



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

April 26, 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 05000250/2012002 AND 05000251/20120002**

Dear Mr. Nazar:

On March 31, 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 April 17, 2012, with Mr. Kiley and other members of your staff.

The inspection(s) 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 two findings, one NRC identified and one self-revealing, that were of very low safety significance (Green). These findings were determined to involve violations 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 (NCVs) 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 Power 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 inspection report, with the basis for your disagreement, to the Regional Administrator, Region II; and the NRC Resident Inspector at Turkey Point Nuclear Plant.

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In accordance with 10 CFR 2.390 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 05000250/2012002, 05000251/2012002
w/Attachment: Supplemental Information

cc w/encl: See page 3

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Letter to Mano Nazar from Daniel W. Rich dated April 26, 2012

SUBJECT: TURKEY POINT NUCLEAR PLANT – NRC INTEGRATED INSPECTION
REPORT 05000250/2012002 AND 05000251/2012002

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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. 05000250/2012002, 05000251/2012002

Licensee: Florida Power & Light Company (FPL)

Facility: Turkey Point Nuclear Plant, Units 3 & 4

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

Dates: January 1, to March 31, 2012

Inspectors: J. Stewart, Senior Resident Inspector
M. Barillas, Resident Inspector
M. Coursey, Reactor Inspector
D. Mas-Penaranda, Reactor Inspector
M. Donithan, Project Engineer (Basic Qualified)
N. Childs, Resident Inspector, Crystal River 3
C. Fletcher, Senior Reactor Inspector (1RO8)
G. Kuzo, Senior Health Physicist (2RS6)
N. Griffis, Senior Health Physicist (2PS7)
J. Laughlin, Emergency Preparedness Inspector, NSIR (1EP4)

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

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SUMMARY OF FINDINGS

IR 05000250/2012002, 05000251/2012002; 1/1/2012 – 3/31/2012; Turkey Point Nuclear Power Plant, Units 3 and 4; Fire Protection, Flood Protection Measures

The report covered a three month period of inspection by resident inspectors, emergency preparedness and inservice inspection specialists, and region based health physicists. Two Green NCVs were 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 aspects were 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."

A. NRC-Identified & Self-Revealing Findings

Cornerstone: Mitigating Systems

(Green) The inspectors identified a non-cited violation of the Units 3 and 4 operating licenses condition 3.D, Fire Protection, when the licensee failed to provide emergency lighting in the common auxiliary feedwater (AFW) cage and other areas. The electrical panel that supported normal lighting in the area was taken out of service for maintenance thus placing the emergency lights on battery power until the batteries depleted and the areas became dark, impacting the ability of operators to complete manual actions in the area, if needed. The licensee documented the issue in the corrective action program (CAP) as AR 1738082.

The inspectors determined that the failure to provide emergency lighting in areas requiring local manual actions to safely mitigate certain fire events, and the associated access/egress routes, was a performance deficiency. The issue was more than minor because the objective of the Mitigating System Cornerstone to ensure the availability of fire protection equipment was affected when emergency lighting was not provided. The inspectors assessed the finding using NRC Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," and assigned a low degradation rating because of the reasonable likelihood that plant operators would obtain alternate lighting and complete the prescribed manual actions. The finding screened as having very low safety significance. The cross cutting aspect of Work Control – Planning, (H.3(a)), was assigned because the licensee did not use risk insights, did not assess environmental conditions (lighting) that may have impacted human performance, and did not plan for contingencies nor compensatory actions when the normal lighting was removed from service leading to loss of emergency lighting. (1RO5)

(Green) A self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified when FPL did not maintain safety-related power cables in the environment for which they were designed and tested. Specifically, 125 volt DC control power cables feeding various safety related components and cables supporting other risk significant equipment had been repeatedly submerged in ground water for

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extended periods of time and this submergence had the potential to affect the ability of the cables to perform safety related functions. The issue was entered into the licensee's CAP as AR 1717619. Although predominantly Unit 3 cables were submerged, because equipment is shared, both units were affected.

Allowing water accumulation in the manhole(s) after disabling of the sump pump without compensatory measures to keep the safety related and risk significant cables dry, resulted in subjecting the cables to an environment for which they were not designed, and was a performance deficiency. The finding was more than minor because it challenged the reliability of systems that respond to initiating events to prevent undesirable consequences, which is an attribute of the Mitigating Systems cornerstone. The inspectors evaluated the finding in accordance with IMC 0609.04, Phase 1, "Initial Screening and Characterization of Findings." The finding was of very low safety significance because it did not represent an actual loss of safety function or contribute to external event core damage sequences. The finding had a cross-cutting aspect in Problem Identification and Resolution, Corrective Action Program, (P.1(c)), because FPL did not thoroughly evaluate submerged cables such that the resolutions addressed causes and extent of conditions, including evaluating for operability. (1RO6)

B. Licensee Identified Violations

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

REPORT DETAILS

Summary of Plant Status:

Unit 3 operated at full power until February 5 when the licensee entered FPL procedure TP-12-003, Unit 3 Cycle 25 T-Ave and Power Coastdown. On February 24 coastdown was ended and reactor power was reduced to 50 percent to support main steam safety valve testing. The reactor was shutdown on February 26 and a cooldown started for refueling outage 26. The reactor remained shutdown for the remainder of the period.

Unit 4 operated at full power throughout the period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

.1 Partial Equipment Walkdowns

a. Inspection Scope

The inspectors conducted three partial alignment verifications of the risk significant 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 CAP and corrected.

- Unit 3, Component cooling water (CCW) operations with split headers to allow a heavy load lift performed on January 11, 2012 using licensee procedure 3-NOP-030, Component Cooling Water, Section 5.1
- Unit 4, Auxiliary feedwater (AFW) alignment while C AFW pump was on equipment clearance for planned maintenance. The alignment check was verified using 4-NOP-075, Auxiliary Feedwater System
- Common: Standby steam generator feedwater pump (SBSGFP) A, using procedure 0-NOP-074.01, Attachment 1, Standby Steam Generator Feedwater System Normal Standby Valve Alignment, while B standby steam generator feedwater pump was out of service under work orders (WOs) 40092094 and 40098164

.2 Complete Equipment Walkdown

The inspectors performed a detailed review and walkdown of the alignment and condition of system 025A, control room heating, ventilating, and air conditioning (HVAC),

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to verify that the existing alignment was consistent with the design. To determine the correct system alignment, the inspectors reviewed the following documents: technical specifications; licensee procedure 0-NOP-025, Control Room Ventilation System; piping and instrumentation drawing 5610-M-3025; the design basis document; and the Updated Final Safety Analysis Report (UFSAR). During the walkdown, the inspectors reviewed the following:

- Dampers were correctly positioned and did not exhibit any degradation that would impact the functions of the Control Room HVAC system. The inspectors verified that work requests were written for dampers with identified degradation.
- Electrical power was available as required.
- Major system components were correctly labeled.
- Selected hangers and supports were correctly installed and functional.
- Essential support systems were operational.
- Ancillary equipment or debris did not interfere with system performance.
- Tagging clearances were appropriate.

Design and equipment issues were reviewed to determine if identified deficiencies significantly impacted the system's functions. Items included in this review were temporary modifications, equipment out of service logs, system health report, the system description, condition reports, and outstanding maintenance work orders. In addition, the inspectors reviewed the licensee's CAP to ensure that the licensee was identifying and resolving equipment alignment problems in a timely manner.

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 (CR) database to verify that fire protection problems were being identified and appropriately resolved. The inspectors accompanied fire watch roving personnel on a tour of fire protection impairments and risk significant fire areas to assure monitoring of area status and to verify proper identification and handling of transient combustibles. The following areas were inspected:

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- Unit 3 containment
- Unit 4 main steam platform
- Auxiliary feedwater cage
- Auxiliary building hallway and breezeway
- 3B and 4A battery rooms
- Cable Spreading Room

b. Findings

Introduction: The inspectors identified a Green NCV of the Units 3 and 4 operating license condition 3.D when the licensee failed to provide Appendix R emergency lighting in the common AFW cage and other areas. The electrical panel that supported normal lighting in the area was taken out of service for maintenance thus placing the emergency lights on battery power until the batteries depleted and the area became dark. No compensatory measures were implemented and the inspectors questioned the licensee on the ability to complete manual actions in the area without lighting. The emergency lighting remained unavailable for about two days.

Description: On February 21, the inspectors observed emergency lighting in the auxiliary feedwater cage operating on battery power. The inspectors were informed that the expected time on battery power was planned to be less than 8 hours. On February 22, the inspectors attended operation's shift turnover and a field operator stated that all lighting in the auxiliary feedwater cage was out and the room was dark. The inspectors accompanied the operator on a tour of the room and all lighting in the room was confirmed out with emergency lighting batteries depleted. The inspectors learned later that the breaker to lighting panel 32 had been tagged out for maintenance on February 21 putting the six emergency light units on battery power and after about 8 hours all batteries were depleted making the room dark. Additional lighting for emergency access and egress was also de-energized with batteries depleted. No compensatory measures had been established for the lost emergency lighting and the equipment had not been entered into the licensee's equipment out of service logbook. The condition existed for about 50 hours until normal lighting was restored allowing the batteries to re-charge.

Emergency lighting is specifically required by 10 CFR 50, Appendix R, Section J, and discussed in the licensee's UFSAR, Section 9.6A. Specific fire response actions in the AFW cage requiring emergency lighting are specified in licensee procedures 0-ONOP-105, Control Room Evacuation, and 0-ONOP-016.10, Pre-Fire Plan Guidelines and Safe Shutdown Manual Actions, and include verification of normal operation when the auxiliary feed pumps are operating, and reset or manual start of any AFW pump that is required or that has tripped. Additionally, an action to trip and secure a running pump is prescribed in the fire plan.

Analysis: The inspectors determined that the failure to provide emergency lighting in areas requiring local manual action, and the associated access and egress routes, affected the ability of plant operators to safely mitigate certain fire events and was a

performance deficiency. The issue was more than minor because the objective of the Mitigating System Cornerstone to ensure the availability of fire protection equipment was affected when emergency lighting was not provided to support fire mitigation strategies. The inspectors assessed the finding using NRC Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," and assigned a low degradation rating because of the reasonable likelihood that plant operators would obtain alternate lighting and complete the prescribed manual actions. The finding was screened as having very low safety significance, Green. The cross cutting aspect of Work Control – Planning was assigned because the licensee did not use risk insights, did not assess environmental conditions (lighting) that may have impacted human performance, and did not plan for contingencies nor compensatory actions when the normal lighting was removed from service leading to loss of emergency lighting. (H.3(a))

Enforcement: Turkey Point Units 3 and 4 operating licenses DPR-31 and DPR-41, respectively, Condition 3.D, requires that FPL maintain all provisions of the approved Fire Protection Program (FPP). The FPP is required by 10 CFR 50, Appendix R and is described in Turkey Point UFSAR Section 9.6A, which states in Section 3.7.1, that emergency lighting is provided in areas needed for operation of safe shutdown equipment, as well as access and egress routes, in the event that normal lighting is unavailable. This sealed beam lighting is provided to support local manual operator action for hot standby equipment in areas such as the AFW cage where actions such as starting, stopping, and monitoring pump operation are prescribed for certain fire scenarios. Contrary to the above, on February 21, 2012, the emergency lighting specified in the FPP was not provided for the AFW cage and its access paths when the power supply was removed from service and battery backup was allowed to deplete thus rendering the areas dark. When identified by the inspectors to plant management on February 22 the lighting was restored within a few hours thus allowing the batteries to recharge. The occurrence was documented in the CAP as AR 1738082 and the licensee intended to include pre-planned contingencies in future work packages that affected emergency lighting. Because this violation was of very low safety significance and was entered into the licensee's CAP, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. (NCV 50-250,251/2012-002-01) Emergency lighting to auxiliary feedwater area disabled.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors conducted walkdowns of the following four areas subject to internal flooding to ensure that flood protection measures were in accordance with design specifications. The inspectors reviewed the UFSAR, Appendix 5F, Internal Plant Flooding, that discussed protection of areas containing safety-related equipment that could be affected by internal flooding. Specific plant attributes that were checked included structural integrity, sealing of penetrations, and control of debris. Operability of sump systems, including alarms, was verified to be completed under WOs 40086773, 40085450, 40071678, and 40063782. Manhole inspections were completed, including checking for accumulated water and cable integrity problems.

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- Unit 3 Residual Heat Removal (RHR) Pump Rooms (2)
- Unit 4 RHR Pump Rooms (2)
- Manholes (direct inspection) 308, 310; (connected) 323, 404 and 403; (connected) 408, 424
- Manholes (review of records) 306

b. Findings

Introduction: A self-revealing violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified when FPL did not maintain safety-related power cables in the environment for which they were designed and tested. Specifically, FPL did not adequately select and review for suitability 125 Volt DC control power cables feeding various safety related components, safety related 480 volt load center 3B cables, and other risk significant control power cables, all of which had been in a repeatedly submerged environment in Manhole 310 and adjoining manholes for extended periods of time. Additionally, FPL did not take actions to properly evaluate and mitigate the effects of long term and repeated submergence of the safety related power cables.

Description: The inspectors reviewed NRC Generic Letter 2007-01 in which the NRC requested licensees to describe inspection, testing, and monitoring programs to detect degradation of inaccessible or underground power supplies at all voltage levels. The generic letter scope included cables that support systems within the scope of the maintenance rule (10 CFR 50.65). FPL responded to the request in letter L-2007-067 dated May 6, 2007. FPL's response stated that Turkey Point did not have a formal monitoring program for inaccessible or underground power cables. However, periodic testing was done as part of plant preventive maintenance and underground manholes were inspected every two years. Since that response, the inspectors noted that Turkey Point increased the frequency of inspections depending on susceptibility to flooding of specific manholes. The inspectors noted that FPL assigned an engineer to monitor the results of periodic manhole inspections and recommend actions when needed.

When observing maintenance during the week of December 15, 2011, the inspectors learned that workers had removed more than 800 gallons of water to uncover submerged cables from manhole 310, to support a conduit inspection. The manhole was closed. The next day, when reopened, the manhole again contained water and wetted cables. The licensee documented the condition in AR 1717619. In their evaluation of the AR the licensee noted that water had accumulated in manhole 310 on multiple occasions dating back to 2000, when trending of manhole inspection results began. A sump pump system in adjoining manhole 308 had been disabled in the past when occasional low levels of radioactive contaminants were found in the water and the connections between manholes 307, 308, 309, and 310 had been plugged to prevent water intrusion in one manhole from affecting the others. The licensee was evaluating an increased frequency of inspections of manhole 310 and adjacent manholes as well as re-installation of the sump pump or a water accumulation detection device.

Manhole 310 and adjacent manholes contain safety related low voltage cables that support control power to Unit 3, Train B CCW, RHR, safety injection (SI), and intake cooling water (ICW) pump power supplies. Additionally, a number of other risk significant medium voltage power cables such as non-safety cables supporting the Unit 3 alternate shutdown panel and plant computer are in the conduits supported by the manholes. Although predominantly Unit 3 equipment was submerged, because some equipment is shared, both units were determined to be affected by the water intrusion.

Analysis: Allowing water accumulation in the manhole(s) after disabling of the sump pump without compensatory measures to keep the safety related and risk significant cables dry resulted in subjecting the cables to an environment for which they were not designed, and was a performance deficiency. The finding is more than minor because it affected the equipment performance attribute of the Mitigating Systems cornerstone. Specifically, the finding affected the associated cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences; in this case, control power cables. The inspectors evaluated the finding in accordance with IMC 0609.04, Phase 1, "Initial Screening and Characterization of Findings." The finding was of very low safety significance because it did not represent an actual loss of safety function or contribute to external event core damage sequences. The finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because FPL did not thoroughly evaluate submerged or wetted cables such that the resolutions addressed causes and extent of conditions, including evaluating for operability. (P.1(c)).

Enforcement: 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established for the selection and review for suitability of application of materials and equipment that are essential to the safety related functions of structures, systems and components. These design control measures shall provide for verifying the adequacy of design, such as by the performance of design reviews or a suitable testing program and where a test program is used, it shall include suitable qualification testing of a prototype under the most adverse design conditions. These requirements are implemented, in part, by the FPL Quality Assurance Topical Report, which states in Section B.3, Design Verification, that design verification procedures are established and implemented to assure that an appropriate verification method is used. Contrary to the above, FPL has not established and implemented an appropriate verification method for safety related control power cables when the cables were maintained in an environment for which they were neither designed nor tested. Specifically, control power cables for safety related equipment, such as RHR pumps and CCW pumps, were repeatedly submerged in ground water for extended periods without an adequate demonstration through testing or evaluation that the cables would withstand these conditions and remain capable of the safety related functions. The submergence resulted when a sump pump water removal system was disabled without measures to prevent cable submergence. The issue was entered into the licensee's CAP as AR 1717619 and the licensee initiated more frequent inspections of the manholes as necessary to maintain the cables dry. Because this finding was of very low safety significance and entered into the CAP, this violation is being treated as an NCV,

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consistent with the NRC Enforcement Policy. (NCV 50-250,251/2012-002-02) Control power cables repeatedly submerged in ground water, contrary to design.

1R08 Inservice Inspection Activities (71111.08P)

a. Inspection Scope

Non-Destructive Examination Activities and Welding Activities:

From March 5 – 8, 2012, the inspectors conducted an on-site review of the implementation of the licensee's inservice inspection (ISI) program for monitoring degradation of the reactor coolant system (RCS), emergency feed water systems, risk-significant piping and components, and containment systems in Unit 2. The inspector's activities included a review of non-destructive examinations (NDEs) to evaluate compliance with the applicable edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC), Section XI (Code of record: 1998 Edition with 2000 Addenda), and to verify that indications and defects were appropriately evaluated and dispositioned, in accordance with the requirements of the ASME Code, Section XI, acceptance standards, or NRC-approved alternative requirement.

The inspectors directly observed or reviewed records of the following NDE mandated by the ASME Code to evaluate compliance with the ASME Code Section XI and Section V requirements, to see if any indications and defects were detected. Inspectors also reviewed evaluations of results that were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement.

(1) Directly observed:

- Liquid Penetrant examination of Class 2, 4" reducer to tee weld in High Head Safety Injection (HHSI) system, SI-2301-10.
- Liquid Penetrant examination of Class 2, 3" pipe to reducer weld in the HHSI system, SI-2301-13.
- Ultrasonic (UT) examination of Class 2, 4" reducer to tee weld in HHSI system, SI-2301-10.

(2) Reviewed records:

- Bare Metal Visual (BMV) examination of the Bottom Mounted Reactor Vessel Head Penetrations.

During non-destructive surface and volumetric examinations performed since the previous refuelling outage, the licensee did not identify any recordable indications that required acceptance for continued service. Therefore, NRC review was not required for this inspection procedure attribute.

The inspectors reviewed documentation for repair/replacement of the following pressure boundary weld. The inspectors evaluated if the licensee applied the pre-service non-destructive examinations and acceptance criteria required by the construction code. In addition, the inspectors reviewed the welding procedure specifications, welder qualifications, welding material certifications, and supporting weld procedure qualification records to evaluate if the weld procedures were qualified in accordance with the requirements of Construction Code and the ASME Code Section IX.

- WO 40047871-01 Replacement of class 2 containment spray elbow

PWR Vessel Upper Head Penetration (VUHP) Inspection Activities:

For the Unit 2 vessel head, a bare metal visual examination was not required in this outage pursuant to 10 CFR 50.55a. The licensee did not perform any inspections or repairs on the RPVUHP this outage. Therefore, NRC review was not completed for this inspection procedure attribute.

Boric Acid Corrosion Control (BACC) Inspection Activities:

The inspectors reviewed the licensee's BACC program activities to ensure implementation with commitments made in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary," and applicable industry guidance documents. Specifically, the inspectors performed an on-site record review of procedures and the results of the licensee's containment walkdown inspections performed during the current fall refueling outage. The inspectors also interviewed the BACC program owner, conducted an independent walkdown of containment to evaluate compliance with licensee's BACC program requirements, and verified that degraded or non-conforming conditions, such as boric acid leaks, were properly identified and corrected in accordance with the licensee's BACC and corrective action programs.

The inspectors reviewed the following evaluations and corrective actions related to evidence of boric acid leakage to evaluate if the corrective actions completed were consistent with the requirements of ASME Code Section XI and 10 CFR Part 50, Appendix B, Criterion XVI.

- AR 1741743, Evaluation of small amount of boric acid residue on walls, floors, and components.
- AR 1742043 – BMI Visual reveals staining and general corrosion.

Steam Generator Inspection Activities:

The inspectors reviewed the Steam Generator Condition Monitoring Assessment of Fall 2010 Inspection Results and Operating Assessment for Operating Cycle 24 at Turkey Point Unit 3. No Steam Generator Tube Inspection Activities occurred during this outage.

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Identification and Resolution of Problems:

The inspectors performed a review of a sample of ISI-related problems that were identified by the licensee and entered into the CAP as CRs. The inspectors reviewed the CRs to confirm the licensee had appropriately described the scope of the problem, performed an evaluation, and had initiated appropriate corrective actions. The inspectors also reviewed the licensee's use, consideration, and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the report attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the following two equipment problems and associated CRs 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 NAP-415, Maintenance Rule Program Administration. The inspectors' efforts focused on maintenance rule scoping, characterization of maintenance problems and failed components, risk significance, determination of a(1) or a(2) classification, corrective actions, and the appropriateness of established performance goals and monitoring criteria. The inspectors also interviewed responsible engineers and observed some of the corrective maintenance activities. The inspectors verified that equipment problems were being identified and entered into the CAP. The inspectors used licensee maintenance rule data base, system health reports, and the CAP as sources of information on tracking and resolution of issues.

- CR 1644427, 4A RHR Pump Suction Valve Shut while running
- CR 595200, Loss of all Charging due to 3C Charging Pump Relief Valve Failure

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 six emergent or planned maintenance activities. The

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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; and procedures O-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:

- January 4: Unit 3 risk while A AFW pump was removed from service for planned relay replacement
- January 9: Unit 3 and Unit 4 risk while 4A emergency diesel generator (EDG) was unavailable when the high temperature exhaust trip was enabled (AR 1722359)
- February 2: Unit 3 and Unit 4 risk and risk management following loss of power to the 3D motor control center (AR 1730554)
- February 13: Unit 4 risk after failure to run instrument air compressor 4CM. Instrument air loads were maintained by auto-start of temporary compressor TC-1 (AR 1733625)
- March 12: Unit 4 risk with 4A ICW pump, Unit 3 startup transformer, and 3A EDG out of service for planned maintenance
- March 16: Unit 4 risk when the C AFW pump was removed from service for pump replacement. In addition to checking the licensee's risk assessment, the inspector verified that the A and B AFW pumps were physically protected during the maintenance.

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

For the seven operability evaluations described in the CRs 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 UFSAR to verify the system or component remained available to perform its intended function. In addition, when applicable, the inspectors reviewed compensatory measures implemented to verify the plant design basis was being maintained. The inspectors also reviewed a sampling of CRs to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations.

- AR 1722359 for 4A EDG spurious exhaust high temperature trip. This trip is active only when the diesel is running for maintenance or surveillances and is bypassed when the diesel is aligned for emergency auto start, therefore the diesel was not inoperable during the time this trip was enabled.
- AR 1724570 for Unit 4 CCW operability with an unidentified leak. The leak rate was about 1 gallon per hour and the inspectors verified that the system could continue to operate during the service time of 30 days.
- Technical Support Center (TSC) HVAC system operability with control room switch TS-2 in the inhibit position. Technical Support Center Activation and Operation, 0-EPIP-20132, revision 2a, and 5610-E-764 system drawings were reviewed.
- AR 1743299 for 3A2 battery charger input breaker trip during grid transient, and subsequently tripping twice when restoring the charger to service. The charger was found to be capable of performing its design function of supplying design loads while also restoring a partially-discharged battery. 0-NOP-003.01, "125V Vital DC System", Rev. 4 was reviewed.
- 4A DC equipment room halon operability when an open conduit was identified running from the room to the 4A battery room.
- AR 173117 for A AFW turbine horsepower required being exceeded due to failing to account for recirculation flow, turbine lube oil coolers and instrument uncertainties.
- AR 1748752 for elevated C AFW pump axial vibration during a post maintenance test (PMT) run.

b. Findings

No findings were identified.

1R18 Plant Modification

a. Inspection Scope

The inspectors reviewed one temporary system modification and one permanent plant modification listed below to ensure that the modifications did not adversely affect safety system availability or reliability. The inspectors reviewed plant modifications for systems that were ranked high in risk for departures from design basis and for inadvertent changes that could challenge the systems to fulfill their safety function. For the permanent modification the inspectors reviewed the licensee's 10 CFR 50.59 screening to ensure that NRC approval was not required prior to installation of the modification. The inspectors specifically checked environmental qualification, energy needs, structural integrity, and failure modes of replacement components. For the temporary modification the inspectors specifically checked the system flowpath, operations, fuel energy needs, and the 10 CFR 50.59 screening to verify the licensee conclusions in meeting its licensing basis. The inspectors conducted plant tours and discussed system status with engineering and operations personnel to check for the existence of modifications that had not been appropriately identified and evaluated.

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- Engineering Change (EC) 246990 Unit 3 Instrument Air System Modification (permanent)
- TP-11-017P, Unit 3 Temporary Containment Chillers Cool Spent Fuel Pit Heat Exchanger, 3E208B, Rev. 6. The review included 11-E19, Evaluation for the Implementation Phase of Installation of a Supplemental Heat Exchanger in the Spent Fuel Pool Cooling System at Turkey Point Unit 3, Rev. 0; Turkey Point EC 274530 (temp mod); evaluation EE-PNT-ENG-SENS-11-107; and Drawings 5613-M-3033, Spent Fuel Pool Cooling System, Sh. 1, Rev. 21, and Sh. 2, Rev. 13.

b. Findings

No findings were identified.

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 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.

- Unit 3: 3-NOP-005, Section 5.2, Transfer of Station Service from Auxiliary Transformer to the Startup Transformer, and Section 5.1, Transfer of Station Service from Startup Transformer to Auxiliary Transformer; following preventive checks on Breaker 3AA05, Startup Transformer to Bus 3A, in accordance with WO 40081698, 3AA05 Startup Transformer breaker inspection (54 month)
- Unit 4: 4-OSP-055.1, Emergency Containment Cooler Operability Test, following repair of valve limit switches under WO 40056640-01, CV-4-2907, 4A Emergency Containment Cooler outlet valve failed stroke test
- Unit 3: Inservice leak check and 3-OSP-030.1, Component Cooling Water Pump Inservice Test, following replacement of 3C CCW pump seals in accordance with WO 35029042-01
- Unit 3: Radiation monitor R-3-15 channel calibration using 3-PMI-067.3, Process Radiation Monitoring System R-3-15 Calibration; source check and alarm check using 3-OSP-067.1B, R-3-15 Operational Test, following detector replacement under WO 40143315-01
- Unit 3 and 4: C AFW pump using licensee procedure, 4-OSP-075.2, Auxiliary Feedwater Pump Train 2 Operability Verification, following replacement of the lube oil cooler under WO 40004064-01, Replace P2C Lube Oil Cooler (AR 1735315)
- Unit 4: 4-OSP-023.2, Emergency Diesel Generator Full Load Test and Load Rejection, and steps in the Engineering Technical Response Memorandum on the 4B EDG after completion of diode replacement per WO 40122887-02

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b. Findings

No findings were identified.

1R20 Unit 3 Refueling and Extended Power Uprate Outage 26

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 CAP were reviewed 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:

- Pre-outage shutdown safety plan using licensee procedure 0-ADM-051, Outage Risk Assessment and Control
- Initial containment inspections and ability of the licensee to close containment if needed within specified times when the reactor was in a drained condition
- Component and system outages were sequenced to assure critical safety functions and defense in depth in accordance with licensee procedure 0-ADM-051, Outage Risk Assessment and Control
- Outage issues were documented in the CAP
- Monitoring of decay heat removal system performance, lineups, and cooldown rates. The inspectors verified that the plant cooldown was conducted in accordance with licensee procedure 4-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification
- Fuel handling activities including equipment testing per 3-OSP-038.2, Manipulator Crane Operability Test, and core offload
- RCS draining and operations with a short time to boil including verification of alternate electrical supplies, injection sources, core instrumentation, electric power availability, and both trains protected

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors either reviewed or witnessed the eight surveillance tests listed below to verify the tests met the TS requirements, the UFSAR, and 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 CAP.

- 3-OSP-068.2 Containment Spray System Inservice Test (IST)
- 4-OSP-023.1 4A Diesel Generator Operability Test
- 4-OSP-063.1B, Safeguards Actuation System Logic Test, Train B
- 4-OSP-075.1, Auxiliary Feedwater Train 1 Operability Verification
- 3-OSP-062.2C, Safety Injection System Valve Test, Section 4.2.3, MOV-3-843B, Quarterly Exercise Test (IST)
- 40th Year Tendon Surveillance, Data Sheet SQ9.0, 12V09 Dome
- 3-OSP-051.5, Local Leak Rate Tests, Penetration 8, Inside containment valve CV-3-951, pressurizer steam space sample valve (CIV)
- 4-OSP-047.1A, Charging Pump 4A Group A Pump Test

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

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

2RS06 Radioactive Gaseous and Liquid Effluent Treatment

a. Inspection Scope:

Program Reviews: The inspectors reviewed the 2009 and 2010 Annual Radiological Effluent Release Report (ARERR) documents for consistency with requirements detailed in the ODCM and Technical Specifications. Unexpected radionuclides or trends in effluents reported, abnormal releases and follow-up actions were discussed with responsible licensee representatives. Radioactive effluent monitors operability issues and scheduled upgrades were discussed with responsible 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. In addition, the

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inspectors reviewed the inter-laboratory comparison results and discussed monitoring of hard-to-detect radionuclides.

Equipment Walk Downs: The inspectors walked down selected components of the liquid waste processing and discharge system as well as the Control Room emergency ventilation system equipment to ascertain material condition, configuration and alignment. To the extent practical the inspectors observed the material condition of liquid waste processing equipment including tanks, piping, valves, and radiation monitors for indications of degradation or leakage that could constitute a possible release pathway to the environment.

Instrumentation and Equipment: For selected liquid and gaseous effluent release systems, sampling and processing of effluent release permits were discussed with responsible chemistry staff. The inspectors reviewed and discussed with the licensee the Control Room and the Unit 3 Emergency Containment 'B' train systems' flow rates and filter testing criteria and results. In addition, the inspectors reviewed select containment integrity penetration alignment verification and local leak rate test results for an incomplete modification associated with the abandonment of the Post Accident Containment Vent system shared between Unit 3 and Unit 4.

Effluents and Dose Calculations: Licensed activities associated with liquid and gaseous releases including representative sampling and release permit preparation were evaluated and discussed with responsible chemistry technicians and operations staff. The inspectors were not able to observe sampling and processing for liquid or gas effluent releases during the onsite inspection. The inspectors evaluated effluent quality assurance activities including review of program guidance and discussion of selected results for calendar year (CY) 2009 through CY 2011. The site's 10 CFR 61 analyses were reviewed for expected nuclide distribution from the aspects of monitoring for hard-to-detect nuclides in effluents, inclusion in QA cross check samples, and use in quantifying effluent releases. Changes in calculated doses due to estimated quantities of carbon-14 (C-14), now included in gaseous effluent releases, were evaluated. Impact of abnormal liquid and gaseous release for CY 2009 through CY 2011, including a recent RWST manway leak, were reviewed and discussed in detail. Offsite doses resulting from routine and abnormal releases were compared to applicable limits.

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 associated with selected tanks and onsite cooling canals. Proposed changes associated with documentation of cooling canal area wells were discussed in detail with responsible staff. Results of a current storm drain system evaluation were discussed. The inspectors reviewed recent liquid spill and/or leakage events against current 10 CFR 50.75(g) records.

Problem Identification and Resolution: Selected CAP 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.

Effluent process and monitoring activities were evaluated against details and requirements documented in the UFSAR Sections 6, 9, and 11; Technical Specification (TS) Sections 3/4.6.1, Containment Systems, 3/4.7.5, Control Room Emergency Ventilation System, 6.8.1 Procedures and Programs, 6.8.4 (f), Radioactive Effluents Control Program, 6.9, Routine Reports, and 6.14 Offsite Dose Calculation Manual (ODCM); ODCM; 10 CFR Part 20; 10 CFR, Appendix I to Part 50; and approved licensee procedures. Documents reviewed are listed in Sections 2RS06 and 2RS07 of the report Attachment.

The inspectors completed the specified line-item samples detailed in IP 71124.06.

b. Findings

No findings of significance were identified.

2RS07 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 Radiological Environmental Operating Report (AREOR) documents issued for 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 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

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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 2RS07 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 Operations Facilities (EOF) and to the NRC Operations Center.

Licensee procedures and activities related to meteorological monitoring were evaluated against: ODCM; UFSAR; 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 2RS07 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, 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 were identified.

Cornerstone: Emergency Preparedness1EP4 Emergency Action Level and Emergency Plan Changes (IP 71114.04)a. Inspection Scope

The NRC NSIR headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) located under ADAMS accession number ML12009A082 as listed:

0-EPIP-20126, "Off-site Dose Calculations," Rev. 1

0-EPIP-20132, "Technical Support Center (TSC) Activation and Operation," Rev. 2A

The licensee transmitted these procedure revisions to the NRC pursuant to the requirements of 10 CFR 50, Appendix E, Section V, "Implementing Procedures." The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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 CAP. This review was accomplished by reviewing daily summaries of condition reports and by reviewing the licensee's electronic CR database. Additionally, RCS unidentified leakage was checked on a daily basis to verify no substantive or unexplained changes.

b. Findings

No findings were identified.

.2 Annual Sample Review

.1 Root Cause Evaluation Associated With the Unit 4 A Emergency Diesel Generator Loss of Excitation

a. Inspection Scope

The inspectors selected AR 1697701, "4A EDG trip during 24 hour surveillance," 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 checked included evaluation and disposition of operability and reportability issues; classification and prioritization of the problem's resolution commensurate with safety significance; extent of condition; identification of the root and contributing causes; planning of assigned corrective actions; and that corrective actions taken to preclude recurrence were completed in a timely manner. The inspectors checked 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 that the root cause of the 4A emergency diesel generator trip on October 18, 2011, was due to heat that accelerated a failure of the emergency diesel generator regulator center bank diode CR4. The failed diode CR4 in the 4A emergency diesel generator regulator had been in service since 1991. There was no preventive maintenance specified for the susceptible diode as there were no vendor recommendations. Also, there had not been any previous emergency diesel generator regulator diode failures at Turkey Point. The licensee's root cause team found external operating experience that noted different sites with emergency diesel generator random diode failures and identified a trend that showed the diodes installed in the center bank CR2, CR4, and CR6 of the emergency diesel generator regulator were susceptible to early failure due to the higher temperatures at this location. The licensee identified diode replacement as a preventive measure to address the accelerated aging of the subject diodes. The licensee looked at extent of condition and determined that the 4B emergency diesel generator could be exposed to a similar diode failure due to the common design. Unit 3 emergency diesel generators use a different regulator and were not affected.

Immediate corrective actions for this event included replacing the center bank CR2, CR4, and CR6 diodes in the 4A emergency diesel generator and satisfactory run of 4B emergency diesel generator to verify operability due to possible common mode failure. Other corrective actions included initiating a work order to replace the 4B CR2, CR4, and

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CR6 diodes and this was completed on February 21, 2012. Additional corrective actions included establishing a preventive maintenance program to replace these diodes on a six year frequency, performing a formal review of all 4A and 4B emergency diesel generator electronic subcomponents subjected to elevated temperatures and creating work orders as needed for replacement, and classifying these components as critical sub components in the system.

.2 AR 1725119, Implementation of procedure 0-HPS-021.3, Identification, Survey and Release of Material for Unrestricted Use

a. Inspection Scope

The inspectors selected the condition report for detailed review and discussion with the licensee. The condition report was reviewed to ensure that an appropriate evaluation was performed and corrective actions were specified and prioritized in accordance with the licensee's program. Other attributes checked included disposition of operability and resolution of the problem including cause determination and corrective actions. The inspectors evaluated the condition report 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.

b. Findings and Observations

No findings were identified. Action request 1725119 was selected by the inspector to allow an assessment of the licensee's handling of a human performance concern in the Occupational Radiation Safety Cornerstone. The inspector verified the classification and trending assigned by the licensee for this issue were in accordance with station corrective action procedures and that relevant aspects were evaluated with adequate corrective actions for identified problems. Specific human performance reviews were detailed and documented in accordance with the licensee's program.

4OA3 Follow-up of Events

a. Inspection Scope

(Closed) LER 05000250/2011-001-00 and LER 05000250/2011-001-01, Manual Reactor Trip Due to Secondary Sodium Concentrations Exceeding Chemistry Limits (and Supplement)

On March 6, 2011, Unit 3 reactor power was rapidly reduced and the reactor manually tripped in accordance with FPL procedures when a condenser tube failed causing a secondary system chemistry transient. There were no complications. The licensee kept the reactor shutdown for corrective activities including restoring all chemistry parameters to normal and plugging the failed tube. Forty-two other tubes were also plugged as a preventive measure. The failed tube was later removed,

evaluated, and determined to have failed due to high cycle fatigue. The licensee is replacing all tube bundles in the Unit 3 condenser during the 2012 Extended Power Uprate outage. No performance deficiencies were identified in the inspector's review. The LER and supplement are closed.

(Closed) LER 05000250/2011-002-00 Loss of Intake Cooling Water due to Butterfly Valve Failure in Common Discharge Line

On August 11, 2011, Unit 3 experienced a total loss of intake cooling water when 24 inch butterfly valve 3-50-406 spuriously went shut. The cause was mechanical failure of the valve actuator due to fatigue failure. The NRC Regional Administrator dispatched a special inspection team to review the circumstances of this event and the results of this inspection were reported in NRC Inspection Report 50-250/2011-013 dated September 15, 2011. Enforcement associated with this matter was documented in Section 4OA2 of NRC Integrated Inspection Report 05000250,251/2011005, dated January 26, 2012. No further actions on this matter are planned. The LER is closed.

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 force personnel and 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 plant working 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.

4OA6 Exit

Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. Kiley and other members of licensee management on April 17, 2012. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary information. The licensee did not identify any proprietary information.

40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for disposition as an NCV. 10 CFR Part 50, Appendix B, Criterion III, Design Control, requires, in part, that design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization. FPL implements this requirement, in part, with procedure ENG-QI 1.7, Quality Instruction Design Input/Verification, which states engineering methods employed shall ensure that design inputs are correctly translated into new designs and design changes, and that design verification activities are correctly performed. Contrary to the above, engineering methods employed did not ensure that design inputs were correctly translated into the A auxiliary feedwater pump design change nor were design verification activities correctly performed on engineering design change package PCM 2005-029. As a result, on February 3, 2012, during a design review while developing a modification package for the A auxiliary feedwater pump, FPL identified a design calculation error in the 2005 modification package for the A auxiliary feed water pump. The pump modification raised the pump power requirements. The revised design horsepower output specified for the turbine accounted for the increased pump power demand, but failed to account for recirculation flow, turbine lube oil coolers flow, and instrument uncertainties. When identified by FPL, a prompt operability determination was completed. FPL determined that although there was a reduction in margin, the required auxiliary feed water turbine horsepower remained bounded by vendor's design limits. This issue was entered into the corrective action program as AR 1731117. The finding was screened as having very low safety significance (Green) using NRC Inspection Manual Chapter 0609 SDP Phase 1 screening because the finding did not result in an inoperable auxiliary feedwater pump, did not affect functionality of the system, and the design basis continued to be met.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

R. Coffey, Work Controls Manager
B. Carberry, Emergency Preparedness Manager
C. Cashwell, Radiation Protection Manager
M. Crosby, Quality Manager
J. Garcia, Engineering Manager
M. Jones, Operations Manager
M. Kiley, Site Vice-President
E. Lyons, Engineering Supervisor (ISI)
E. McCartney, Plant General Manager
G. Melin, Assistant Operations Manager
J. Patterson, Fire Protection Supervisor
J. Pallin, Maintenance Manager
R. Tomonto, Licensing Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

50-250,251/2012-002-01	NCV	Emergency lighting to auxiliary feedwater area disabled (1R05)
50-250,251/2012-002-02	NCV	Control power cables repeatedly submerged in ground water, contrary to design (1R06)

Closed

05000250/2011-001-00	LER	Manual Reactor Trip Due to Secondary Sodium Concentrations Exceeding Chemistry Limits (4OA3)
05000250/2011-001-01	LER	Manual Reactor Trip Due to Secondary Sodium Concentrations Exceeding Chemistry Limits (Supplement) (4OA3)
05000250/2011-002-00	LER	Loss of Intake Cooling Water due to Butterfly Valve Failure in Common Discharge Line (4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R08: Inservice Inspection Activities

Procedures

FPL NDE 3.3, Rev 13, NDE Manual Examination Procedure, Component, Support & Inspection, Liquid Penetrant Examination Solvent Removable Visible Dye Technique
FPL NDE 4.15, Rev 3, NDE Manual Examination Procedure, Component, Support & Inspection
FPL NDE 5.4, Rev 19, NDE Manual Examination Procedure, Component, Support & Inspection, Ultrasonic Examination of Austenitic Piping Welds
0-ADM-537, Rev 6, FPL Administrative Procedure, Boric Acid Corrosion Control Program
FPL WPS-24, Rev 5, Welding Procedure Specification for WO 40047871-01

Corrective Action Documents

AR 01742043
AR 01741743
AR 01734814
AR 01731582
AR 01720764

Other

WO 34011171-01
WO 40047871-01
WR 94043837
WR 94043498
WR 94043510

Calculation AES-C-8xxx-1, Flaw Evaluation of AFW Check Valve 4-10-087 Seat Ring Indications-PTN-4
NDE Personnel Qualifications for LMT Test.
Calibration Data Sheet 5.4-002 for UT on High Pressure Safety Injection Austenitic Piping Welds Outside Containment
Procedure and Calibration Block/Standard Qualification Record, NDE-5.4, Rev 15, Ultrasonic Examination of Austenitic Piping Welds

Section 2RS06: Radioactive Gases and Liquid Effluent Treatment

Procedures, Guidance Documents, and Manuals

0-Nuclear Chemistry Operating Procedure (NCOP) – 003, Preparation of Liquid Release Permits, Revision Rev. 4
0-NCOP – 004, Preparation of Gas Release Permits, Rev. 2 Permits
0-Nuclear Chemistry Administrative Procedure, Radiochemistry Quality Control Samples, 10/02/2009
0-Administrative Procedure (ADM)-115, Notification of Plant Events, Rev. 4

Attachment

Unit 3 Operations Surveillance Procedure (3-OSP)-053.4, Containment Integrity Penetration Alignment Verification, Rev. 4

3-OSP-051.5. Local Leak Rate Tests

3-OSP-053.4, Containment Integrity Penetration Alignment Verification, Rev. 4

EV-AA-100-1001, Fleet Groundwater Protection Program Implementing Guideline, Rev. 1 Adverse Condition Monitoring and Contingency Plan, Unit 3, RD 3-20

PC/M No. 02-045, Abandonment of Post Accident Containment Ventilation and Hydrogen Recombiner Equipment, 09/17/2002

Turkey Point Units 3 and 4 – Issuance of Amendments Regarding Deletion of Technical Specifications for Hydrogen Monitors and Post-Accident Containment Vent System, December 20, 2001

Records and Data Reviewed

Turkey Point Units 3 and 4, 2009 Annual Radioactive Effluent Release Report, 02/26/2010

Turkey Point Units 3 and 4, 2010 Annual Radioactive Effluent Release Report, 02/25/2011

Turkey Point Units 3 and 4, Re-submittal of the 2009 Annual Radioactive Effluent Release Report, 12/15/2010

Radiochemistry Quality Control Sample Results, 1st Quarter 2009, 1st Quarter 2009 Re-submitted Data; 2nd Quarter 2009; Vendor Cross-check August 31, 2010; 1st Quarter 2010; 2nd Quarter 2010; 2nd Quarter 2011

Liquid Release Permit (LRP) Number (No.) L-2012-016, 01/21/2012

Gas Decay Tank Release Permit No. G-2011-050, 11/28/2011

System Health Report, Unit 3, System 67, Process Radiation Monitoring, 01/10/2012

System Health Report, Unit 4, System 67, Process Radiation Monitoring, 01/10/2012

System Health Report, Unit 3, System 61, Waste Disposal, 01/10/2012

0-OSP-025.2, Control Room Emergency Ventilation System Filter Performance Test Results, 07/14/11, 09/11/09

0-OSP-025.3, Control Room Emergency Ventilation Filter Charcoal Sample Analysis Results, 07/14/11, 09/11/09

3-OSP-056.2, Emergency Containment Filter 'B' Train, Performance Test Results, 10/21/10, 03/30/09

3-OSP-056.3, Emergency Containment Filter Charcoal 'B' Train, Sample Test Results, 10/08/10, 03/19/09

3-OSP-051.5, Local Leak Rate Test Results Penetration (P)-53 (9/14/2004); P-51 (04/12/2008); Valve (HV)-3-1, HV-3-2, PAHM-2-002A (10/13/2010)

Drawing Number 5610-M-3025, Control Building Ventilation, Rev. 11

Drawing Number 5613-M3057, Containment Normal and Emergency Cooler Systems, Rev. 8

Health Physics Records QA 3000 File, 2010 Year-end 10 CFR 50.75(g)

Decommissioning Summary, 01/12/11

Health Physics Records QA 3000 File, 2009 Year-end 10 CFR 50.75(g)

Decommissioning Summary, 01/11/10

CAP Documents

Turkey Point Nuclear Oversight Report PTN-10-028. Chemistry Control Program and Effluents Control Program

Action Request (AR) 00468713, Correction to 2003 Annual Radioactive Effluents Report

AR 00469551, 2009 Annual Radioactive Effluent Release Report did not include all required information
 AR 00474324, Generation of, and dose due to C-14 in plant effluents
 AR 00476478, CCW pump leakage to be reviewed for unplanned release
 AR 00477713, Tracking CR for unplanned release for unplanned release - spill from drum
 AR 00479203, Waste Transfer Pump P229C and Waste Evaporator Feed P220 will not transfer water from WHT#1 due to possible suction blockage
 AR 00566395, Performance of LWR skid degraded
 AR 00590914, Unplanned release of RWST from leak on manway
 AR 00472722, Sr 89/90 liquid and filter cross check samples did not pass acceptance criteria
 AR 00476478, 2010 CCW Pump Seal Leakage to be reviewed for unplanned release
 AR 00485020, Fuel movement while sample the U3 SFP SPING
 AR 01740074, Liquid radwaste skid challenged by inlet water quality
 AR 01690743, High conductivity water degrading performance of LRW skid
 AR 01725397, Piping WR 94040717, Initial storm drain pipe inspection
 AR 01725179, Abandonment of Post Accident Containment Ventilation

Section 2RS07: Radiological Environmental Monitoring Program (REMP)

Procedures and Guidance Documents

Calibration Procedure (CP) -7, Calibration of Gasmeters and Flowraters, Rev. 9
 Field Deployment Procedure (FP) – 1, Field Deployment of Gas Meters, Rev. 2
 Quality Procedure (QP) – A, Radiological Environmental Monitoring Program, Rev. 5
 QP – C, Intralaboratory Quality Control, Rev. 1
 Sampling Procedure (SP) – 1, Collection of Air Particulates and Radioiodines, Rev. 10
 SP – 4, Collection of Surface Water, Rev. 6
 SP – 5, Collection of Broadleaf Vegetation, Rev. 3
 SP – 6, Collection of Food Crops, Rev. 3
 SP – 7, Collection of Shoreline Sediment, Silt, Soil or Beach Sand, Rev. 5
 SP – 12, Annual Land Use Census, Rev. 2

Records and Data Reviewed

2009 Annual Radiological Environmental Operating Report, 5/14/2010
 2010 Annual Radiological Environmental Operating Report, 5/09/2011
 2011 DOE-MAPEP 1H2011 Series-24 Results, Issue Date 7/05/2011
 Radiological Surveillance Report Turkey Point Plant, First Quarter 2011, 6/18/2011
 Radiological Surveillance Report Turkey Point Plant, Second Quarter 2011, 9/08/2011
 Radiological Surveillance Report Turkey Point Plant, Third Quarter 2011, 11/02/2011
 Turkey Point Joint Frequency Distribution Report, 2009, 2/10/2010
 Turkey Point Joint Frequency Distribution Report, 2010, 3/10/2011
 Turkey Point 2011 First Quarter Meteorological Report, 7/20/2011
 Turkey Point 2011 Second Quarter Meteorological Report, 10/20/2011
 Turkey Point 2011 Third Quarter Meteorological Report, 11/17/2011
 WO 39008592 01, Semiannual Met Tower Test, 12/10/2009
 WO 39022906 01, Semiannual Met Tower Test, 06/25/2010
 WO 40006288 01, Semiannual Met Tower Test, 12/04/2010
 WO 40053298 01, Semiannual Met Tower Test, 06/07/2011

WO 40086599 01, U3 Multiple White/Bad Indications Related to 60 Meter Tower, 07/01/2011
Turkey Point Gas Meter Excel Spread Sheet Calibration Data for Calendar Year (CY) 2009,
CY 2010, and CY 2011

CAP Documents

FL Department of Health Nuclear Power Plant Surveillance Program, Self-Assessments for
2009, 2010, and 2011

JNA-09-005, REMP Audit, 7/29/09

PTN-10-022, REMP/Environmental Protection Audit, 8/30/10

PTN-10-028, Chemistry Control Program and Effluents Program Audit, 1/06/11

AR No. 00477028, 2010-11412 – Aggregate review is needed of equipment, software

AR No. 00572855, There were minor administrative and format issues in REMP

AR No. 00574199, CAP not used for REMP compliance issues

AR No. 01618126, REMP air sampler at Florida City substation (T52)

AR No. 01633838, 60 meter tower OOS since 12/15/10, no apparent reason

AR No. 01720828, South Dade 60 meter tower data recovery

71124.06: Effluents

ARs generated during the inspection

AR 01725179, Abandonment of Post Accident Containment Ventilation

AR 01727896, Adequacy of Installed DRM1 as Compensatory Measure for RD-3-20

AR 01728157, Engineering to evaluate concerns associated with RAD-3/4-6458

AR 01727802, 0-ADM-502 Requires revision to reflect PACV deletion