 2011  
 Documentation of drill and exercise participation for 1<sup>st</sup> quarter - 4<sup>th</sup> quarter 2011  
 Various ERO Personnel Qualification and Participation records

##### Corrective Actions – Action Requests (AR)

AR 01682047, EP self-assessment - NRC drill participation performance indicator improvement  
 AR 00570387, Drill and exercise participation affecting NRC PI  
 AR 00472365, 4<sup>th</sup> quarter 2010, Seven SROs had not participated in a qualified opportunity in 8 quarters

## **Section 1R17: Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications**

### Full Evaluations

EC 242033, Unit 3 ERDADS Replacement  
 EC 242497, Control Room Ventilation Intake Duct Modification  
 EC 246918, Unit 3 Normal Containment Cooler Replacement  
 EC 246874, EPU – Main Steam Isolation Valve Upgrade  
 EC 273225, Emergency Containment Cooler Auto Start  
 EC 246849, Turbine Digital Controls Upgrade

### Screened Out Items

EC 242437, Switchyard Upgrades  
 EC 242501, Installation of Remote Racking System for 3C & 4C Switchgears  
 EC 242520, Auxiliary Transformer Replacement  
 EC 242522, Unit 3 EDG Air Start Skid Replacement  
 EC 242534, Replacement of 480 Volt Motor Control Center (MCC) 4E  
 EC 242545, Replacement of Obsolete ABB Series 211B UV Relays for Units 3 & 4 'H' Hotel Center  
 EC 242553, Installation of S/G Blowdown Isolation Valve Accumulators  
 EC 249140, CREVS Compensatory Filter Train Addition  
 EC 249141, Relocate the 4A EDG Fuel Suction Strainer  
 EC 249145, Modifications to TSC Structure and HVAC due to EPU Conditions  
 EC 270847, Replacement of 480V Load Centers 327T Inverse Time Characteristic Degraded Voltage Relays  
 EC 271566, Cyber Security Data Diode Installation  
 EC 274860, Change Position of ICW/CCW HX Outlet Isolation Valves 3-50-407 and 4-50-407

### Procedures

EDI-ENG-014, External Corrosion Program, Rev. 4  
 EDI-SE-005, Health Reports and Walkdowns, 7/27/11  
 3-NOP-019, Intake Cooling Water System, Rev. 10  
 3-OSP-019.2, Intake Cooling Water System Flowpath Verification, Rev. 4  
 4-NOP-019, Intake Cooling Water System, Rev. 12  
 4-OSP-019.2, Intake Cooling Water System Flowpath Verification, Rev. 3A  
 EN-AA-201-1000, Engineering Change Request (NAMS), Rev. 0  
 EN-AA-205-1100, Design Change Packages, Rev. 3  
 3-ONOP-004.2, Loss of 3A 4KV Bus, Rev. 1A  
 3-EOP-ECA-0.0, Loss of All AC Power, Rev. 2A  
 0-ADM-541, Air Operate Valve Program, Attachment 1, dated 3/09/07  
 QI-6-PTN-1, Document Control, Rev. 5  
 QI-3-PTN-1, Design Control, Rev.9  
 0-CMM-041.03, Pressurizer Safety Valve Installation, Rev. 1  
 3-OSP-041.7, RCS Heatup and Cooldown Temperature Verification, Rev. 23  
 3-ONOP-041.6, Pressurizer Level Control Malfunction, dated 11/05/07  
 3-PMI-041.108, Pressurizer Water Level Controllers Calibration, Rev. 0  
 3-SMI-041.104, Przr Level Protection Channel I Loop L-3-459 Calibration, Rev. 0  
 0-NOP-025, Control Room Ventilation System, Rev. 5

Completed Procedures

- 3-POP-095.1, ERDADS Replacement DCS System and Sequencing Post Modification Testing, Completed 10/14/07
- 3-POP-095.2, ERDADS Replacement DCS Analog Input Overlap Post Modification Testing, Rev. 0, 10/3/07
- 3-POP-095.3, ERDADS Replacement DCS Digital Input (DI) Overlap Post Modification Testing, Rev. 0, 10/3/07
- 3-POP-095.4, ERDADS Replacement Reactor Core Analysis Post Modification Testing, Rev. 0, 10/2/07
- 3-POP-095.5, ERDADS Replacement DCS Sequence of Events (SOE) Post Modification Testing, Rev. 0, 10/4/07
- 3-POP-095.6, ERDADS Replacement DCS Reactor Coolant Pump System Post Modification Testing, Rev. 0, 10/2/07
- 3-POP-095.7, ERDADS Replacement DCS Auxiliary Feedwater Pump Instrumentation System Post Modification Testing, 7/11/08
- 3-POP-095.8, ERDADS Replacement DCS Non- Isolated Post Modification Testing, 10/2/08
- 3-POP-095.9, ERDADS Replacement DCS Calorimetric Post Modification Testing, 10/2/07
- 3-POP-095.10, ERDADS Replacement DCS Power Ascension Monitoring, Rev. 0, 10/25/07

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- 2009-30698, Failure of Relay 327T/4C1
- 2005-18929, During Performance of 4-OSP-006.2 Section 7.1.6.3 4A 480 V Load Center U/V Relay Test, Expected Result was not Achieved
- 1650713 Prompt Operability Determination (POD), Unit 3 and 4 Main Steam Line Whip Restraints do not Match Equivalent Configuration Shown on Plant Drawing 5610-C-527, Rev.0 dated 5/13/2011
- 1650713 POD, Attachment 7.1, Evaluation of Postulated Pipe Rupture Locations in the Main Steam System Between the Penetrations and the Rupture Restraints Downstream of the MSCVs, Rev.0, dated 5/12/2011
- 2010-13740 4A EDG Fuel Oil Pressure Alarm Annunciation
- 479551 Apparent Cause Evaluation, Air in 4A EDG Fuel System Piping
- 410182, Degraded Coating on the Unit 3 ECCs Inlet Manifolds, 2004
- 1626907, Tracking of License Renewal Commitments for TP, 3/7/2011
- 1677185, 3-50-406 Failed Closed, 8/11/11
- 557232, License Amendment Implementation
- 1600321, Self Assessment, Plant Modification Quality and CRN Review
- 1670143, Self Assessment, Plant Modification Quality and CRN Review
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- 40085003-21, EPU/Replacement of AFW Pump P2C, 3/24/12
- 40085003-6, EPU/Replacement of AFW Pump P2C, 3/27/12
- 4015903/2/4-01, UT of Emergency Containment Coolers Header, 5/11/12
- 40098661-01, V8B:'B' Aux Bldg. Exhaust Fan – Quarterly Filter and Fan, 1/26/12
- 40098661-01, V8A:'A' Aux Bldg. Exhaust Fan – Quarterly Filter and Fan, 3/15/11

Calculations

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 PTN-BSSM-08-009, AFW Pump Evaluation for EPU, 2/20/12  
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 5613-E-675, Vital Inverter Loading, Rev. 17  
 5613-E-95P-3410, Power Wiring, Control Room Cabinet 3QR83, PTN 3 Plant Data Network, Rev.0  
 5613-E-12, 125V DC and 120V Instrument AC, Rev. 10  
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 CN-TA-09-14, LONF / LOAC Analysis for the EPU Program, Rev. 1  
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 25489-356-M0C-VB-00003, CREVS Supply Fan Sizing Calc., Rev. 4  
 25489-000-DBC-C00G-00201, CRV-Design of South Intake Structure, Rev. 3  
 25489-000-M0C-VB-00002, CREVS Comp Filter Unit Press Drop & Fan Sizing, Rev. 1  
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Drawings

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 5610-M-39-2, Turkey Point Emergency Containment Cooling System, Rev. 6  
 5610-M-39-37, Turkey Point Emergency Containment Cooler Fan Motor, Rev. 1  
 5613-M-3061, Waste Disposal System Liquid Containment Drains Sh.2, Rev. 8  
 5610-M-3060, Auxiliary Building Ventilation Sh. 1, Rev. 23  
 5610-M-158, Reactor Containment Piping, Rev. 12  
 5610-M-152, Reactor Containment Piping, Rev. 14  
 5613-M-3030, Component Cooling Water Sh.4, Rev. 0  
 5610-M-3075, Auxiliary Feedwater System Sh.2, Rev. 19  
 5613-M-3075, Auxiliary Feedwater to Steam Generators Sh.2, Rev. 13  
 5614-M-3075, Auxiliary Feedwater to Steam Generators Sh.2, Rev. 15  
 5613-M-3062, Safety Injection System, Rev. 37  
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 5610-E-9, Motor Control Centers NVD, 3E, 4E, F, Rev. 69  
 5610-T-E-1591, Operating Diagram Electrical Distribution, Sheet 1, Rev. 65  
 5610-M-3075 Sheet 2, Turkey Point Nuclear Units 3 & 4, P & ID, Auxiliary Feedwater System and Auxiliary Feedwater Pumps, Rev. 19

5610-SK-M-226, Sheet 1, Turkey Point Nuclear Units 3 & 4, High Energy Pipe Rupture Outside Containment, Main Steam Piping, Rev. 1  
 5610-SK-C-512, Sheet 1 & 2, Turkey Point Nuclear Units 3 & 4, High Energy Pipe Rupture Outside Containment, Main Steam Whipping Restraint, Rev. 1  
 5613-M-3072, Sheet 1, Turkey Point Nuclear Unit 3, P & ID, Main Steam System, Rev. 37  
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 5613-M-3074, Sheet 1, Turkey Point Nuclear Unit 3, P & ID, Feedwater System, Rev. 21  
 5613-M-3074, Sheet 3, Turkey Point Nuclear Unit 3, P & ID, Feedwater System, Rev. 25  
 5613-M-3075, Sheet 1, Turkey Point Nuclear Unit 3, P & ID, Auxiliary Feedwater System, Steam to Auxiliary Feedwater Pump Turbines, Rev. 17  
 5613-P-654-S, Sheet 1, Turkey Point Nuclear Power Plant Unit 3, Main Steam System, P-26C thru MSIV to Common Header Stress Problem MSO, Rev. 6  
 5613-P-654-S, Sheet 3, Turkey Point Nuclear Power Plant Unit 3, Main Steam System, System No. 72 Outside Containment Stress Problem MSO, Rev. 4  
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 5614-M-16A-116, Sheet 2A & 2B, Turkey Point Unit 4, Miscellaneous Equipment Details, Emergency Diesel Generator 4K4A Fuel Oil Piping, Rev. 0  
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 5610-M-3025, Control Building Ventilation Control Room HVAC, Rev. 0  
 5610-M-3025, Compensatory Filter Unit for CRVS, Rev. 2  
 5610-M-92, Aux. & Radwaste Bldg. Ventilation Cont. Purge Air System, Rev. 0  
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## **Section 40A5.1: Erosion Corrosion/Flow-Accelerated Corrosion Monitoring Programs**

### Corrective Actions

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 3E6A, Rev. 2  
 5613-P-3000/242445, Extraction Steam System (Sys. 85) Piping from High Pressure Turbine to  
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 5613-P-3001/242445, Extraction Steam System (Sys. 85) Piping from High Pressure Turbine to  
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 5613-P-3002, Turkey Point Nuclear Power Plant Unit 3 Erosion/Corrosion Inspection Program  
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 5613-P-3002/242445, Extraction Steam System (Sys. 85) Piping from High Pressure Turbine to  
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 5613-P-3003/242445, Extraction Steam System (Sys. 85) Piping from High Pressure Turbine to  
 H.P. Feedwater Heater 3E6B, Rev. 5  
 5613-P-3004/242445, Extraction Steam System (Sys. 85) Piping from High Pressure Turbine to  
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 5613-P-675/242445, FW HTR DR & Vents Sys SSVC Piping from MSR 3T25C B D to HP FW  
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 5614-P-3180, Feedwater Heater Drains and Vents System Low Pressure Feedwater Heater  
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 5614-P-3180/242447, Feedwater Heater Drains and Vents System Low Pressure Feedwater  
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 5614-P-3181/242447, Feedwater Heater Drains and Vents System Low Pressure Feedwater  
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 PTN-P-08-121-001, Feedwater Heater Drains and Vents System Low Pressure Feedwater  
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 PTN-P-242445-001, Extraction Steam system (Sys. 85) Piping from High Pressure Turbine to  
 H.P. Feedwater Heater 3E6A, Rev. 2  
 PTN-P-242445-002, Extraction Steam system (Sys. 85) Piping from High Pressure Turbine to  
 H.P. Feedwater Heater 3E6A, Rev. 3  
 PTN-P-242445-003, Extraction Steam system (Sys. 85) Piping from High Pressure Turbine to  
 H.P. Feedwater Heater 3E6A, Rev. 3



PTN-P-242445-004, Extraction Steam system (Sys. 85) Piping from High Pressure Turbine to H.P. Feedwater Heater 3E6B, Rev. 2

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CSI-FAC-PTN-4-26D, Turkey Point Unit 4 – spring 2011 Flow-Accelerated Corrosion Final Report

ENG-CSI-FAC-100, Florida Power & Light Company Corporate Long-Term Flow-Accelerated Corrosion Monitoring Program, Rev. 16

FAC 3Q11 Program Health Report

FAC 4Q11 Program Health Report

Flow Accelerated Corrosion (FAC) Ultrasonic Thickness Report for Component ID E5B-P-7, 4/10/12

IM-AA-101, Software Quality Assurance Program, Rev. 3

MN-3.11, Specification Piping Class Sheets, Rev. 11

NSAC-202L-R3, Recommendations for an Effective Flow-Accelerated Corrosion Program

NUC-ENG-005, Flow-Accelerated Corrosion (FAC) Program Owner Qualification, Rev. 0

SPEC-M-027, MSR Inspection and Repairs for Turkey Point Units 3 and 4, Rev. 4

SPEC-M-033, Crossunder Piping Inspection and Repairs for Turkey Point Units 3 and 4, Rev. 5

#### Procedures

0-ADM-530, Flow Accelerated Corrosion (FAC) Inspection Implementation Program, Rev. 0A

ENG-FAC 2.3-1, Identification of Susceptible Systems and Components, Rev. 8

ENG-FAC 2.3-2, Performing Flow Accelerated Corrosion Analysis, Rev. 10

ENG-FAC 2.3-3, Selection of Locations for Examinations, Rev. 11

ENG-FAC 2.3-4, Evaluation of Examination Data, Rev. 15

ENG-FAC 2.3-5, Evaluation of Worn Components, Rev. 9

ENG-FAC 2.3-6, Marking and Gridding for Flow-Accelerated Corrosion

ENG-FAC 2.3-7, Validation of Flow-Accelerated Corrosion Program Software, Rev. 9

ENG-FAC 2.3-8, Application of Computed Radiography in the Long-Term FAC Monitoring Program, Rev. 4

ENG-FAC 2.3-9, Inspecting Feedwater heater Shells for Flow-Accelerated Corrosion Damage, Rev. 1

ENG-FAC 2.3-10, Alloy Testing of Metals Using the INNOV-X □-200AS Alloy Analyzer, Rev. 0

NDE 5.18, Component Support & Inspection Ultrasonic Thickness Measurement, Rev. 8

**Section 40A2: Problem Identification and Resolution**

Procedures, Guidance Documents, and Manuals

0-NCOP-004, Preparation of gas release permits, Rev. 2

0-NCOP-006, Preparation of Radioactive Effluent Reports, Rev. 1

Records and Data Reviewed

Product Data Sheet: Carboline Carbozinc 11 HSN (Nuclear Grade)

Action Plan for Zn-65 in Reactor Sump

Gas Permit Post Release Final Report G2012-038 and G2012-40

Whole Body Count Data for Worker with Positive Whole Body Count

Area contamination survey data for affected and potentially affected areas

Reactor Sump Zinc-65 Timeline

**Section 40A7: Licensee Identified Violations**

CAP Documents

AR 01760652 Locked High Rad Area Not Secured Properly