



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

April 28, 2010

Mr. Mano Nazar  
Executive 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 - INTEGRATED INSPECTION REPORT  
05000250/2010002 AND 05000251/2010002**

Dear Mr. Nazar:

On March 31, 2010, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Turkey Point Units 3 and 4. The enclosed integrated inspection report documents the inspection findings which were discussed on April 16, 2010, with Mr. 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.

This report documents one inspector identified finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. Additionally, one licensee identified violation of very low safety significance (Green) is listed in Section 4OA7 of the report. NRC is treating these violations as Non-Cited Violations (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy because of the very low safety significance of the issues and because they are entered into your corrective action program. If you contest the NCVs in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial or disagreement, 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 Inspectors at Turkey Point.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and 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 the

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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  
Reactor Projects Branch 3  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000250/2010002 and 05000251/2010002  
w/Attachment: Supplemental Information

cc w/encl. (see page 3)

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Letter to Mano Nazar from Marvin D. Sykes dated April 28, 2010

SUBJECT: TURKEY POINT NUCLEAR PLANT - INTEGRATED INSPECTION REPORT  
05000250/2010002 AND 05000251/2010002

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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.: 05000250/2010002, 05000251/2010002

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

Facility: Turkey Point Nuclear Plant, Units 3 & 4

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

Dates: January 1 - March 31, 2010

Inspectors: S. Stewart, Senior Resident Inspector  
M. Barillas, Resident Inspector  
N. Smith, Project Engineer  
P. Capehart, Operations Engineer  
G. Laska, Senior Operations Examiner  
L. Miller, Senior Emergency Preparedness Inspector  
J. Beavers, Emergency Preparedness Inspector  
G. Kuzo, Senior Health Physicist  
R. Hamilton, Senior Health Physicist  
H. Gepford, Senior Health Physicist

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

Enclosure

## SUMMARY OF FINDINGS

IR 05000250/2010002, 05000251/2010002; 01/01/2010 - 03/31/2010; Turkey Point Nuclear Power Plant, Units 3 and 4; Plant Modifications.

The report covered a three-month period of inspection by resident inspectors and region based inspectors. One Green Non-Cited Violation (NCV) was identified. The significance of most findings is identified by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The cross-cutting aspect is determined using IMC 305, Operating Reactor Assessment Program. 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 Inspector Identified & Self-Revealing Findings

#### Cornerstone: Mitigating Systems

Green: The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, for failing to maintain control of temporary equipment installed on unit 4 A residual heat removal pump piping when the permanent component cooling water flow indication to the pump seal failed high. Operators were using a controlotron as a compensatory measure to verify adequate cooling flow to the unit 4A residual heat removal pump seal and to assure operability of the unit 4A residual heat removal pump. If the controlotron had failed, the operators would not have received a component cooling water low flow alarm in the control room, lack of cooling flow to the pump would have gone undetected, and operability of the residual heat removal pump could have been affected. The inspectors identified the licensee failed to follow the temporary system alteration procedure to ensure design adequacy and to determine if the alteration required a 10 Code of Federal Regulations (CFR) 50.59 evaluation and NRC approval. The licensee documented this in the corrective action program as condition report 2010-479.

The finding is more than minor because it affected the configuration control attribute of the Mitigating Systems Cornerstone in that it reduced the reliability of the 4A residual heat removal pump with the permanent flow indicator out of service while using an unevaluated controlotron to determine continued operability of the 4A residual heat removal pump. The inspectors screened the finding using NRC Inspection Manual Chapter 0609, Significance Determination of Reactor Inspection Findings for At Power Operations, Phase 1 screening. The finding was of very low safety significance because the design or qualification deficiency did not result in actual loss of operability or functionality of the pump. The cross cutting aspect of Human Performance, Work Practices (H.4(b)) was affected. (1R18)

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B. Licensee Identified Violations

One violation of very low safety significance (Green), 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. This violation and associated corrective actions are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status:

Unit 3 operated at or near full power during the inspection period with the following exceptions: On February 18, 2010, Unit 3 was reduced to 40% for secondary maintenance and testing. The unit was returned to 100% on February 19, 2010.

Unit 4 operated at or near full power during the inspection period with the following exceptions: On January 11, 2010, Unit 4 power was reduced to 90% due to trip of both heater drain pumps. Later, at 1055 hrs, Unit 4 was manually tripped as a result of a high steam generator level that resulted from a plant runback. The turbine runback occurred when the 4A main feedwater pump was secured due to excessive oil leakage. Unit 4 was stabilized in Mode 3 (EN 45619). Unit 4 went critical on January 13, 2010, and returned to full power operation on January 15, 2010.

### 1. REACTOR SAFETY

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

#### 1R01 Adverse Weather Protection

##### .1 Adverse Weather Protection: Cold Weather Readiness

###### a. Inspection Scope

During the week of January 4 the inspectors verified the status of licensee actions in accordance with licensee off-normal procedure 0-ONOP-103.2, Cold/Hot Weather Conditions. The inspectors checked Technical Specifications and the Updated Final Safety Analysis Report (UFSAR) for cold weather design features and monitored the periodic testing of the diesel driven instrument air compressors during lower temperature weather. This was the annual review of cold weather preparations and included physical walkdowns of the following plant areas to check for any specific cold weather vulnerabilities and reviews of operator actions used to mitigate cold weather:

- Unit 3 and Unit 4 Boric acid storage tank and transfer pump area (Temperature indicator TI-1716);
- Unit 3 charging pump area (TI-3-1714);
- Unit 4 charging pump area (TI-4-1714); and
- Unit 4B emergency diesel generator room.

###### b. Findings

No findings of significance were identified.

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.2 Impending Adverse Weather Cold Weather January 8-13, 2010

During actual cold weather conditions at the Turkey Point site, January 8 to 13, 2010, the inspectors verified implementation of the licensee's off-normal procedure, 0-ONOP-103.2, Cold/Hot Weather Conditions to assure that required safety equipment remained in a proper state of readiness. The inspectors checked that the use of space heaters assured that essential systems remained available and that appropriate fire protection was employed. Monitoring of temperature effects was adequately conducted by plant operators, and problems that were identified were appropriately documented in the corrective actions program. Walkdowns were conducted of the boric acid tank rooms, charging pump rooms, and other areas containing safety related equipment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial Equipment Walkdowns

a. Inspection Scope

The inspectors performed three partial walkdowns of the safety-related systems listed below to verify the operability of redundant or diverse trains and components when safety related equipment was inoperable. These inspections included reviews using plant lineup procedures, 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 by entering them into the corrective action program.

- January 20, 2010: Unit 4 Auxiliary Feedwater Pump B Train 2 in accordance with 4-OSP-075.5 Attachment 2, Auxiliary Feedwater System Flowpath Verification, while Auxiliary Feedwater Pump C was out of service for maintenance under work orders 39002383-01 and 39004944-001 (selected Unit 3 Train 2 alignments were also checked in accordance with 3-OSP-075.5).
- February 1, 2010: Unit 3 Auxiliary Feedwater System Train 2 in accordance with 3-OSP-075.5, Attachment 2, Auxiliary Feedwater System Flowpath Verification, while Train 1 was taken out of service for MOV-3-1405 grease inspection under work order 39011810.
- February 25, 2010: Unit 3 Component Cooling Water Pumps A and C flowpath verification in accordance with procedure 3-OSP-030.3, Component Cooling Water System Flowpath Verification, while Component Cooling Water Pump B was taken out of service for bearing oil change under work order 40003302.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors toured the following six plant areas during this inspection period to evaluate conditions related to control of transient combustibles and ignition sources and the material condition and operational status of fire protection systems including fire barriers used to prevent fire damage or fire propagation. The inspectors reviewed these activities using provisions in the licensee's Procedure 0-ADM-016, Fire Protection Plan, the UFSAR, and 10 CFR Part 50, Appendix R. The licensee's fire impairment lists, updated on a daily 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:

- Fire Zone 47-Unit 4 Component Cooling Water Pumps and Heat Exchangers;
- Fire Zone 52-Unit 4 Safety Injection Pumps Room;
- Fire Zone 53-Unit 3 Safety Injection Pumps Room;
- Fire Zone 54-Unit 3 Component Cooling Water Pumps and Heat Exchangers;
- Fire Zone 59-Unit 4 Containment; and
- Fire Zone 69-Unit 3 Steam Generator Feed Pump Area.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors verified heat exchanger performance monitoring for the safety related heat exchangers listed. The 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 monitoring and trending of heat exchanger performance was done at an appropriate interval and 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. Maintenance rule monitoring of the system was verified. On January 20, 2010, the inspectors observed mechanical cleaning of 3A intake cooling water basket strainer using licensee procedure 0-PMM-019.7, Intake Cooling Water Basket Strainer Cleaning and Inspection, after an increasing differential pressure condition was observed. The inspectors

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observed that the basket strainer remained capable of performing its design function to filter cooling water. The inspectors confirmed after the maintenance that the basket strainer had been returned to its normal operating lineup.

Unit 3: 3-OSP-030.4, Intake Cooling Water/Component Cooling Water Heat Exchangers Test (February 11, 2010)

Unit 4: 4-OSP-030.4, Intake Cooling Water/Component Cooling Water Heat Exchangers Test (February 4, 2010)

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program

.1 Biennial Review

a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the week of January 25, 2010, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of operating tests associated with the licensee's operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the facility licensee in implementing requalification requirements identified in 10 CFR Part 55, "Operators' Licenses." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The inspectors also evaluated the licensee's simulation facility for adequacy and use in operator licensing examinations using ANSI/ANS-3.5 1988, "American National Standard for Nuclear Power Plant Simulators for use in Operator Training and Examination." The inspectors observed two crews during the performance of the operating tests. Documentation reviewed included written examinations, Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, simulator modification request records, simulator performance test records, operator feedback records, licensed operator qualification records, remediation plans, watchstanding records, and medical records. The records were inspected using the criteria listed in Inspection Procedure 71111.11. Documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Resident Inspector Quarterly Review

a. Inspection Scope

On February 2, 2010, inspectors observed and assessed licensed operator annual requalification activities in the plant specific simulator to verify that operator performance assured safety and evaluators were identifying and documenting crew performance problems. The simulated events were done per Scenario 750005401, which involved an anticipated transient without scram (ATWS) and a main steam line break inside containment. The inspectors observed the operator's use of procedures 3-EOP-E-0, Reactor Trip and Safety Injection, 3-EOP-FR-S.1, Response to Nuclear Power Generation/ATWS, 3-EOP-E-1, Loss of Reactor or Secondary Coolant, and 3-EOP-E-2, Faulted Steam Generator Isolation. Event classification was checked for proper classification and timely notification of state agencies using licensee procedure 0-EPIP-20101, Duties of the Emergency Coordinator. The simulator board configurations were compared with actual plant control board configurations including recent modifications. The inspectors specifically evaluated the following attributes related to operating crew performance:

- Clarity and formality of communication;
- Ability to take timely action to safely control the unit and limit release of radioactive material;
- Prioritization, interpretation, and verification of alarms;
- Correct use and implementation of off-normal and emergency operation procedures;
- Control board operation and manipulation, including high-risk operator actions;
- Oversight and direction provided by supervision, including ability to identify and implement appropriate Technical Specification actions, emergency plan classification and notification; and crew overall performance and interactions

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the following equipment issue and associated condition reports to verify that licensee maintenance efforts comported with the requirements of 10 CFR 50.65 (Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants) and Administrative Procedure NAP-415, Maintenance Rule Program Implementation. The inspectors focused on maintenance rule scoping, characterization of maintenance problems and failed components, risk significance, determination of 10 CFR 50.65(a)(1) classification, corrective actions, and the appropriateness of established performance goals and monitoring criteria. The inspectors also interviewed responsible engineers and observed corrective maintenance activities. Furthermore, the

inspectors verified that equipment problems were being identified and entered into the corrective action program.

- Condition Report 2010-720, Unit 4 System 028A, Rod Position Indication, Control Rod F12 Indicating 25 Steps on NARPI and -5.0 on DCS. Additional documents reviewed included: condition report 2007-17324, condition report 2008-23965, condition report 2009-18417, condition report 2009-34132, condition report 2009-34478, Units 3 & 4 System 028 Health Reports (period ending 9/30/09), and completed functional failure evaluations for the Rod Position Indication Maintenance Rule function for date range of 1/1/2007 thru 1/16/2010.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors completed reviews and in-plant inspections of the licensee's risk assessment of six emergent or planned maintenance activities. The inspectors compared the licensee's risk assessment and risk management activities against the requirements of 10 CFR 50.65(a)(4) and the recommendations of Nuclear Management and Resource Council 93-01, Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Revision 3. Implementation of licensee procedures 0-ADM-068, Work Week Management and O-ADM-225, On Line Risk Assessment and Management were also verified. The inspectors 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:

- January 8, 2010, Unit 4 risk assessment and management after failure of the channel III reactor protection steam generator feed flow indication;
- January 19, 2010, Unit 3 risk assessment for testing of the 3B emergency diesel generator when C auxiliary feedwater pump was removed from service for maintenance. The review included switchyard activities.
- February 1, 2010, Unit 3 risk assessment after Instrument Air diesel compressor 3 CD failed to start during weekly testing;
- February 11, 2010, Unit 4 risk assessment and management when 4A component cooling water pump was out of service for motor inspection and 4C intake cooling water pump was removed from service to support diving activities;
- March 3, 2010, Unit 4 risk assessment and management when Unit 4B charging pump remained out of service after unexpected noise was heard when attempted to run, and unit 4A charging pump indicated an increase in primary packing leak; and
- March 9, 2010, Unit 4 risk assessment for testing of the 4a emergency diesel generator during replacement of the spare station battery.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed five interim disposition and operability determinations associated with the following condition reports to ensure that technical specification operability was properly supported and the system, structure or component, remained available to perform its safety function with no unrecognized increase in risk. The inspectors reviewed the UFSAR, the associated design basis document, applicable supporting documents and procedures, and interviewed plant personnel to assess the adequacy of the interim condition report disposition.

- CR 2010-85, controlotron for component cooling water to 4A residual heat removal pump seal flow with FIC-4-637 out of service; operability determination contained in condition report 2009-22070 (rev.1).
- PTN-ENG-SECS-08-013, Evaluation of Storage of a Nuclear Indication System (NIS) Detector in Containment during all Modes of Operation following decision to store the failed N-31 detector in containment (CR 2010-714)
- CR 2010-1295, Operability of B train of auxiliary feedwater after MOV-4-1403 failed to close following maintenance and C auxiliary feedwater pump was removed from service for preventive maintenance. Sulzer auxiliary feedwater pump curve 0368-87-SC/N and portions of Turkey Point modification PC/M-05-029, Rev. 0 were reviewed.
- CR 2010-3340 PCV-3-2604, A main steam isolation valve backup nitrogen regulator pressure output drifting high.
- CR 2010-3970 and CR 2010-4197, 3B component cooling water pump oil sample from inboard bearing containing water and oil is very dark.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary system alteration (TSA) listed below to ensure that it did not adversely affect safety system availability. The inspectors screened temporary 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. The inspectors reviewed licensee procedure 0-ADM-503, Temporary System Alteration, UFSAR, TS, and the design basis document to verify that the modification did not affect operability or availability of the affected system. The

inspectors conducted plant tours and discussed system status with engineering and operations personnel to check for the existence of temporary modifications that had not been appropriately identified and evaluated.

b. Findings

Introduction: The inspectors identified a GREEN Non-Cited Violation of 10 CFR Appendix B, Criterion III, Design Control, for failing to implement design controls for temporary equipment installed on the Unit 4A residual heat removal pump. The inspectors identified Florida Power and Light (FPL) did not perform a technical evaluation for temporary equipment installed, as required by FPL procedure.

Description: On January 5, 2010, the inspectors observed a controlotron installed on Unit 4 component cooling water piping to the Unit 4A residual heat removal pump seal cooling line. The permanently installed flow indicator, FIC-4-637 had failed high in August 2009. Technical Specifications 3/4.5.2.c requires two operable residual heat removal pumps with discharge aligned to the reactor coolant system (RCS) cold legs. Operators were using the controlotron as a compensatory measure to verify adequate cooling flow to the Unit 4A residual heat removal pump seal to assure operability of the Unit 4A residual heat removal pump. The inspectors questioned if the controlotron was a temporary system alteration. FPL procedure 0-ADM-503, Temporary System Alteration, states that the purpose of the temporary system alteration is to maintain configuration control for non-permanent changes to plant equipment while ensuring that applicable technical and administrative reviews and approvals are obtained. A temporary system alteration requires a technical evaluation to ensure its design adequacy and to determine if the alteration requires a 10 CFR 50.59 evaluation and NRC approval. Contrary to this, there was no documentation for this temporary alteration that was installed in the plant. When identified to the licensee, the licensee documented the need for a temporary system alteration and a 10 CFR 50.59 screening in condition report 2010-479. Per licensee procedure 0-ADM-104, 10 CFR 50.59 Applicability/Screening Reviews, the as left condition of the component cooling water line with the installed controlotron would require a 10 CFR 50.59 screen if "a temporary alteration in support of the maintenance activity is expected to be in effect during power operations for more than 90 days." At the time of discovery by the inspectors, the alteration had been installed and in use approximately 156 days.

Analysis: The inspectors determined that the licensee's failure to implement 0-ADM-503, Temporary System Alteration, in installing a controlotron and on Unit 4A residual heat removal pump was a performance deficiency. The inspectors determined that the finding was more than minor using NRC Inspection Manual Chapter 0612, Appendix E (design control measures for verifying adequacy of design were not implemented) because using an unevaluated controlotron to support continued operability of the Unit 4A residual heat removal pump could lead to an inoperable pump being undetected. The licensee did not complete an engineering evaluation of the temporary system alteration and routine operator tours of the area did not identify the alteration or lack of controls. The inspectors screened the finding using NRC Inspection Manual 0609, Significance Determination of Reactor Inspection Findings for At Power Situations, Phase 1 screening worksheet. The finding impacted the Mitigating Systems

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Cornerstone design control attribute and because the design or qualification deficiency did not result in loss of operability or functionality, the finding was screened as GREEN. The cross cutting aspect of Human Performance, Work Practices (H.4(b)) was affected because the licensee did not follow procedure, Temporary System Alteration, resulting in loss of design controls on the residual heat removal system.

Enforcement: 10 CFR 50, Appendix B, Criterion III, Design Controls, requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. The licensee implements these requirements, in part, by procedure 0-ADM-503, Temporary System Alteration, which requires that temporary alterations receive a technical evaluation to assure design adequacy. Contrary to the above, the inspectors identified that a controlotron was installed in August of 2009 to measure component cooling water flow to the Unit 4A residual heat removal pump without design controls. When identified to the licensee, the issue was entered into the corrective action program as condition report 2010-479, a technical evaluation was completed, and the alteration was later removed from the plant. Because the failure to implement the subject procedure is of very low safety significance (Green) 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 50-251/2010-02-01, Failure to implement design controls in a temporary modification.

#### 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 functional and operable. The inspectors verified that the requirements of Procedure 0-ADM-737, Post Maintenance Testing, were incorporated into test requirements. The inspectors reviewed the following WO and/or surveillance procedures (OSP):

- Unit 4; FPL procedure 4-PMI-059.4, Source Range Nuclear Instrument N31 Calibration following source range detector N31 replacement in work order 40000573-03;
- Unit 3: WO 36024399-01 for breaker inspection on 3AB19 3B/3D bus tie and 3-OP-005, 4160 Volt Buses A, B, and D, section 7.10, 4kV breaker post maintenance test;
- Unit 3: 3-OSP-075.1, section 7.1, auxiliary feedwater pump A operability test after completion of WO 39011810 for MOV-3-1405 steam valve to auxiliary feedwater pump A pump inspection;

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- Units 3 and 4: 0-OSP-016.23, diesel driven fire pump Operability Test after completion of work order 39002059-01 to perform diesel fire pump 18 month inspections;
- Unit 3:3-OSP-072.2, MSIV Nitrogen Backup Periodic Test section 7.1, MSIV Nitrogen Station A bottle and pressure regulator checks after completion of work order 38022663 to replace the nitrogen backup pressure regulator on the 3A main steam isolation valve; and
- Unit 3: WO 40004680-01, 3B EDG diesel oil transfer pump failure to auto start during emergency diesel generator surveillance test, and 3-OPS-023.1, Diesel Generator Operability Test, as post maintenance testing after completion of work performed on the 3B emergency diesel generator diesel oil transfer pump.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors either reviewed or witnessed the following six surveillance tests to verify that the tests met the Technical Specifications, the UFSAR, the licensee's procedural requirements and demonstrated the systems were capable of performing their intended safety functions. In addition, the inspectors evaluated the effect of the testing activities on plant risk to ensure that conditions were adequately addressed by the licensee staff and that after completion of the testing activities, equipment was returned to the position/status required for the system to perform its intended safety function. The tests reviewed included the following inservice tests (IST):

- 3-OSP-041.1, Reactor Coolant System Leak Rate Calculation, Attachment 1, and 3-OP-047, CVCS-Charging and Letdown, section 7.14, Determination of Charging Pump Primary and Secondary Packing Leakage, during the week of January 4, 2010;
- 4-OSP-206.1, Inservice Valve Testing – Cold Shutdown: close stroke testing of main steam isolation valves (POV-4-2604, 2605, 2606) while at normal operating temperature;
- 0-OSP-202.3, Safety Injection Pump and Piping Venting, sections 7.2 and 7.3, Unit3 and Unit 4 SI Pump Venting;
- 3-OSP-049.1, Unit 3 Reactor Protection System Logic Test, Section 7.1, Train A Reactor Protection System Logic Test;
- 3-OSP-049.1, Unit 3 Section 7.2, Train B Reactor Protection System Logic Test, step 5, Reactor Coolant Pump Breaker Loss of Flow Logic above P-7 and below P-8; and
- 3-OSP-200.3, Secondary Plant Periodic Tests, section 7.2, Main Turbine Trips Test and Condenser Low Vacuum Alarm, Low Vacuum Trip Functional Tests.

b. Findings

No findings of significance were identified.

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 Attachment. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings of significance 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 Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

Since the last NRC inspection of this program area, Revisions 48 and 49 of the Emergency Plan were implemented based on the licensee's determination, in accordance with 10 CFR 50.54(q) that the changes resulted in no decrease in the effectiveness of the Plan and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors conducted a sampling review of the Plan changes and implementing procedure changes made between January 1, 2009, and December 31, 2009, to evaluate potential decreases in the effectiveness of the Plan. However, this review was not documented in a Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, "Emergency Action Level and Emergency Plan Changes." The applicable planning standard, 10 CFR 50.47(b)(4) and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

No findings of significance 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.

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

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

.1 Emergency Preparedness Drill

a. Inspection Scope

On March 4, 2010, the inspectors observed an emergency preparedness drill and the licensee's emergency response organization. The drill included a simulated failure of annunciator panels requiring a notification of an Unusual Event. The scenario progressed with different events that led the licensee to make an Alert, Site Area Emergency and General Emergency to the state of Florida and simulated notification to the NRC. The inspectors observed the crew in the plant simulator and staff in the Technical Support Center. During the drill, the inspectors observed the simulator and Technical Support Center staff to verify that emergency classification and notifications were made in accordance with the licensee emergency plan implementing procedure 0-EPIP-20101. Licensee identified critique items were reviewed and observations were discussed with the licensee to verify that drill issues were identified and captured in the corrective action program.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY (RS)

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

2RS5 Radiation Monitoring Instrumentation

a. Inspection Scope

The inspectors reviewed the licensee's radiation monitoring instrumentation programs to verify the accuracy and operability of radiation monitoring instruments used to monitor areas, materials, and workers to ensure a radiologically safe work environment and to detect and quantify radioactive process streams and effluent releases.

Walkdowns and Observations: The inspectors walked down effluent and process monitoring systems, including Unit 3 (U3) and Unit 4 (U4) Component Cooling Water Return Header Activity (R3-17A/B, R4-17A/B), WDS Liquid Effluent Activity (R-18), U3 Steam Generator Blowdown Liquid Activity (R3-19), U3 and U4 Reactor Coolant

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Letdown Liquid Activity (R3-20, R4-20), and U3 Containment Air Particulate/Gaseous (R3-11/R3-12), evaluating material condition and verifying configurations were consistent with Offsite Dose Calculation Manual (ODCM) descriptions. The inspectors also evaluated the material condition and location of area radiation monitor (ARM) radiation detector (RD) equipment RD-1413, RD-1414, RD-1415, RD-1416, RD-1417, and RD-1418, and continuous air radiation detector (RaD) monitors RaD-6304, RaD-6417, RaD-6418, and RaD-3-6426. For selected effluent monitors and ARMs, the inspectors verified in-field responses were consistent with readings obtained in the control room.

During plant tours and observations in the calibration lab, the inspectors assessed material condition and operability of portable survey instruments in addition to verifying that calibration and source checks were current. The inspectors observed health physics technicians performing function/source checks on survey instruments prior to use and demonstration of daily response checks performed by calibration lab personnel on a telepole, an RO-20, and an L-177.

The inspectors evaluated material condition and observed performance of source checks on personal contamination monitors, small article monitors located at the RCA exit and portal monitors located at the protected area exit.

Calibration and Testing Program: The inspectors reviewed the last two calibration records for the following effluent, process, area radiation, and post-accident monitors: RD-1403 (U3 Containment In-Core Drive ARM), RAD-4-6311A/B (Containment High Range Radiation Monitors), RAD-6426 (Main Steam Line SPING), R-4-15 (Condenser Air Ejector, R-18 (Liquid Radioactive Waste), RAD-4-6417 (Steam Jet Air Ejectors), and RAD-6304 (Plant Main Vent). In addition to evaluating the calibration procedures, calibration geometry, functional tests, and calibration sources, the inspectors verified that monitor set-points were consistent with and/or changed in accordance with ODCM and/or site procedures.

Instrumentation used in the chemistry counting room was evaluated for material condition, operability, and use. Daily control charts for two high-purity germanium spectroscopy systems and one liquid scintillation counter (LSC) were reviewed. In addition, the inspectors reviewed the most recent calibration of one of the spectroscopy systems for various counting geometries and the most recent calibration of the LSC. The inspectors also reviewed the cross-check analysis results for the past year.

For the whole body counter, the inspectors reviewed the most recent calibration, assessed the isotope library, observed performance of daily quality control (QC) checks, and verified that appropriate check and calibration sources were used. In addition, the inspectors reviewed calibrations of, and observed performance of source checks on select portal monitor, personnel monitor, and small article monitor equipment listed in the Attachment to the report.

The inspectors reviewed performance of the portable instrument calibration lab through direct observation of instrument calibrations, source checks, and response checks, review of instrument calibration records, assessment of the calibration range (calibration

geometry, sources, etc.) and review of the annual Shepherd calibrator recertification. Portable instrument calibrations observed included an ion chamber instrument, high-range extendable Geiger-Mueller instrument, and (electronic) calibration of a frisker.

Problem Identification and Resolution: Selected corrective action program documents associated with radiation monitoring instruments, including condition reports and audits, were reviewed and assessed. This review of corrective action documents included evaluating the licensee's response to indications of degraded count room instrument performance. The inspectors verified that problems were being identified at an appropriate threshold and resolved in accordance with procedures PI-AA-204, Condition Identification and Screening Process and PI-AA-205, Condition Evaluation and Correction.

Documents reviewed are listed in Section 2RS5 and 2RS6 of the report Attachment. The inspectors completed the specified line-item samples detailed in Inspection Procedure (IP) 71124.05.

b. Findings

No findings of significance were identified.

2RS5 Radioactive Gaseous and Liquid Effluent Treatment

a. Inspection Scope:

Program Reviews: The inspectors reviewed the 2007 and 2008 Annual Radiological Effluent Release Report (ARERR) documents for consistency with the requirements in the ODCM and Technical Specifications. Unexpected results were followed up to determine the cause. Radioactive effluent monitors operability issues were discussed with plant staff. The inspectors reviewed the ODCM changes made since the last inspection against the guidance in NUREG-1301 and Regulatory Guide (RG) 1.109, RG 1.21, and RG 4.1. The inspectors reviewed the corrective action documentation for cross-contamination of the laboratory demineralized water tank from the spent fuel pool. The inspectors reviewed the inter-laboratory comparison results.

Equipment Walk Downs: The inspectors walked down selected components of the gaseous and liquid discharge systems to ascertain material condition, configuration and alignment. To the extent practical the inspector observed the material condition of abandoned in place liquid waste processing equipment for indications of degradation or leakage that could constitute a possible release pathway to the environment. The walk downs included material condition and configuration of tanks, piping, valves and liquid waste and steam generator blow down radiation monitors, a material condition review of the condenser off-gas and main steam line monitors.

The inspectors noted that compensatory monitoring was being performed on the plant main vent monitor and also on Unit 3 spent fuel pool at the time of the ventilation system walk down. The inspectors were not able to observe sampling as the sampling was moved to backshift to support movement of spent fuel in the pool. The presence of

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active compensatory sampling was noted for the plant main vent and U3 spent fuel pool effluent. The inspector also observed a chemistry technician verifying plant main vent flow rates.

Effluents: The inspectors reviewed two liquid release permits, two gas release permits and monthly gaseous and liquid effluent dose calculation summaries. The magnitudes of the releases were determined to be a small fraction of the applicable limits. The inspectors determined that a change in calculated dose due to gamma emitters was readily explained by a fuel integrity issue. The site's 10 CFR 61 analysis was reviewed for expected nuclide distribution from the aspects of quantifying effluents, the treatment of hard to detect nuclides, determining appropriate calibration nuclides for instruments and whole body counting libraries. The inspectors followed up on abnormal releases from the gas decay tanks attributable to valve alignments and valve leak-by. The inspectors reviewed the contributions to public dose of the abnormal releases.

Ground Water Protection: The licensee's implementation of the Industry Ground Water Protection Initiative was reviewed for changes since the last inspection. This review included review of documentation of onsite monitoring in wells, electrical vaults, manholes, and canals. The review also included discussion with plant personnel about suspected leaks and spills at or below the reporting criteria.

Problem Identification and Resolution: Selected corrective action program documents associated with radiation monitoring instruments, including condition reports and audits, were reviewed and assessed. This review of corrective action documents included evaluating the licensee's response to indications of degraded count room instrument performance. The inspectors verified that problems were being identified at an appropriate threshold and resolved in accordance with procedures PI-AA-204, Condition Identification and Screening Process and PI-AA-205, Condition Evaluation and Correction.

Documents reviewed are listed in Section 2RS5, 2RS6 and 2RS7 in the Attachment. The inspectors completed the specified line-item samples detailed in IP 71124.06.

b. Findings

No findings of significance were noted

2RS6 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Status and Results: The inspectors reviewed and discussed changes to the ODCM and results presented in the Annual Environmental Radiological Environmental Operating Report (AREOR) documents issued for calendar year (CY) 2007 and CY 2008. The inspectors also reviewed and evaluated REMP contract laboratory cross-check program results, and current procedural guidance for environmental sample collection and processing. The reports' environmental measurement results were reviewed for consistency with licensee effluent data and evaluated for radionuclide

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concentration trends. The inspectors independently verified detection level sensitivity requirements for selected environmental media analyzed by the contract environmental laboratory.

Equipment Walk-down: The inspectors observed implementation of selected REMP monitoring and sample collection activities as specified in the current ODCM. The inspectors observed equipment material condition and verified operability, including verification of flow rates/total sample volume results, for the weekly airborne particulate filter and iodine cartridge change-outs at selected atmospheric sampling stations. In addition, sediment sampling activities at select locations were discussed, and thermoluminescent dosimeter material condition and placement were verified by direct verification at select ODCM locations. Land use census results, actions for missed samples including compensatory measures, sediment sample collection/processing activities, and availability of replacement equipment, were discussed with environmental technicians and knowledgeable licensee staff. In addition, calibration and maintenance surveillance records for the installed environmental air sampling stations were reviewed.

Procedural guidance, program implementation, quantitative analysis sensitivities, and environmental monitoring results were reviewed against 10 CFR Part 20; Appendix I to 10 CFR Part 50; TS Sections 6.8 Procedures and Programs and 6.9, Reporting Requirements; ODCM, Rev. 15; RG 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment; and the Branch Technical Position, An Acceptable Radiological Environmental Monitoring Program - 1979. Documents reviewed are listed in Section 2RS7 of the Attachment.

Meteorological Monitoring Program: The inspectors toured the primary and backup meteorological towers and observed local data collection equipment readouts. The inspectors observed the physical condition of the towers and their instruments and discussed equipment operability, maintenance history, and backup power supplies with responsible licensee staff. The inspectors evaluated transmission of locally generated meteorological data to the main control room operators. For the meteorological measurements of wind speed, wind direction, and temperature, the inspectors reviewed applicable tower instrumentation calibration records and evaluated measurement data recovery for CY 2008 and CY 2009. In addition, the inspectors evaluated the accuracy of meteorological data transmission to the licensee's Emergency Offsite Facilities and to the NRC Operations Center.

Licensee procedures and activities related to meteorological monitoring were evaluated against: ODCM; FSAR; RG 1.23, Meteorological Monitoring Programs for Nuclear Power Plants, and ANSI/ANS-2.5-1984, Standard for Determining Meteorological Information at Nuclear Power Sites. Documents reviewed are listed in Section 2RS7 of the report Attachment.

Problem Identification and Resolution: The inspectors reviewed selected CRs in the areas of environmental monitoring, meteorological monitoring, and release of materials. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with PI-AA-204, Condition Identification and Screening Process, Rev. 5, and PI-AA-205, Condition Evaluation and Corrective Action,

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Rev. 3. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Documents reviewed are listed in Section 2RS07 in the Attachment.

The inspectors completed all of the specified line-item samples detailed in IP 71124.07.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

Cornerstone: Emergency Preparedness

The inspectors sampled licensee submittals relative to the PIs listed below for the period January 1, 2009 through and December 31, 2009 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 Response Organization (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 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 Attachment. This inspection satisfied three inspection samples for PI verification on an annual basis.

b. Findings

No findings of significance were identified.

a. Inspection ScopeCornerstone: Barrier Integrity

The inspectors checked licensee submittals for the two performance indicators (PIs) listed below for Unit 3 and Unit 4 for the period January 1, 2009 through December 31, 2009, to verify the accuracy of the PI data reported per licensee procedure 0-ADM-032, NRC Performance Indicators, Turkey Point, attachments 12 and 13. Performance indicator definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev. 5, were used to check the reporting for each data element. The inspector reviewed operator logs and chemistry department analysis data (0-NCSP-002, Radiochemistry Documentation) to verify that the licensee had identified and reported the proper values for reactor activity and leakage, as applicable. In addition, the inspectors observed chemistry personnel obtain and analyze primary coolant samples from unit 3 per procedure 0-NCZP-046.4, Obtaining a Reactor Coolant Demineralizer Sample, and 0-NCAP-205, Reactor Coolant Activity Analysis. The inspectors checked that deficiencies that could affect the licensee's performance indicator program were entered into the corrective action program.

- Reactor Coolant System Specific Activity
- Reactor Coolant System Leakage (reviewed 3/4-OSP-041.1, Reactor Coolant System Leakage)

b. Findings

No findings of significance were identified.

4OA2 Problem Identification and Resolution.1 Daily Reviewa. 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, the reactor coolant system unidentified leakage was routinely checked to verify that no substantive or unexplained changes occurred.

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 report was 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 licensee procedures PI-AA-204, Condition Identification and Screening Process, and PI-AA-205, Condition Evaluation and Corrective Action.

- CR 2009-15873, A series of mis-positionings have occurred, this condition report will evaluate the root cause, address commonalities, and determine additional corrective actions

### b. Findings

No findings of significance were identified

## 4OA3 Event Follow-up

### .1 Manual Reactor Trip, January 11, 2010

The inspectors observed the Unit 4 operators control room response to secondary plant transients on January 11, 2010. Specific evolutions observed included stabilization of the secondary plant following restart of both heater drain pumps and response to leaking oil on the 4A main feedwater pump, including preparations for rapid power reduction, plant runback, and manual reactor trip. Completion of 4-EOP-0 and 4-EOP-ES-0.1 were specifically observed. Attributes checked included:

- Clarity and formality of communication;
- Ability to take timely action to safely transition the unit from power operation to hot standby;
- Prioritization, interpretation, and verification of alarms;
- Correct use and implementation of off-normal and emergency operation procedures;
- Control board operation and manipulation, including high-risk operator actions such as a manual reactor trip;
- Oversight and direction provided by supervision, including ability to identify and implement appropriate Technical Specification actions and direct crew overall performance and interactions. Complications included runback overshoot to 30 percent power, failure of NI-4-35 requiring manually energizing source range instruments, faulty rod position indication for control rod F-12 at 25 steps, a condensate pump recirculation valve failure (063), one steam generator level

transmitter LT-4-495 stuck at 55%, and main turbine control valve number 4 improperly indicated closed.

The inspectors reviewed the post trip review restart report contained in condition report 2010-0679. The report was reviewed using FPL procedure 0-ADM-511, Post Trip Review.

b. Findings

No findings of significance were identified

.2 (Closed) Licensee Event Report (LER) 50-250/2009-001-00, Procedure Inadequacy Causes Control Room Ventilation Isolation Technical Specification Noncompliance

On April 1, 2009, during review of plant status, FPL operations identified a noncompliance with technical specification requirements to have both channels of control room ventilation isolation available during core alterations. Specifically, because of ongoing engineered safeguards integrated testing, one channel of control room emergency ventilation actuation and containment isolation were unavailable (de-energized), while core alterations were in progress. When identified, operators closed the containment isolation valves and placed the control room in recirculation mode. The issue was documented in the licensee's corrective action program as CR 2009-9899. During the licensee's review, additional occurrences in previous refueling outages had been identified, as well as a previous opportunity to identify the noncompliance. Additional corrective actions included revising the Unit 4 procedures to assure core alterations would not occur unless both protective features were available, and plans were made to update the Unit 3 procedures prior to the next refueling outage. Because the redundant train of control room and containment isolation remained available, and operators were qualified and able to use self-contained breathing apparatus should a refueling accident occur, there was no loss of safety function and the issue was screened to be of very low safety significance (Green). Enforcement associated in this issue is provided in Section 4OA7. This LER is closed.

4OA5 Other Activities

None

4OA6 Meetings, Including Exit

Exit Meeting Summary

On January 29, 2010, the inspectors presented the results of the onsite Radiation Protection inspection to Mr. M. Kiley, Site Vice President, and other members of your staff. The inspectors noted that proprietary information reviewed during the course of the inspection would not be included in the documented report. No findings of significance were identified.

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On January 29, 2010, the inspectors presented the results of the onsite Biennial Operator Requalification inspection to Mr. P. Rubin, Plant General Manager, and other members of your staff. The inspectors confirmed that no proprietary information was reviewed during this inspection. No findings of significance were identified.

On February 19, 2010, the inspectors presented the results of the onsite Emergency Preparedness inspection to Mr. M. Kiley, Site Vice President, and other members of your staff. The inspectors confirmed that proprietary information was not provided or reviewed during the inspection. No findings of significance were identified.

On April 16, 2010, the resident inspectors presented the inspection results to Mr. M. Kiley and other members of your staff. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. The licensee did not identify any proprietary information.

#### 4OA7 Licensee Identified Violations

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

- Technical Specification 3.9.13 requires that with one containment radiation monitor out of service during core alterations, core alterations may continue as long as the containment ventilation isolation valves be maintained shut and within one hour, operate the control room ventilation system in the recirculation mode. Contrary to the above, on April 1, 2009, and on prior occasions, core alterations continued with one channel of control room isolation actuation out of service and without the control room ventilation in the recirculation mode. The non-compliance was identified during review of plant conditions while performing engineered safeguards integrated testing with the plant in Mode 6 refueling. The redundant radiation monitoring and actuation channel remained available and had an event occurred, operators would have been able to use standby Self-contained breathing apparatus (SCBA) assuring the safety function. The issue was screened to be of very low safety significance (Green). When identified, the licensee placed the control room in recirculation and isolated the ventilation valves. The issue was documented in condition report 2009-9899 and additional corrective actions were specified. Because the licensee identified the issue and documented it into their corrective action program, and because the finding is of very low safety significance, this violation is being treated as a licensee identified NCV consistent with Section VI.A of the NRC Enforcement Policy.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee personnel:**

N. Bach, Chemistry Manager  
P. Bailey, Nuclear Engineering Specialist  
C. Cashwell, Radiation Protection Manager  
R. Coffey, Maintenance Manager  
M. Crosby, Quality Manager  
J. Garcia, Engineering Manager  
L. Hardin, Emergency Preparedness Manager  
M. Kiley, Site Vice-President  
S. Mihalakea, Licensing  
D. Mothena, Emergency Preparedness Corporate Functional Area Manager  
P. Rubin, Plant General Manager  
R. Tomonto, Licensing Manager  
S. Shafer, Assistant Operations Manager  
R. Wright, Operations Manager

#### **NRC personnel:**

S. Stewart, Senior Resident Inspector  
M. Barillas, Resident Inspector

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

#### **Closed**

50-250/2009-001-00	LER	Procedure Inadequacy Causes Control Room Ventilation Isolation Technical Specification Noncompliance
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## LIST OF DOCUMENTS REVIEWED

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

#### Procedures and Reports

EP-SR-102-1000, Nuclear Division Florida Alert and Notification System Guideline, Rev. 3  
Siren System Availability Test Procedure No. 6.80.01, Rev. K  
Siren Maintenance Procedure No. 6.80.02, Rev. G  
FEMA-43 Report, Public Alert and Notification System for the Turkey Point Plant, December 1984

#### Records and Data

Documentation of Quarterly siren maintenance for 2008 and 2009  
Documentation of bi-weekly siren tests and maintenance for 2008 and 2009  
Siren Annual Maintenance records: 2008 and 2009

#### Corrective Actions – Condition Report (CR)

CR 2010-4284, siren sequential numbering and sum total siren difference  
CR 2010-4319, 2008 environmental review lacking aspects

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

#### Procedures

EPLAN, Turkey Point Plant Radiological Emergency Plan, Rev. 49  
0-EPIP-20104, Emergency Response Organization Notifications/Staff Augmentation, 10/21/2009  
0-EPIP-1102, Duties of the Recovery Manager, 11/10/2008  
0-EPIP-20101, Duties of the Emergency Coordinator, 11/09/2009  
0-EPIP-1212, Emergency Operations Facility (EOF) Activation and Operation, Rev. 39  
0-EPIP-20132, Technical Support Center (TSC) Activation and Operation, 05/14/2009  
0-EPIP-20133, Operations Support Center (OSC) Activation and Operation, 04/21/2009  
Emergency Response Directory Turkey Point Plant Units 3 and 4, 12/31/2009  
0-EPIP-20201, Maintaining Emergency Preparedness – Radiological Emergency Plan Training, 03/05/2009  
EP-AD-012, Auto dialer Maintenance and Testing Instructions, Rev. 2

#### Records and Data

2008 augmentation drill; 12/05/2008  
2009 augmentation drill; 12/16/2009  
2008 1<sup>st</sup> quarter drill, 11/18/2008  
2009, 1<sup>st</sup> quarter drill, 01/15/2009  
2009, 1<sup>st</sup> quarter Evaluated Exercise, 02/19/2009  
2009, 4<sup>th</sup> quarter drill, 10/01/2009

#### Corrective Actions – Condition Report (CR)

CR 2010-3592, 1<sup>st</sup> quarter 2008 phone test not performed  
CR 2010-3690, 1<sup>st</sup> quarter 2008 augmentation drill lacking attendance sheets  
CR 2010-3700, 6 weekly phone tests not performed in 2009  
CR 2010-3770, emergency responder travel time concern

CR 2010-4002, EOF Security Manager documentation of intoxilizer training  
 CR 2010-4034, TSC and OSC facility arrival times not documented  
 CR 2010-4045, B.5.b training requirements not included in Recovery Manager Operations Advisor training matrix  
 CR 2010-4140, B.5.b qualifications not populated into the Learning Management System  
 CR 2010-4175, B.5.b lesson plan incorporation error in the Learning Management System  
 CR 2010-4191, Field Supervisor incomplete qualifications in the Learning Management System  
 CR 2010-4272, improper participation credit in the Learning Management System  
 CR 2010-4301, B.5.b training matrix training frequency error  
 CR 2010-4427, B.5.b attendance documentation for 3/20/09 was not in program file

#### Section 1EP4: Emergency Action Level and Emergency Plan Changes

##### Procedures

PI-AA-204, Condition Identification and Screening Process, Rev. 5

##### Change Packages

Turkey Point Radiological Emergency Plan, Rev. 48 and 49  
 0-EPIP-1302, PTN Core Damage Assessment, Rev. Date 4/30/2009  
 0-EPIP-20104, Emergency Response Organization Notifications/Staff Augmentation, 4/17/2008  
 0-EPIP-20126, Off-site Dose Calculations, 4/29/2009

##### Corrective Actions – Condition Report (CR)

CR 2010-3457, EPIP procedure revision paperwork incomplete

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

##### Procedures

0-ADM-100, Preparation, Revision, Review, Approval and Use of Procedures and Forms, 05/15/2009

##### Records and Data

2008-2009 Fleet Emergency Preparedness Self Assessment, 11/2008  
 Quick Hit Assessment, 02/04/2010  
 Quick Hit Assessment, 12/18/2008

##### Corrective Actions –Condition Report (CR)

CR 2010-3936, drill reports not initiated in a timely manner  
 CR 2010-4194, documentation of 12 month, 365 day review requirement  
 CR 2010-4203, 12 month audit detail lacking  
 CR 2010-4349, 10 CFR 50.54(t) audits late in 2008 and 2009  
 CR 2010-4395, roll up condition reports mixing enhancements and fixes  
 CR 2010-4402, condition report categorization of emergency preparedness issues  
 CR 2010-4944, adding priorities to emergency coordinator briefing agenda

**Section 4OA1: Performance Indicator Verification****Procedures**

EP-AD-011, Instructions for Maintaining the Emergency Preparedness NRC Performance Indicators, Rev. 22

0-EPIP-20134, Offsite Notifications and Protective Action Recommendations, 11/09/2009

**Records and Data**

Documentation of DEP opportunities for 1<sup>st</sup> quarter - 4<sup>th</sup> quarter 2009

Documentation of ANS tests for 1<sup>st</sup> quarter - 4<sup>th</sup> quarter 2009

Documentation of drill and exercise participation for 1<sup>st</sup> quarter - 4<sup>th</sup> quarter 2009

**Corrective Actions – Condition Report (CR)**

CR 2010-4161, drill participant failed to sign attendance sheet

CR 2010-4186, Drill and Exercise Performance (DEP) times need documented in license operator continuing training scenarios

**Section 2RS5: Radiation Monitoring Instrumentation****Procedures, Guidance Documents and Manuals**

0-HPT-018, Calibration of survey Instruments, 5/29/09

0-HPT-018.2, Calibration and Operation of the AMP-100 and AMP-200 High Range Area/Underwater Radiation Monitor, 8/22/07

0-HPT-012.1, Calibration and Operation of RO-20, RO-2 and RO-2A, 3/5/04C

0-HPT-011.2, Certification and Operation of the Shepherd Model 89 Shielded Range Calibrator, (Revs. 2/2/06 and 1/19/10)

0-NCAP-216, Radiochemistry Quality Control Samples, 7/24/08

0-PMI-066.2, Area Radiation Monitoring System Channel Calibration, 1/31/07

Document 5610-066-DB-001, Area Radiation Monitoring System Design Basis Document, 12/27/08

Florida Power and Light Company, FLP-1, Quality Assurance Topical Report, Rev.5

**Records and Data Reviewed**

PTN-09-02, Radiation Protection Functional Area Audit, 2/23/09

Calibration of the Canberra Fast Scan Whole Body Counter System at the Florida Power & Light Turkey Point Generating Station, 6/23/09

Calculation PTN-BLJN-08-001, Radiation Monitor R-15 (Condenser Off Gas Monitor) Response to Primary-to-Secondary Leak Rates, Rev. 0

Cross Check Analysis Results (1<sup>st</sup> Quarter 2008, 2<sup>nd</sup> Quarter 2008, 3<sup>rd</sup> Quarter 2008, 1<sup>st</sup> Quarter 2009, 2<sup>nd</sup> quarter 2009)

Shepherd Calibration Chart, 2/17/98

Shepherd Calibrator Certification, 1/20/09

LSC Daily QC Curves, 9/28/09-1/25/10

HPGe Detector #2 Daily QC Curves, 9/26/09-1/25/10

HPGe Detector #3 Daily QC Curves, 9/26/09-1/25/10

Calibration of HPGe Detectors #1 and #2, Various Geometries, June 2009

WO 38011899-01, 0-PMI-066.2, Area Radiation Monitoring System channel Calibration (RD-1403), 3/20/09

WO 36027407-01, 0-PMI-066.2, Area Radiation Monitoring System channel Calibration (RD-1403), 9/9/07  
 WO 38006673-01, 0-PMI-067.13, Technical Specification Functional Test SPING DAM-1 RAD-6426, 11/26/08  
 WO 36024084-01, 0-PMI-067.13, Technical Specification Functional Test SPING DAM-1 RAD-6426, 5/14/07  
 WO 38022425-01, 4-PMI-066.3, Technical Specification Calibration RAD-4-6311A/B, 11/06/09  
 WO 37013072-01, 4-PMI-066.3, Technical Specification Calibration RAD-4-6311A/B, 4/19/08  
 Change Request Notice I05145, Remove existing intake probe for SPING Radiation Monitor RAD-3-6418 in the Unit 3 Spent Fuel Pit Vent Stack and replace it with a new design per attached drawings, 12/8/09  
 Calibration Records: L-177, s/n 252787, 9/2/09; Telepole, s/n 6605-088, 2/12/09; RO-20, s/n 4604, 7/15/09  
 Survey Instrument Issue Sheet Data, 01/26-27/2010  
 Radiation Detection Instrument Calibration and Maintenance Record Data: RO-20 Portable Survey Instrument Serial Number (S/N) 5518, 9/3/2009; S/N 108, 9/23/09  
 Portal Monitor (PM)-7 Calibration Report Data: S/N 472, 11/25/09; S/N 651, 11/19/09  
 ARGOS-5AB Personnel Monitor Calibration Data Sheet: S/N 0904-107, 06/25/09; S/N 0806-062, 11/27/09  
 Small Article Monitor (SAM)-9, Calibration Data Sheet, S/N 259, 2/16/09 and 8/17/09;

#### Corrective Action Program (CAP) Documents

CR 2008-4019, Qualification testing of the R-15 replacement detector to be provided by MGP  
 CR 2010-820, Sr-89/90 Cross Check  
 CR 2008-21600, RD-3-15 Procedure 3-PMI-067.3, PRMS Channel R-4-15 Calibration Procedure, was changed incorrectly with the Unit 4 procedure

### **Section 2RS6: Radioactive Gases and Liquid Effluent Treatment**

#### Procedures, Guidance Documents, and Manuals

Turkey Point UFSAR Chapter 11, Waste Disposal and Radiation Protection System  
 Off Site Dose Calculation Manual for Gaseous and Liquid Effluents from the Turkey Point Units 3 and 4, Rev. 15  
 Summary of changes made to the ODCM in 2009  
 L-2008-061, 2007 Annual Radioactive Effluent Release Report, March 20, 2008  
 L-2009-044, 2008 Annual Radioactive Effluent Release Report, February 26, 2009  
 0-PMI-067.2, Process Radiation Monitoring System Channel R-14 Calibration Procedure, 6/12/09  
 4-PMI-067.3, Process Radiation Monitoring System Channel R-4-15 Calibration Procedure, 8/10/09  
 0-PMI-067.5, Process Radiation Monitoring System Channel R-18 Calibration Procedure, 3/25/08  
 0-PMI-067.9, Process Radiation Monitoring System SPING Calibration Procedure, 3/2/08  
 0-PMI-067.13, Process Radiation Monitoring System Main Steam Lines DAM-1 Calibration Procedure, 7/15/08  
 0-NCAP-216, Radiochemistry Quality Control Samples, 2/14/08  
 0-NCOP-003, Preparation of Liquid Release Permits, 9/25/07  
 0-NCOP-004, Preparation of Gas Release Permits, 9/24/08

- 0-NCOP-067, Process Radiation Monitors Set point Determination, 1/6/10
- 0-NCOP-310, Calibration and Operation of the Gamma Spectroscopy Counting System, 12/18/09
- 0-NCZP-046.2, Monitor Tank Sampling, 10/7/04
- 0-NCZP-051.3, Obtaining Plant Effluent Samples Via the SPING Monitors during Non-Accident Conditions, 3/30/09
- 0-NCZP-061.2, Radioactive Waste Disposal Waste Monitor Tank Sampling, 10/7/04
- 0-NCZP-061.4, Gas Space Sampling, 5/13/05

#### Records and Data Reviewed

- Liquid release permits 90130 and 90131
- Gas release permits 09-33 and 09-34
- Liquid dose summary sheets for September 2009 and October 2009
- Gas release summary worksheets for September 2009 and October 2009
- 0-PMI-067.2, Process Radiation Monitoring System Channel R-14 Calibration Procedure, performed 8/24/07 and 6/12/09
- 4-PMI-067.3, Process Radiation Monitoring System Channel R-4-15 Calibration Procedure, performed 2/15/07
- 0-PMI-067.5, Process Radiation Monitoring System Channel R-18 Calibration Procedure, performed 10/30/07 and 12/3/08
- 0-PMI-067.9, Process Radiation Monitoring System SPING Calibration Procedure (SJAE Monitor RAD-4-6417), performed 9/11/08, 11/25/08, 9/30/09, and 10/12/09
- 0-PMI-067.9, Process Radiation Monitoring System SPING Calibration Procedure (Plant Vent SPING RAD-6304), performed 3/13/07, 8/27/07, 7/31/08 and 8/8/08
- 0-PMI-067.13, Process Radiation Monitoring System Main Steam Lines DAM-1 Calibration Procedure (RAD-6426), performed 11/26/08
- 2007 Year-end 10 CFR 50.75g Decommissioning Summary, 1/24/08
- 2008 Year-end 10 CFR 50.75(g) Decommissioning Summary, 1/27/09
- 2009 working 50.75(g) entries
- Spreadsheet: 2009 Ground Water Sampling Results

#### CAP Documents

- 2009-33436, B' gas decay tank pressure drops while on cover gas after ECO zone 61-03B and 61-05 release.
- 2009- 2453, 2 of 6 gas decay tanks out of service for an extended period of time.
- 2009-20322, A' monitor tank is out of service due to failed level gauge.
- 2009-10147, Leaking steam blow down line on unit 3
- 2009-14381, Gas tank to plant vent leaks by 4638D
- 2008-6113, Tritium in manholes at PTN

### **Section 2RS7: Radiological Environmental Monitoring Program (REMP)**

#### Procedures and Guidance Documents

- Calibration Procedure (CP) -7, Calibration of Gasmeters and Flowraters, Rev. 7
- Field Deployment Procedure (FP) 1, Field Deployment of Gas Meters, Rev. 1
- Quality Procedure (QP) – A, Radiological Environmental Monitoring Program, Rev. 2
- QP – D, Interlaboratory Quality Control, Rev. 0

Sampling Procedure (SP) – 7, Collection of Shoreline Sediment, Silt, Soil, or Beach Sand, Rev. 4

SP – 12, Annual Land Use Census, Rev. 2

FP&L Turkey Point Plant, Meteorological System, June 2007

#### Records and Data Reviewed

2007 Annual Radiological Environmental Operating Report, 5/8/2008

Resubmittal of the 2007 Annual Radiological Environmental Operating Report, 7/25/2008

2008 Annual Radiological Environmental Operating Report, 5/14/2009

Turkey Point Joint Frequency Distribution Report, 2007, 3/12/2008

Turkey Point Joint Frequency Distribution Report, 2008, 1/19/2010

Work Order Task Number (WO) 39008592 01, Semiannual Met Tower Test, 12/10/2009

WO 38027637 01, Semiannual Met Tower Test, 06/26/2009

WO 38009851 01, Semiannual Met Tower Test, 12/08/2008

WO 37027229 01, Semiannual Met Tower Test, 06/19/2008

WO 37011356 01, Semiannual Met Tower Test, 12/13/2007

Turkey Point Gas Meter Excel Spread Sheet Calibration Data for Calendar Year (CY) 2007, CY 2008, and CY 2009

#### CAP Documents

JQA-07-3, Environmental Protection / REMP Audit, 5/01/07 – 6/19/07

CR No. 2007-27283, Self-Assessment, REMP – Focused Area, Intrer-laboratory Quality Control Program

CR No. 2007-41008, RCO rounds need to be revised to capture equipment changes from previous outage

CR No. 2008-3280, Improvement opportunity: TLD 'approximate distance value

CR No. 2008-12527, 60 meter meteorological tower signal on 'A' frequency to Unit 3 is blocked by crane

CR No. 2008-26217, Quick Hit Self-Assessment: post tropical storm Fay condition of PTN REMP sampling

CR No. 2008-37481, South Dade 60 meter wind direction wind vane needs to be replaced

CR No. 2008-11161, Retiring supplemental site (T-71), track/trend history

CR No. 2009-10147, Leaking steam generator blowdown line Unit 3

CR No. 2009-11083, Meteorological tower link status to U4 DCS offline

CR No. 2009-31109, High counts on blank water used for tritium analysis

CR No. 2009-34961, A/C (back-up) unit does not work at 60 meter meteorological tower

## LIST OF ACRONYMS

ANS	Alert and Notification System (ANS) Testing
ANSI/ANS	American National Standards Institute/American Nuclear Society
AREOR	Annual Radiological Environmental Operating Report
ARERR	Annual Radiological Effluent Release Report
ARM	Area Radiation Monitor
CAM	Continuous Airborne Monitor
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CY	Calendar Year
DAW	Dry Active Waste
EP	Emergency Preparedness
ERO	Emergency Response Organization
FP&L	Florida Power and Light Company
HEPA	High Efficiency Particulate Air
HPGe	High Purity Germanium
IP	Inspection Procedure
LSC	Liquid Scintillation Counter
NEI	Nuclear Energy Institute
ODCM	Offsite Dose Calculation Manual
OS	Occupational Radiation Safety
PCM	Personnel Contamination Monitor
PI	Performance Indicator
PM	Portal Monitor
PS	Public Radiation Safety
PTN	Plant Turkey Point Nuclear
QC	Quality Control
RaD	Airborne Radiation Detector
radwaste	Radioactive Waste
RCA	Radiologically controlled area
REMP	Radiological Environmental Monitoring Program
RD	Direct Radiation Detector
RG	Regulatory Guide
Rev.	Revision
RS	Radiation Safety
SAM	Small Article Monitor
TLD	Thermoluminescent Dosimeter
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order