



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

October 30, 2007

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

SUBJECT: TURKEY POINT NUCLEAR PLANT – INTEGRATED INSPECTION REPORT
05000250/2007004 AND 05000251/2007004

Dear Mr. Stall:

On September 30, 2007, 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 October 18, 2007, with Mr. W. Jefferson and other members of your staff.

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

Based on the results of this inspection, the inspectors identified one Severity Level IV violation of NRC requirements. Also there were three NRC-identified findings and one self-revealing finding. Four of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because the issues were entered into your corrective action program, the NRC is treating the violations and the findings as non-cited violations consistent with Section VI.A.1 of the NRC Enforcement Policy. If you wish to 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 20555-001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Turkey Point.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document

system (ADAMS). Adams is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Steven J. Vias, Chief
Reactor Projects Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report 05000250/2007004 and 05000251/2007004
w/Attachment: Supplemental Information

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Letter to J. A. Stall from Steven J. Vias dated October 30, 2007

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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: 05000250/2007004, 05000251/2007004

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

Facility: Turkey Point Nuclear Plant, Units 3 & 4

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

Dates: July 1 to September 30, 2007

Inspectors: J. Stewart, Senior Resident Inspector
M. Barillas, Resident Inspector
S. Sanchez, Resident Inspector, St. Lucie
J. Rivera-Ortiz, Reactor Inspector (1R08)
C. Fletcher, Reactor Inspector (1R08)
B. Miller, Reactor Inspector (1R08)
L. Lake, Sr. Reactor Inspector (1R08)
C. Peabody, Reactor Inspector (4OA5)
G. Kuzo, Senior Health Physicist (Sections 2OS2, 2PS1, 4OA1)
R. Hamilton, Senior Health Physicist, (Sections 2OS1, 4OA1)
A. Nielsen, Health Physicist (Sections 2PS2)

Accompanied By: R. Torres, General Engineer - NSPDP

Approved by: S. J. Vias, Chief
Reactor Projects Branch 3
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000250/2007-004, 05000251/2007-004; 7/1/2007 – 9/30/2007; Turkey Point Nuclear Power Plant, Units 3 and 4; Inservice Inspection, Refueling and Other Outage Activities, Radioactive Material Processing and Transportation, Problem Identification and Resolution, and Event Follow-up

The report covered a three month period of inspection by resident inspectors, region based reactor inspectors, and health physicists. One non-cited Severity Level IV (SL IV) violation and three non-cited violations were 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 NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process", Revision 4, dated December 2006.

A. Inspector Identified & Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation (NCV) of 10 CFR 50.55a(g)(4) for the failure to perform periodic leakage testing of buried piping portions of the Intake Cooling Water system as required by Section XI of the ASME Code for the third 10-year Inservice Inspection interval for Units 3 and 4. The licensee entered this issue into their corrective action program for resolution.

This finding is more than minor because it affects the Equipment Performance attribute of the Mitigating Systems cornerstone objective of ensuring availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding is of very low safety significance because it was not a design issue resulting in a loss of operability, did not represent an actual loss of a system's safety function, did not result in exceeding a technical specification (TS) allowed outage time, and did not affect external event mitigation. The inspectors determined that this finding had no cross-cutting aspect. (Section 1R08)

- No Color: The inspectors identified a non-cited, SL IV violation of TS 6.8.5 when inappropriate blanket overtime was authorized for thirty-eight electrical maintenance personnel for the entire Unit 3 fall 2007 refueling outage. This issue was promptly discussed with licensee management, the authorization was rescinded, and action was taken by the licensee to manage overtime in accordance with the technical specification requirements. The licensee entered this issue into their corrective action program for resolution.

This finding was evaluated using traditional enforcement since it impacted the regulatory process in that the non-compliance with technical specifications was authorized at an executive level, which could become a more significant safety concern. This finding is of very low safety significance because there were no

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actual adverse plant or equipment conditions attributed to worker fatigue.
(Section 1R20)

- Green. The inspectors identified a finding when the licensee did not identify and correct an adverse trend of recurring problems with the alternate shutdown communications system. When identified, the licensee entered the issue into the corrective actions program and initiated a review of reliability issues with the communications equipment.

The finding is more than minor because it affects the availability and reliability of the communications system used by plant operators to mitigate certain fire scenarios. The issue was of very low safety significance because an alternate communications system (radios) was available, if needed. The cause was related to the cross-cutting area of problem identification and resolution because the adverse trend of problems with alternate shutdown communications had not been identified nor corrected by the licensee commensurate with its safety significance. (IMC 305, P.1 (d)) (4OA2)

- Green. A self-revealing NCV of 10 CFR 50, Appendix B, Criterion IV, Procurement Document Control, was identified for improper inserts having been procured and installed in the Unit 3 and Unit 4 rod position circuitry. The inserts were not qualified for the reactor environment and sequentially failed, causing loss of multiple rod position circuits on Unit 3 requiring reactor shutdown. When identified, the affected electrical connectors were replaced with qualified splices. The licensee entered this issue into their corrective action program for resolution.

The failure is more than minor because the reliability of the mitigating rod position indication system is affected. The finding was of very low safety significance because redundant measures of assuring plant shutdown and control using boration were available. The inspector determined that this finding had no cross-cutting aspect. (4OA3)

Cornerstone: Public Radiation Safety (PS)

- Green. The inspectors identified an NCV of 10 CFR Part 71.5(a)(1)(v) for the failure of the licensee to follow Department of Transportation (DOT) regulations found in 49 CFR Part 172.201(d) which require shipping papers associated with the transport of radioactive material to contain an emergency response telephone number. All radioactive waste shipments made from November 2006 until September 2007 had an incorrect emergency response phone number listed on the official shipping papers. The licensee entered the issue into the corrective action program under condition report (CR) Number 2007-28133 and intended to correct future shipping papers.

The finding is more than minor because it is associated with the Public Radiation Safety cornerstone attribute and adversely affects the cornerstone objective of ensuring adequate protection of public health and safety from exposure to radioactive materials released into the public domain. Based on the facts that emergency response recommendations required by 49 CFR Part 172.602 were included in the paperwork package for each shipment and that there were no accidents on public roadways that would have required the use of the emergency response phone number, the finding was determined to be of very low safety significance (Green). This finding has a crosscutting area of human performance with work practices aspect (IMC 305, H.4 (a)), because the incorrect emergency response phone number was the result of a transposition error which was not prevented by the use of self and peer checking human error prevention techniques. (Section 2PS2)

B. Licensee Identified Violations

None

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REPORT DETAILS

Summary of Plant Status:

Unit 3 operated at full power throughout the inspection period with the following exception: On September 2, Unit 3 reduced power to 50 percent for testing of main steam safety valves, then proceeded to shutdown the plant for the Cycle 23 refueling outage. The reactor remained shutdown for the remainder of the period.

Unit 4 operated at full power throughout the inspection period with the following exceptions: On July 22, Unit 4 was shutdown, then cooled to Mode 5 to replace the rod position indication circuit connectors at the top of the reactor vessel coil stacks. The unit went critical on July 27 and returned to full power on July 28. On September 26, power was reduced to 58 percent due to a ground that was later found on the C condensate pump power leads. The ground was isolated and reactor power was returned to 100 percent.

1. REACTOR SAFETY

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

1R04 Equipment Alignment

.1 Partial Equipment Walkdowns

a. Inspection Scope

The inspectors conducted three partial alignment verifications of the safety-related systems listed below. These inspections included reviews using 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.

- Unit 3 Auxiliary feedwater, train 2 in accordance with licensee procedure 3-OSP-075.2, Auxiliary Feedwater Train 2 Operability Verification, following a surveillance on the system
- Unit 3 Component cooling water and associated intake cooling water headers during 3B heat exchanger mechanical cleaning, per work order 36019763. Licensee procedure 0-PMM-030.1, Component Cooling Water Heat Exchanger Cleaning was used in the walkdown
- Unit 4 4160 volt electrical distribution using licensee procedure 4-OP-005, 4160 Volt Buses A, B, and D, when the Unit 3 C transformer was removed from service for maintenance and testing

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b. Findings

No findings of significance were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors conducted a detailed walkdown/review of the alignment and condition of the Unit 3 intake cooling water system to verify the capability of the system to meet its design basis function to remove the heat from the component cooling water system during accident conditions to support both reactor heat removal and containment heat removal requirements. The inspectors utilized licensee procedure 3-OP-019, Intake Cooling Water, and drawing 5613-P-633-S (Unit 3 Intake Cooling Water System), as well as other licensing and design documents, when verifying that the system alignment. During the walkdown, the inspectors verified, as appropriate, that: (1) valves were correctly positioned and did not exhibit leakage that would impact the function of any valve; (2) electrical power was available as required; (3) major portions of the system and components were correctly labeled, cooled and ventilated; (4) hangers and supports were correctly installed and functional; (5) essential support systems were operational; (6) ancillary equipment or debris did not interfere with system performance; (7) tagging clearances were appropriate; and (8) valves were locked as required by the licensee's locked valve program. Pending design and equipment issues were reviewed to determine if the identified deficiencies significantly impacted the system's functions. Items included in this review were the operator workaround list, the temporary modification list, system health reports, system description, and outstanding maintenance work requests/work orders. In addition, the inspectors reviewed the licensee's corrective action program to ensure that the licensee was identifying and resolving equipment alignment problems.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

.1 Fire Area Walkdowns

The inspectors toured the following nine plant areas during this inspection period to evaluate conditions related to control of transient combustibles and ignition sources, the material condition and operational status of fire protection systems including fire barriers used to prevent fire damage or fire propagation. The inspectors reviewed these activities using licensee procedure 0-ADM-016, Fire Protection Plan, and 10 CFR Part

50, Appendix R. The licensee's fire impairment lists, updated on an as-needed basis, were routinely reviewed. In addition, the inspectors reviewed the condition report database to verify that fire protection problems were being identified and appropriately resolved. The following areas were inspected:

- Unit 3 emergency diesel generator rooms
- Cable spreading room
- Unit 4 residual heat removal pump rooms
- 3A and 3B battery rooms
- 4A and 4B battery rooms
- Unit 3 4160 volt switchgear rooms
- Unit 4 4160 volt switchgear rooms
- Unit 4 intake cooling water pump area
- Main control room

a. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors witnessed heat exchanger cleaning activities on the 4B component cooling water heat exchanger and the Unit 4 component cooling water heat exchanger performance test. On August 16, 2007, the inspectors observed maintenance personnel perform heat exchanger cleaning under work order 37008257. The inspectors verified that activities were conducted in accordance with licensee procedure 0-PMM-030.1, component cooling water heat exchanger cleaning. The inspectors checked monitoring and trending of heat exchanger performance done weekly using licensee procedure 3/4-OSP-030.4, Component Cooling Water Heat Exchanger Performance Testing, and verified the operational readiness of the system should it be needed for accident mitigation. The inspectors verified that the licensee employed a 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 material condition. Maintenance rule monitoring of the system was verified. The inspectors verified that significant heat sink issues were entered into the corrective action program.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) Activities.1 Inservice Inspection activities other than Steam Generator Tube Inspections, (PWR) Vessel Upper Head Penetration Inspections, and Boric Acid Corrosion Control Programa. Inspection Scope

The inspectors reviewed the implementation of the licensee's ISI program for monitoring degradation of the reactor coolant system (RCS) boundary and risk significant piping boundaries during the Unit 3 Fall 2007 refueling outage. The inspectors' activities consisted of an on-site review of nondestructive examination (NDE) and welding activities to evaluate compliance with the applicable edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Sections V, IX, and XI (Code of record for Turkey Point fourth 10-year ISI interval was 1998 Edition with 2000 Addenda), and to verify that indications and defects (if present) were appropriately evaluated and dispositioned in accordance with the requirements of the ASME Code, Section XI acceptance standards.

The inspectors' review of NDE activities consisted of the examinations described below including the review of their corresponding procedures, NDE reports, equipment and consumables certification records, personnel qualification records, calibration reports, and calibration block fabrication drawings (as applicable).

- Direct observation of ultrasonic (UT) examination of welds 10"-SI-1301-2 and 10"-SI-1301-3 (Category R-A welds, 10-inch pipe-to-elbow, Safety Injection (SI) System, ASME Class 1)
- Direct observation of liquid penetrant (PT) examination of welds 3-CRDM-68, 3-CRDM-66, and 3-CRDM-64 (Category B-O welds, Control Rod Drive Mechanism nozzles, Reactor Coolant System (RCS), ASME Class 1)
- Documentation review of UT examination of weld 8"-RHR-1301-2 (Category R-A weld, 8-inch pipe, Residual Heat Removal (RHR) System, ASME Class 1)

The inspectors' review of recordable indications included a sample from NDE activities performed during last refueling outage to verify that the evaluation and disposition of indications were in accordance with the applicable edition of ASME Code, Section XI, Article IWC-3000. The inspectors selected the following component for review:

- Weld 3-SGB-P: UT indications in a upper shell to head weld (category C-A weld, secondary side of Steam Generator B, ASME Class 2)

The inspectors' review of welding activities included a sample of welds performed since the beginning of the last refueling outage for ASME Class 1 and 2 piping to evaluate compliance with procedures and the ASME Code. The inspectors reviewed work orders,

construction code reconciliation records, weld process control reports, welding procedures, procedure qualification records, certified material test reports for filler material and repair base material, welder qualification records, NDE reports, and NDE personnel qualification records for the following welds:

- FW-1, FW-2, and FW-3: Repair of 3-inch pipe segment upstream MOV-3-535, RCS, ASME Class 1 (Final NDE: PT examination)
- 2"-SI-1303-106 and 2"-SI-1303-206: Replacement of valve 3-873C, 2-inch diameter pipe, Safety Inspection (SI) System, ASME Class 1 (Final NDE: PT examination)
- 2"-SI-2309-506, 2"-SI-2309-606, and 2"-SI-2309-706: Replacement of valve 3-873C, 2-inch diameter pipe, SI System, ASME Class 2 (Final NDE: PT examination)

The inspectors also reviewed the results of the Intake Cooling Water (ICW) piping inspections performed during the third 10-year ISI interval to verify compliance with the requirements of the ASME Code, Section XI, Article IWA-5244 for Class 3 piping. Documents reviewed are in the attachment.

b. Findings

Introduction: The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.55a(g)(4) having very low safety significance for failure to perform periodic leakage testing of buried piping sections of the ICW system as required by Section XI of the ASME Code for the third 10-year ISI interval for Units 3 and 4.

Description: On August 29, 2007, the inspectors identified that the licensee had not performed the required periodic pressure drop test or change in flow rate test for buried piping portions of the ICW system during the third 10-year ISI interval for Units 3 and 4 in accordance with the 1989 Edition of the ASME Code, Section XI, Article IWA-5244. The licensee was committed to this code edition for the third interval on each unit. Both units are currently in the fourth ISI interval and the one-year period allowed to submit for regulatory relief following the third interval had expired at the time of this inspection. The failure to perform the requirements of IWA-5244 constitutes a violation of the ASME Code. The Code required testing for buried piping that is isolable by means of valves. The licensee had not performed this leakage testing because they did not consider the butterfly isolation valves in the system to be sufficient for use as isolation valves.

The buried ICW piping is carbon steel and lined with concrete. Periodic visual inspections of the internal surfaces are conducted via crawl through inspections that primarily look for spalling of the concrete lining. There are no internal or external inspections performed that could identify small through-wall flaws from which leakage could occur. System flow tests were successfully completed on a quarterly basis to

verify sufficient flow was maintained. However, and notwithstanding, the primary means of confirming pressure retaining integrity of buried piping is through the periodic leakage testing required by Section XI of the ASME Code.

Analysis: The inspectors determined the failure to perform the required periodic testing of ICW buried piping was a performance deficiency. This finding was more than minor because it affects the Equipment Performance attribute of the Mitigating Systems cornerstone objective of ensuring availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Should a significant leak or rupture occur due to undetected degradation, this piping could not reliably deliver cooling water to the CCW heat exchangers which, in turn, cool mitigating system components that are needed to respond to an initiating event. This finding was evaluated using Phase 1 of Inspection Manual Chapter 0609, Significance Determination Process (SDP). This finding is of very low safety significance (Green) because it was not a design issue resulting in a loss of operability, did not represent an actual loss of a system's safety function, did not result in exceeding a technical specification (TS) allowed outage time, and did not affect external event mitigation. The inspectors determined that this finding had no cross-cutting aspect.

Enforcement: 10 CFR 50.55a(g)(4) requires, in part, that throughout the service life of a boiling or pressurized water reactor facility, components classified as ASME Code Class 1, 2, and 3 must meet the requirements set forth in Section XI of the ASME Code. The 1989 Edition of Section XI, IWA-5244, Buried Components states "(a) In nonredundant systems where the buried components are isolable by means of valves, the visual examination VT-2 shall consist of a leakage test that determines the rate of pressure loss. Alternatively, the test may determine the change in flow between the ends of the buried components..." Contrary to this, the licensee failed to perform the required testing on buried portions of the Class 3 ICW system during the third 10-year ISI interval for Unit 3 (02/22/1994 - 02/21/2004) and Unit 4 (4/15/1994 - 4/14/2004) for which the 1989 Edition of the ASME Code was applicable. Therefore, because this finding is of very low safety significance (Green) and because this issue was entered into the licensee's corrective action program (CR 2007-26148), it is being treated as a Non-Cited Violation (NCV) consistent with Section VI.A.1 of the Enforcement Policy. This NCV is identified as NCV 050000250,251/2007004-01, Failure to Perform Required ASME Code Section XI Leakage Testing.

.2 PWR Vessel Upper Head Penetration (VUHP) Inspection Activities

a. Inspection Scope

The inspectors reviewed licensee procedures and the results of all visual inspections performed since the Unit 3 Fall 2004 refueling outage (procedure 0-OSP-041.26) to identify potential boric acid leaks from pressure-retaining components above the VUH as required by NRC Order EA-003-09. The inspectors also reviewed the licensee's effective degradation years calculation, which was performed to determine the VUH's

susceptibility category and its examination requirements. There were no volumetric or bare metal visual exams scheduled for the Fall 2007 refueling outage.

b. Findings

No findings of significance were identified

.3 Boric Acid Corrosion Control (BACC) Inspection Activities

a. Inspection Scope

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, personnel qualifications, and the results of the licensee's containment walkdown inspections performed during the Unit 3 Fall 2007 outage. The inspectors also conducted an independent walkdown of the reactor building to evaluate compliance with licensee's BACC program requirements and verify that degraded or non-conforming conditions, such as boric acid leaks identified during the containment walkdown, were properly identified and corrected in accordance with the licensee's BACC and Corrective Action Programs.

The inspectors reviewed a sample of engineering evaluations completed for evidence of boric acid found on systems containing borated water to verify that the minimum design code required section thickness had been maintained for the affected components. The inspectors selected the following evaluations for review:

- CR 2007-27330, Boric acid indications found on components during reactor coolant system cooldown containment walkdown
- CR 2007-26978, Boric acid indication at pipe cap downstream of valve 3-547A
- CR 2007-7322, Boric acid indications on the bolted flange connections of valve TCV-3-143, non-regenerative heat exchanger outlet to volume control tank
- CR 2006-10654, Boric acid indications on D-3 high pressure fitting on the Unit 3 seal table

b. Findings

No findings of significance were identified

.4 Steam Generator (SG) Tube Inspection Activities

a. Inspection Scope

The inspectors reviewed licensee documentation and performed direct observation of licensee and vendor activities related to the eddy current examination (ECT) of Unit 3 SGs A, B, and C tubes during the Fall 2007 refueling outage to verify that inspection activities were being conducted in accordance with Technical Specifications and applicable industry standards. The inspectors' document review covered the vendor's inspection plan, pre-outage degradation assessment, pre-outage condition monitoring and operational assessment, inspection procedures, site specific ECT technique validation, examination technique specification sheets (ETSS), ECT probe certificates of compliance, and personnel qualifications. The inspectors performed direct observation of data acquisition activities along with verification of equipment settings for ongoing data acquisition. The inspectors also reviewed ECT electronic data for SG-A tubes R37C47, R31C44, R12C19; SG-B tubes R30C42, R34C53, R39C64; and SG-C tubes R32C19, R20C67, R29C73, and R34C31 to verify the adequacy of the licensee's primary, secondary, and resolution analyses. In addition, the inspectors reviewed a sample of visual inspection activities of the SG-B secondary side to verify that foreign parts were identified and proper corrective actions were taken in accordance with the licensee's Steam Generator Secondary Side Integrity Plan.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI-related problems, including welding, BACC, and SG ISI that were identified by the licensee and entered into the corrective action program as Condition Reports (CRs).

The inspectors reviewed the CRs to confirm that the licensee had appropriately described the scope of the problem and had initiated corrective actions. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10CFR 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 of significance were identified.

1R11 Licensed Operator Regualification Program

a. Inspection Scope

On July 12, 2007, the inspectors observed and assessed licensed operator performance in the plant specific simulator. The simulated events were completed in accordance with the licensee's Emergency Preparedness, Team Bravo drill. The inspectors observed the operator's use of 3-ONOP-100, Fast Power Reduction, 3-EOP-E-0, Reactor Trip and Safety Injection, 3-EOP-E-3, Steam Generator Tube Rupture. The operator's actions were checked to be in accordance with licensee procedures. Event classifications (Unusual Event and Alert) were checked for proper classification and completion of state notification forms. The licensee simulated emergency plan notifications. The simulator board configurations were compared with actual plant control board configurations concerning recent plant modifications. The inspectors specifically evaluated the following attributes related to operating crew performance:

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

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the following four equipment problems and associated condition reports to verify that the licensee's maintenance efforts met the requirements of 10 CFR 50.65 Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants and Administrative Procedure 0-ADM-728, Maintenance Rule Implementation. The inspectors' efforts focused on maintenance rule scoping, characterization of maintenance problems and failed components, risk significance, determination of (a)(1) classification, corrective actions, and the appropriateness of established performance goals and monitoring criteria. The inspectors also interviewed responsible engineers and observed some of the corrective maintenance activities. The inspectors checked that when operator actions were credited to prevent failures, the

operator was dedicated at the location needed to accomplish the action in a timely manner, and that the action was governed by applicable procedures. Furthermore, the inspectors verified that equipment problems were being identified and entered into the corrective action program. The inspectors used licensee engineering procedure EDI-ENG-025, Management and Administration of Maintenance Rule Processes, and the applicable system health reports in the reviews.

- CR 2007-20954, Boric acid storage tank level below technical specification limits
- CR 2006-24561, Unit 3 Rod M-6 position indication inoperable
- CR 2007-15763, 4A emergency diesel generator fails to start during surveillance test
- CR 2007-21655, MOV-3-1403 auxiliary feedwater steam supply valve fails to stroke after maintenance

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

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

- July 9, Unit 3 risk assessment when left side starting air for 3B emergency diesel generator was removed from service to replace the air tank relief while auxiliary feedwater valve MOV-3-1403 was removed from service for starter replacement.
- August 1, Unit 3 risk assessment after failure of 3CD air compressor when the temporary air compressor was disconnected to allow heavy loads on condensate road.
- August 9, Unit 4 risk assessment after the 4A CCW pump was declared inoperable due to an empty outer bearing trico oiler identified on the pump.
- August 14, risk assessment and management after 230 KV Lindgren line isolated causing Galloway tap breaker cycling (CR 2007-24504)

- September 11, Unit 4 risk assessment and management when the Unit 3A 4160 volt bus was removed from service for maintenance. The inspector also checked status of switchyard work and its impact on the Unit 4 risk assessment.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

For the four operability evaluations described in the CRs listed below, the inspectors evaluated the technical adequacy of the 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 that the system or component remained available to perform its intended function. In addition, the inspectors reviewed compensatory measures implemented to verify that the compensatory measures worked as stated and the measures were adequately controlled. The inspectors also reviewed a sampling of condition reports to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations.

- CR 07-20863, Lubrication of the starter contacts for auxiliary feedwater steam supply valve, MOV-3-1403
- CR 2007-22670, 3A emergency diesel generator fuel oil leak between day tank and skid tank, the leak size was determined to be undetectable and the leak rate was found to be less than one drop per week from a carbon steel mechanical connection. No cracking was found and there was no propagation mechanism. The licensee wrote work request 37008781 to tighten the mechanical fitting at the next availability
- CR 2007-24022, Oil level in 4A CCW pump outboard oiler found empty
- CR 2007-23420, missing bolts on 4A CCW/ICW basket strainer

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

For the five post maintenance tests listed below, the inspectors reviewed the test procedures and either witnessed the testing and/or reviewed test records to determine whether the scope of testing adequately verified that the work performed was correctly

completed and demonstrated that the affected equipment was functional and operable. The inspectors verified that the requirements of licensee procedure 0-ADM-737, Post Maintenance Testing, were incorporated into test requirements. The inspectors reviewed the following work orders (WO) and/or surveillance procedures (OSP):

- Unit 3, WO 35018629, timed stroke test open and shut following MOV-3-843A grease inspection,
- Unit 4, WO 36024998-3, sealing of control room barrier electrical conduit 106F-355, done in accordance with licensee procedure 0-CME-016, Fire Barrier Breach and Closure,
- Unit 3, WO 37005475, timed stroke open and shut following starter inspection on motor operated valve, MOV-3-1403. Condition report CR2007-20730 was reviewed by the inspectors. The report was written after the MOV failed to open during a surveillance test following the maintenance,
- Unit 3, WO 37014965, stroke open and close following starter contact replacement on AFW steam supply valve MOV-3-1403, and
- Unit 4, WO 37004782, leak check on ICW/CCW basket strainer BS-4-1403 following annual preventive maintenance.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities

.1 Unit 4 Short Notice Outage

a. Inspection Scope

The inspectors observed the licensee's Unit 4 outage activities for the short notice outage done to repair rod position indication connectors. In particular, the inspectors observed or reviewed the following outage related activities:

- Outage risk management,
- Reactor plant shutdown and cooldown per operating procedure 4-OSP-041.7, Reactor Coolant System Heatup and Cooldown Temperature Verification,
- Licensee's boric acid corrosion walkdown inside containment,
- Configuration control including reactor coolant system overpressure protection,
- Readiness of containment sump for restart (foreign materials walkdown),
- Reactor plant restart and return to power operations, and
- Problem identification and resolution during the outage.

b. Findings

No findings of significance were identified.

.2 Unit 3 Refueling Outage

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

.2.01 Review of Outage Plan

a. Inspection Scope

Prior to the outage, the inspectors reviewed the licensee's outage plan and risk management activities. Licensee procedure O-ADM-051, Outage Risk Assessment and Control, and various maintenance schedules were reviewed to verify that the licensee had performed adequate risk assessments and had implemented risk-management strategies as required by 10 CFR 50.65(a)(4).

b. Findings

No findings of significance were identified.

.2.02 Monitoring and Shutdown Activities

a. Inspection Scope

The inspectors observed portions of the plant shutdown and cooldown in accordance with FPL procedure 3-GOP-305, Hot Standby to Cold Shutdown, to verify that cooldown restrictions and similar procedural requirements were followed and that other risk reduction activities were done in accordance with the licensee's plans and procedures.

b. Findings

No findings of significance were identified.

.2.03 Licensee Controls of Outage Activities

a. Inspection Scope

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

- Clearance and foreign material exclusion activities
- Reactor coolant system instrumentation management
- Configuration of electrical systems
- Decay heat removal operations
- Spent fuel cooling operations
- Inventory management including controls to minimize any loss of inventory events
- Reactivity controls
- Containment closure as required by technical specifications

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

b. Findings

No findings of significance were identified.

.2.04 Reduced Inventory and Mid-loop Conditions

a. Inspection Scope

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

b. Findings

No findings of significance were identified.

.2.05 Refueling Activities

a. Inspection Scope

The inspectors observed fuel handling operations (removal and insertion) and other ongoing activities to verify that those operations and activities were being performed in accordance with technical specifications and approved procedures. Also, the inspectors observed refueling activities to verify that the location of the fuel assemblies was tracked, from core offload through core reload. Checks were made of foreign material controls in vicinity of the open reactor vessel.

b. Findings

No findings of significance were identified.

.2.06 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed outage related items that had been entered into the licensee's corrective action program to verify that the licensee had identified and resolved problems at an appropriate threshold. Specific activities reviewed included:

- CR 2007-27481, Thermowell TE-3-420A/B water intrusion
- CR 2007-27681, Overtime authorization for electrical department

Additionally, the inspectors reviewed the licensee's crane and heavy lift activities. The inspectors reviewed Final Safety Analysis Report (FSAR) Appendix 5I and the design basis documents related to control of heavy loads, and 10 CFR 50.59 Plant Changes/Modifications associated with the containment polar crane. The inspectors noted that the licensee had not done a heavy load analysis. The inspectors reviewed plant procedures 3-GMP-051.1, Reactor Polar Crane Inspection and Periodic Maintenance, 0-ADM-717, Heavy Load Handling, and 0-GMM-043.8, Reactor Vessel Head Lifting. The inspectors verified the licensee has a polar crane preventive maintenance program in place, the vessel head lift procedures conform to heavy load handling commitments, a safe load path is in place, and crane operator training and qualifications meet ANSI B30.2-1976 standards. The inspectors observed the reactor vessel head lift and movement during the unit 3 outage to verify procedures were followed.

b. Findings

Introduction: (No color) A Non-Cited Violation (NCV) of Technical Specification (TS) 6.8.5 was identified by the inspectors when a blanket authorization was granted to the electrical department allowing them to exceed the working hour guidelines for the plant staff who perform safety-related functions.

Description: On September 2, 2007 Unit 3 began its refueling outage. During review of the licensee's refueling outage activities on September 11, 2007, the inspectors identified that thirty-eight electrical maintenance personnel had been authorized overtime by a blanket memorandum (Inter-Office Correspondence, Vice-President Turkey Point, signed September 9, 2007). The inspectors noted that the memorandum authorized workers to exceed the licensee's established limits for the duration of the outage and had not been done in accordance the technical specification requirement for overtime management. The inspectors discussed this issue with licensee management

and the authorization was rescinded. Plant management stated that they did not intend to authorize overtime in excess of procedural guidelines for the duration of the outage.

The inspectors reviewed TS 6.8.5 which requires administrative procedures that limit working hours. Plant procedure QI I-PTN-1, Organization, implements the requirement and states the following overtime limits:

1. No more than 24 hours worked in any 48 hour period.
2. No more than 72 hours worked in any consecutive 7 day period.
3. At least 8 hours break in between work periods.

Any deviations from the working hour guidelines shall be authorized by an appropriate department manager or higher level management, in accordance with established procedures and with documentation stating the reason for granting the deviation.

The Inter-Office Correspondence gave blanket authorization to exceed all of the stated limits. The inspectors determined that this practice would be in violation of the technical specification because established procedures were not followed. NRC Generic Letter 82-12, Nuclear Power Plant Staff Working Hours, specified limits on overtime and stated that deviations from the limits were to be for "very unusual circumstances".

Analysis: The inspectors concluded that blanket authorization for the electrical department that covered the entire Unit 3 refueling outage period did not follow technical specification required procedures. This issue was evaluated using traditional enforcement since it impacted the regulatory process in that the non-compliance with technical specification required processes was authorized at an executive level, which could become a more significant safety concern. The violation affected the Mitigating Systems cornerstone and was of very low safety significance because there were no actual adverse plant or equipment conditions identified that the licensee attributed to fatigue. When identified, action was taken to manage overtime in accordance with the licensee's procedure and technical specifications. This violation is in the licensee's corrective action program as CR 2007-27681.

Enforcement: Turkey Point Technical Specification 6.8.5 requires that any deviation from working hour guidelines be authorized in accordance with established procedures and that routine deviation from the guidelines shall not be authorized. The licensee implements this requirement using administrative procedures QI I-PTN-1, Organization, which provides the licensee's overtime limits and an individual form to be used for deviation authorization from the limits. Contrary to the above, in an executive memorandum signed on September 9, 2007, a blanket overtime authorization (no individual forms) was granted which allowed routine deviation from the overtime limits during the Unit 3 outage. When identified to the licensee by the inspectors, the authorization was rescinded and the issue documented in the corrective action program as CR 2007-27681. Because this violation was of very low safety significance and had been entered into the licensee's corrective action program, the issue is being treated as

a non-cited violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000250/2007004-02, Inappropriate Blanket Overtime Authorization.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors either reviewed or witnessed the following three surveillance tests to verify that the tests met the technical specifications, the FSAR, 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 the plant to ensure that conditions were adequately addressed by the licensee staff and that after completion of the testing activities, equipment was returned to the positions/status required for the system to perform its safety function. The inspectors verified that surveillance issues were documented in the corrective action program.

- Unit 4, 4-OSP-023.1, Diesel Generator Operability Test, Section 7.2, 4B EDG Normal Start Test
- Unit 4, 4-OSP-206.1, Inservice Valve Testing – Cold Shutdown, Section 7.8 , Fail-safe testing of POV-4-2600, 2601, 2602, and 2603. (IST, containment isolation)
- Unit 3, 3-OSP-023.1, Diesel Generator Operability Test, Section 7.2, 3B EDG Normal Start Test

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification listed below to ensure that it did not adversely affect the operation of the affected systems. Design documentation, including the 10 CFR 50.59 screening and technical specifications were checked for proper implementation. The inspectors walked down the installation during plant tours and discussed system status with engineering and operations personnel.

- Temporary System Alteration 07-15, Independent power supply for spent fuel cooling pump 3P212B from load center 4C

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

.1 Emergency Preparedness Drill

a. Simulator Based Emergency Drill

Inspection Scope

On July 12, 2007, the inspectors observed the licensee simulator based drill that included evaluation of licensed operator event classification. Results of the drill were used by the licensee as inputs into the Drill/Exercise Performance and Emergency Response Organization Drill Participation Performance Indicators. The simulation involved a Notice of Unusual Event declaration for steam generator tube leakage above technical specification limits and an Alert for a steam generator tube rupture. The Technical Support Center and Emergency Offsite Facility were staffed after the Alert Declaration in accordance with licensee procedures. Subsequently, a simulated loss of offsite power occurred driving the plant to a Site Area Emergency. The inspectors observed the Unusual Event and Alert classification and notifications in accordance with licensee procedure 0-EPIP-20101, Duties of the Emergency Coordinator. At the conclusion of the drill, the inspectors discussed the drill with plant staff and noted that licensee identified problems were documented in the corrective actions program.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Occupational Radiation Safety (OS) Cornerstone

2OS1 Access Control To Radiologically Significant Areas

a. Inspection Scope

Access Controls: During the weeks of September 10, 2007, and September 24, 2007, licensee activities for controlling and monitoring worker access to radiologically significant areas and tasks associated with the Unit 3, Refueling Outage 23 (U3R23) were evaluated. The inspectors evaluated changes to, and adequacy of procedural guidance; directly observed implementation of established administrative and physical radiological controls; appraised radiation worker and technician knowledge of and proficiency in implementing radiation protection activities; and assessed radiation worker (radworker) exposures to radiation and radioactive material.

The inspectors reviewed licensee procedures regarding access control to radiologically significant areas. Selected procedural details for posting, surveying, and access control to airborne radioactivity, radiation area, high radiation area (HRA), locked high radiation area (LHRA), and very high radiation area (VHRA) locations were reviewed and discussed with cognizant licensee representatives. The inspectors evaluated radiation work permit (RWP) controls and observed several work evolutions to assess Health Physics Technician (HPT) proficiency and radiation worker (radworker) practices. The observed work evolutions included removal of a steam generator hand hole cover, sump modifications, installation of robotic eddy current equipment into the steam generator, motor operated valve testing and repairs to a process monitor. Additionally the RWPs for HPT support, seal table work, reactor disassembly and reactor cavity decontamination were reviewed. The selected RWPs were assessed for adequacy of access controls and specified electronic dosimeter (ED) alarm setpoints against expected work area dose rates and work conditions. The inspectors observed the radiation protection (RP) coverage being provided by the facilities remote monitoring facility and interviewed the supervisor of the facility to determine the capabilities, amount of redundancy and contingencies in the event of loss of video, audio or telemetry communications or the loss of power. Access control procedures for posted LHRA and VHRA locations were reviewed and discussed with selected RP management, supervision, and technicians.

During facility tours, the inspectors evaluated selected radiological postings, barricades, and surveys associated with radioactive material storage areas and radiologically significant areas within the Unit 3 (U3) and Unit 4 (U4) reactor auxiliary building (AB) areas, U3 and U4 spent fuel pool (SFP) buildings, Radioactive Waste Processing facility, and the U3 reactor containment building (RB). The inspectors conducted independent dose-rate measurements at various building locations and work areas, and compared those results to licensee radiation survey map data. The inspectors independently assessed implementation of LHRA controls, and evaluated the adequacy of the licensee's LHRA and VHRA key controls through procedural reviews, supervisory interviews, and facility tours.

During the inspection, the proficiency and knowledge of the radiation workers and RP staff in communicating and applying radiological controls for selected tasks were evaluated. The inspectors attended RWP/ pre-job briefings for selected work activities. Radiological worker and RP technician training/skill levels, procedural adherence, and implementation of RWP-specified access controls, including those associated with changing radiological conditions, were observed and evaluated by the inspectors during selected job site reviews and tours within the licensee's radiological control area. In addition, the inspectors interviewed selected management personnel regarding radiological controls associated with work activities.

Radiation protection activities were evaluated against Updated Final Safety Analysis Report (UFSAR) Section 12, Radiation Protection; TS Sections 6.8.1, Procedures, and 6.12, High Radiation Area; 10 CFR 19.12; 10 CFR Part 20, Subparts B, C, F, G, H, and

J; and approved licensee procedures. The procedures and records reviewed are listed in section 2OS1 of the report Attachment.

Problem Identification and Resolution: CRs associated with access control to radiologically significant areas, radiation worker performance, and RP technician proficiency were reviewed and assessed. The CRs listed in the Attachment were reviewed and evaluated in detail during inspection of this program area. The inspectors assessed the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with Florida Power and Light - Nuclear Administrative Procedure (NAP)-204, Condition Reporting, Revision 13.

The inspectors completed 21 of the required 21 samples for Inspection Procedure (IP) 71121.01.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls

a. Inspection Scope

As Low As Reasonably Achievable (ALARA). Inspectors reviewed ALARA program guidance and its implementation for ongoing U3R23 job tasks. The inspectors evaluated the accuracy of ALARA work planning and dose budgeting, observed implementation of ALARA initiatives and radiation controls for selected jobs in-progress, assessed the effectiveness of source-term reduction efforts, and reviewed historical dose expenditure information.

Projected dose expenditure estimates detailed in ALARA planning documents were compared to actual dose expenditures, with noted differences discussed with cognizant ALARA staff or job sponsors. Changes to dose budgets relative to changes in job scope and emergent work also were discussed. The inspectors attended pre-job briefings and evaluated the communication of ALARA goals, RWP requirements, and industry lessons-learned to job crew personnel.

The implementation and effectiveness of ALARA planning and program initiatives during work in progress were evaluated. The inspectors made direct field or closed-circuit-video observations of work activities involving sump modifications, steam generator maintenance activities, weld overlay work, coatings refurbishment work, pressurizer and valve maintenance activities. For the selected tasks, the inspectors evaluated radworker and HPT job performance; extent of management oversight; individual and collective dose expenditure versus percentage of job completion; surveys of the work areas, appropriateness of RWP requirements, and adequacy of implemented engineering controls. The inspectors interviewed radworkers, job sponsors, and management

regarding understanding of dose reduction initiatives and their current and expected final accumulated occupational doses at completion of the job tasks.

Implementation and effectiveness of selected program initiatives with respect to source-term reduction were evaluated. Shutdown chemistry program actions and cleanup initiatives, and their effect on U3 RB and the U3 AB area dose rates were compared to previous refueling outage trending data. The effectiveness of selected shielding packages installed for the current outage was assessed through reviews of survey records and comparisons with observed dose rates. Cobalt reduction initiatives and their implementation for U3 valve maintenance and/or replacement activities were evaluated and discussed with both ALARA and maintenance staff.

The plant collective exposure history for calendar years (CY) 2004 through CY 2006, based on the data reported to the NRC pursuant to 10 CFR 20.2206 (c), was reviewed and discussed with licensee staff, as were established goals for reducing collective exposure. Dose rate trending data for selected in-plant monitoring points and/or equipment, e.g., steam generators, were reviewed and compared to data collected from previous U3 outages. The inspectors reviewed procedural guidance for, and examined dose records of declared pregnant workers to evaluate assessment and assignment of gestation dose, as applicable.

ALARA program activities and their implementation were reviewed against 10 CFR Part 20 and approved licensee procedures. In addition, licensee performance was evaluated against Regulatory Guide (RG) 8.8, Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be As Low As Reasonably Achievable; RG 8.10, Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As is Reasonably Achievable; and RG 8.13, Instruction Concerning Prenatal Radiation Exposure. Procedures and records reviewed within this inspection area are listed in Section 2OS2 of the report Attachment

Problem Identification and Resolution. Licensee CAP documents associated with ALARA activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with NAP-204, Condition Reporting, Rev. 13. The inspectors also discussed post-job reviews with licensee supervisors and evaluated whether issues were appropriately entered in the CAP. Specific self-assessments and CR documents reviewed in detail for this inspection area are identified in Section 2OS2 of the report Attachment.

The inspectors completed 15 of the required line-item samples, and 5 of the optional line-item samples detailed in IP 71121.02.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety (PS)

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systemsa. Inspection Scope

Current licensee programs for monitoring, tracking, and documenting the results of both routine and abnormal liquid releases to onsite and offsite surface and ground water environs were reviewed and discussed in detail. Recent changes to the Offsite Dose Calculation Manual (ODCM) regarding recently established groundwater monitoring wells, and any abnormal liquid releases and corrective actions including the status of 10 CFR 50.75.g spill data were discussed with responsible licensee representatives. In addition, radioanalytical results from selected groundwater monitoring wells, man-holes, and surface drain samples collected from monitoring locations within the owner controlled area were discussed in detail. All tritium and gamm-emitting radionuclide concentration results were significantly less than detection levels or below established ODCM limits. Licensee current capabilities and routine surveillances to minimize and rapidly identify any abnormal leaks from liquid radioactive waste tanks, processing lines, and spent fuel pools were reviewed and discussed in detail. In addition, the inspectors reviewed and discussed current licensee guidance for reporting any potential releases to offsite groundwater environs

The inspectors completed the two of the specified radiation protection line-item samples detailed in IP 71122.01.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportationa. Inspection Scope

Waste Processing and Characterization. During inspector walk-downs, accessible sections of the liquid and solid radioactive waste (radwaste) processing systems were assessed for material condition and conformance with system design diagrams. Inspected equipment included liquid waste demineralizer skids; resin transfer piping; resin and filter packaging components; and abandoned distillate demineralizers. The inspectors discussed component function, processing system changes, and radwaste program implementation with licensee staff.

The 2006 Radioactive Effluent Report and radionuclide characterizations from 2005 - 2007 for each major waste stream were reviewed and discussed with radwaste staff. For Primary Resin and Dry Active Waste (DAW) the inspectors evaluated analyses for hard-to-detect nuclides, reviewed the use of scaling factors, and examined comparison

results between licensee waste stream characterizations and outside laboratory data. Waste stream mixing and concentration averaging methodology for resinous waste was evaluated and discussed with licensee staff. The inspectors also reviewed the licensee's procedural guidance for monitoring changes in waste stream isotopic mixtures.

Radwaste processing activities and equipment configuration were reviewed for compliance with the licensee's Process Control Program (PCP) and Final Safety Analysis Report (FSAR), Chapter 11. Waste stream characterization analyses were reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 61, and guidance provided in the Branch Technical Position on Waste Classification and Waste Form. Reviewed documents are listed in Section 2PS2 of the report Attachment.

Transportation The inspectors directly observed preparation activities for a shipment of contaminated laundry. The inspectors noted package markings and placarding, performed independent dose rate measurements, and interviewed shipping technicians regarding DOT regulations.

Five shipping records were reviewed for consistency with licensee procedures and compliance with NRC and DOT regulations. The inspectors reviewed emergency response information, DOT shipping package classification, radiation survey results, and evaluated whether receiving licensees were authorized to accept the packages. For selected shipment records, the licensee's handling of Type B shipping casks was compared to Certificate of Compliance (CoC) requirements. In addition, training records and training curricula for individuals currently qualified to prepare shipments of radioactive material were reviewed.

Transportation program implementation was reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 71, 49 CFR Parts 172-178; as well as the guidance provided in NUREG-1608. Training activities were assessed against 49 CFR Part 172 Subpart H. Documents reviewed during the inspection are listed in Section 2PS2 of the report Attachment.

Problem Identification and Resolution Selected CRs in the area of radwaste/shipping were reviewed in detail and discussed with licensee personnel. The inspectors assessed the licensee's ability to characterize, prioritize, and resolve the identified issues in accordance with licensee procedure NAP-204, Condition Reporting, Rev. 13. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results. Documents reviewed for problem identification and resolution are listed in Section 2PS2 of the report Attachment.

The inspectors completed 6 of the required samples specified in IP 71122.02.

b. Findings

Introduction: The inspectors identified a Green Non-Cited Violation (NCV) of 10 CFR Part 71.5(a)(1)(v) for the failure to following DOT regulations found in 49 CFR Part 172.201(d) that require shipping papers associated with the transport of radioactive material to contain an emergency response telephone number.

Description: During a review of the records package for radioactive waste shipment number 2006-059, the inspectors noted that the emergency response telephone number listed on the official shipping paper (NRC Form 540) was incorrect. The emergency contact was listed as "control room", however the associated phone number was for an on-site facsimile machine. The licensee performed an extent of condition review and determined that the incorrect phone number had been entered into the shipping database in November 2006, and that all subsequent shipments of radioactive waste contained the wrong contact number on the official shipping papers. Beginning with waste shipment 2006-059, there were a total of 23 shipments made with the incorrect emergency response number.

Analysis: The inspectors determined that this finding is a performance deficiency because licensees are expected to adhere to the regulations of 10 CFR Part 71 and the deficiency was reasonably within the licensee's ability to foresee and correct. The finding is more than minor because it is associated with the Public Radiation Safety cornerstone attribute of Transportation Programs and Processes and adversely affects the cornerstone objective of ensuring adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. The emergency response telephone number on the official shipping paper must be accurate so that emergency responders can quickly contact knowledgeable licensee staff in the event of an accident on public roadways. The finding was assessed using the Public Radiation Safety Significance Determination Process (SDP). Based on the fact that emergency response recommendations required by 49 CFR Part 172.602 were included in the paperwork package for each shipment and the fact that there were no accidents on public roadways that would have required the use of the emergency response phone number, the finding was determined to be of very low safety significance (Green). The inspectors noted that the licensee corrected the emergency response phone number in their shipping database as part of the immediate corrective actions and thus helped to mitigate the potential consequences of this issue. This finding has a crosscutting area of Human Performance with Work Practices aspect (IMC 305, H.4 (a)), because the incorrect emergency response telephone number was the result of a transposition error which was not prevented by the use of self and peer checking human error prevention techniques.

Enforcement: 10 CFR Part 71.5 (a)(1)(v) requires licensees to comply with the applicable requirements of the DOT regulations in 49 CFR Parts 107, 171 through 180. 49 CFR Part 172.201(d) requires shipping papers to contain an emergency response

telephone number. Contrary to this, from November 2006 until September 2007, 23 shipments of radioactive waste were sent for processing/disposal without containing a legitimate emergency response phone number on the shipping papers. Because the failure to comply with 10 CFR Part 71.5 was of very low safety significance and has been entered into the licensee's corrective action program as CR 2007-28113, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 50-250, 251/2007004-03: Failure to Include an Accurate Emergency Response Telephone Number on Radioactive Waste Shipping Papers.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

Initiating Events and Mitigating Systems Cornerstones

a. Inspection Scope

The inspectors checked licensee submittals for the Unit 3 and Unit 4 PIs listed below for the period July 1, 2006, through June 30, 2007, to verify the accuracy of the PI data reported during that period. Performance indicator definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev. 4 and licensee procedure 0-ADM-032, "NRC Performance Indicators Turkey Point," were used to check the reporting for each data element. The inspectors sampled licensee event reports (LERs), operator logs, plant status reports, CRs, and performance indicator data sheets to verify that the licensee had identified the cumulative safety system unavailability and required hours, as applicable. The inspectors discussed the PI data with licensee personnel associated with performance indicator data collection and evaluation.

- Unplanned Scrams and Scrams with Loss of Normal Heat Removal (zero occurrences)
- Unplanned Power Changes per 7000 critical hours
- Safety System Functional Failures
- Mitigating Systems Performance Indicators (MSPI) Emergency AC Power System
- MSPI High Pressure Injection System
- MSPI Heat Removal System
- MSPI Residual Heat Removal System
- MSPI Cooling Water Systems

b. Findings

No findings of significance were identified.

4OA1 Performance Indicator Verification

a. Inspection Scope

The inspectors sampled licensee data for the performance indicators (PIs) listed below, to verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Rev. 4, were used to screen each data element.

Occupational Radiation Safety Cornerstone The inspectors reviewed the Occupational Exposure Control Effectiveness PI results for the Occupational Radiation Safety Cornerstone from January 1, 2006 through August 2007. For the assessment period, the inspectors reviewed electronic dosimeter alarm logs and CRs related to exposure significant area controls. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Report section 2OS1 contains additional details regarding the inspection of controls for exposure significant areas. Documents reviewed are listed in sections 2OS1, 2OS2, 2PS2, and 4OA1 of the report Attachment.

Public Radiation Safety Cornerstone The inspectors reviewed the Radiological Control Effluent Release Occurrences PI results for the period of January 1, 2006 through August 2007. For the assessment period, the inspectors reviewed monthly and quarterly dose calculations to the public, out-of-service effluent radiation monitors, selected compensatory sampling data, and selected CRs related to Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual issues. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in section 2PS1 and 4OA1 of the report Attachment.

The inspectors completed the two specified radiation protection line-item samples detailed in IP 71151.

4OA2 Problem Identification and Resolution

.1 Daily Review

a. Inspection Scope

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

b. Findings

No findings of significance were identified.

.2 Annual Sample Review

a. Inspection Scope

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

- CR 2007-16269, Alternate shutdown communications box internals missing
- CR 2007-17324, Root cause evaluation for multiple rod position indication failures

b. Findings

Introduction: The inspectors identified a Green finding of very low safety significance involving FPL procedure NAP-404, Condition Reporting, in that FPL did not take corrective actions to address recurring problems identified during testing of the alternate shutdown panel communication phones. As a result, the communication system had not demonstrated satisfactory operation during routine surveillance tests for a number of years. During this period, the licensee was able to demonstrate that an alternate radio communication system was available and could be used to assure the safety function would be accomplished, if needed.

Description: On May 27, 2007, operators were attempting to complete surveillance test 3-OSP-300.4, Dedicated Alternate Shutdown Communications Operability Test, when it was discovered that the communication headset and handset for the Unit 3 alternate shutdown panel was not in place and missing. Operators could not identify any open work document, tagging, or out-of-service tracking for the missing equipment. On investigation, the licensee found that the equipment had been removed for repair for

about three months after being found inoperable earlier in the year. When identified, the equipment was restored within a few hours.

Subsequently, the inspectors initiated a review of licensee's testing of the communication equipment. No satisfactorily completed test was found going back to 2001. The licensee entered this problem into the corrective action program as CR2007- 17682. A detailed review of testing and repairs done by the licensee found the following:

Date	Deficiency
6/25/07	U-3 Control room headset will not transmit.
6/25/07	U-3 Turbine deck headset cannot hear.
6/25/07	Cannot hear on U-3 AFW cage headset.
6/25/07	U-3 Low volume on horn speaker and headset in BAST room.
6/25/07	U-3 Horn speaker not working on RHR pump room mezzanine.
6/25/07	Horn not working in the U-3 RHR HX room.
6/25/07	U-4 Headset ear pieces fell of in 4B 4KV and 3B 4KV rooms.
6/25/07	U-4 RHR HX room speaker not working.
6/25/07	U-4 Volume for speaker and headset low in BAST.
6/25/07	U-3 3B 4KV room box was missing the headset connector.
11/30/05	The U-3 TSC headset not working during a walkthrough for training.
11/16/05	U-3&4 The TSC headsets did not work during a walkthrough for training.
8/7/05	U-3 TSC communications box not working. (WO 35017387 was generated above after this WR was entered. The equipment failed again and was fixed under this WO the second time.)
8/7/05	U-4 4B 4KV Box not working.
8/7/05	U-4 TSC communications box not working. (PWO 35017837 was generated above after this WR was entered. The equipment failed again and was fixed under this PWO the second time.)
2/4/04	U-3 3A 4KV Horn speaker not working.
2/4/04	U-3 Containment hatch missing headset jack.
2/4/04	U-3 TSC headset not working.
2/4/04	U-3 Aux building headset was not working.
11-23-03	Unit 3, missing headset jack, one speaker and two headsets do not work

The inspectors questioned the reliability of the communications system and were informed that hand held radios could be used by operators, if the installed communications system or any part of the system was not functional. The inspectors checked the ability of radios to be used throughout the plant, and walked down the radio repeater system to verify its independence and power supply.

Analysis: FPL procedure NAP-204, Condition Reporting, specifies that the Station Issue Tracking and Information System (SITRIS) shall be used to document and resolve

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conditions adverse to quality, including issues within the purview of regulatory programs. The alternate shutdown system is specified by 10 CFR 50, Appendix R. The licensee's failure to identify and correct repeated reliability problems with the remote shutdown communications equipment was a noncompliance with the licensee procedure and was a performance deficiency in the Mitigating Systems cornerstone. The finding was more than minor because it affected the availability and reliability of the communications system designated for use in licensee procedure 0-ONOP-105, Control Room Evacuation. The finding was only of very low safety significance because redundant communications equipment (radios) were available during periods when the designated communication equipment was nonconforming, and the radios could be used with the operable alternate shutdown equipment to safely shutdown the reactor plant. The cause of the finding is related to the cross-cutting area of problem identification and resolution because the adverse trend of problems with alternate shutdown communications had not been identified nor corrected commensurate with its safety significance (IMC 305, P.1(d)).

Enforcement: No violation of regulatory requirements occurred. The inspectors determined that the non-conformances and their resolution although specified by the licensee to be documented in accordance with licensee procedure, NAP-204, Corrective Actions, were not required by regulations because fire protection equipment is not covered by 10CFR50, Appendix B requirements. The licensee entered this issue into the corrective actions program as CR 2007-17682. This issue is being attached as (FIN) 50-250,251/2007004-04: Recurring Problems with Alternate Shutdown Communication Equipment.

4OA3 Event Follow-up

- .1 (Closed) Licensee Event Report 50-250/2007-002-00, Completion of Shutdown Required by Technical Specifications due to Inoperable Rod Position Indication for Two Control Rods in the Same Control Bank

(Closed) Unresolved item (URI) 50-250&251/2007-03-03 Incorrect Connector Components Cause Inoperability of Multiple Rod Position Circuits

On September 1, 2006, the rod position indication for control rod M-6 in Control Bank C was declared inoperable due to erratic oscillation above and below the actual rod position. Similarly, the rod position indication for rods G-5 and E-5 in Control Bank A and Shutdown Bank B were declared inoperable on May 1, and June 2, 2007, respectively. On June 6, the RPI for control rod F-4 in Control Bank C became erratic, operators declared the rod inoperable, Technical Specification 3.0.3 was entered, and Unit 3 was shutdown to Mode 3. The inspectors observed the reactor shutdown and evaluated operator response to the failed RPIs. The inspectors also monitored the licensee investigation and determination of root cause. The licensee found that cable connectors in the rod position indication circuit contained neoprene inserts, which were not capable of retaining physical properties in the high temperature reactor

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environment. The neoprene inserts inspected by the licensee for the affected circuits were discolored and degraded indicating breakdown of the neoprene. The degraded neoprene was found to be conductive and corrosive. The connectors were located at the top of the reactor pressure vessel coil stacks, a high temperature, high radiation area during reactor operation. The licensee subsequently learned that an error during procurement of the cable connectors led to use of neoprene instead of an appropriate silicone insert. All of the affected connectors were removed and replaced with qualified splices. The licensee continued to evaluate various programmatic improvements to prevent procurement problems from recurring in CR 2007-17324. The LER and the unresolved item are closed. Findings are discussed below:

b. Findings

Introduction: A Green Self-Revealing NCV was identified when the licensee did not appropriately specify and procure connectors to be used in rod position indication circuitry in the high temperature, high radiation environment atop the reactor head. As a result, Unit 3 was shutdown after entering Technical Specification 3.0.3, for multiple inoperable rod position indication circuits. Later, Unit 4 was preemptively shutdown to remove the improper materials.

Description: On June 6, Turkey Point Unit 3 was operating at 100% power when operators observed that the rod position indication for control rod F-4 was oscillating above and below 218 steps. After investigation that included verification that the rod was in its correct 218 step position, the RPI was declared inoperable. Because the RPI for control rod M-6, in the same group had been inoperable since September 1, 2006, operators entered Technical Specification 3.0.3 and initiated a plant shutdown to Mode 3. At the time of the shutdown, additional RPIs for rods G-5 and E-5 were inoperable due to erratic behavior and were being compensated as required by technical specifications.

On investigation the licensee found that an improper insert was used in RPI circuit connectors located at the top of the reactor pressure vessel. The improper insert, neoprene, was not designed to withstand the high temperatures and operating reactor radiation which caused the neoprene to breakdown and create a corrosive and conductive environment that ultimately resulted in failed rod position indication. The proper insert had not been used due to faulty procurement during the reactor pressure vessel head replacements for Units 3 and 4 in 2004 and 2005 respectively.

Analysis: Because neoprene could not withstand the operating plant high temperatures and radiation, use of the material in the quality related rod position indication circuits was a performance deficiency. The finding was more than minor and affected the Mitigating Systems cornerstone because its use caused faulty rod position indication which challenged the ability of operators to mitigate rod misalignments and failure of the rods to insert on a trip (faulty rod bottom indication). The finding was only of very low safety significance because redundant indication of rod misalignment or indication of failure of the rods to insert would be available from both the incore and excore nuclear detection systems.

The inspectors noted that the failed indications and reactor shutdown of Unit 3 had an additional consequence that use of the boric acid inventory to assure unit 3 shutdown depleted the acid available for Unit 4, if it had been needed in an emergency. During the period of depleted acid inventory, operators appropriately implemented technical specification tracking and the inventory was restored prior to action statement expirations. Emergency injection of boric acid is used for reactivity excursion events including multiple stuck rod occurrences. The inspectors determined that this finding had no cross-cutting aspect.

Enforcement: 10 CFR 50, Appendix B, Criterion IV, Procurement Document Control, states, in part, that measures shall be established to assure that adequate quality is included in documents for the procurement of equipment. FPL implements this requirement, in part, by implementing quality instruction, QI 4-PTN-1, Procurement Control, which states, in part, that when determining ordering requirements, appropriate design requirements shall be used. Contrary to the above, appropriate design requirements were not used in ordering connectors to be used in the Unit 3 and Unit 4 replacement rod position indication circuitry. Instead, procurement documents allowed a neoprene insert to be used in the connectors which was not suitable for the application and eventually caused failure of multiple rod position indications. The violation existed from the time of application during reactor head replacement outages in 2004 and 2005, until the connectors were removed from the circuits and replaced by splices during unit outages in 2007. Because the failure to appropriately procure connectors was of very low safety significance, and had been entered into the licensee's corrective actions program as CR 2007-17324, this violation is being treated as a Non-Cited violation consistent with Section VI.A of the NRC Enforcement Policy. NCV 50-250,251/2007004-05: Failure to Appropriately Procure Replacement Parts Leads to Reactor Shutdown.

.2 (Closed) Unresolved Item 05000250,251/2007-03-04, Availability and Functionality of Unit 3 and Unit 4 Alternate Shutdown Systems

The unresolved item was issued after the inspector questioned the functionality of the alternate shutdown communications system. The licensee provided information that demonstrated that an alternate radio communications system was available and could be used by plant operators for alternate shutdown, if needed. A finding related to this issue is documented in Section 4OA2 of this report. The unresolved item is closed.

4OA5 Other Activities

TI 2515/166 Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02)

a. Inspection Scope

The inspectors reviewed Unit 3 implementation of commitments documented in their September 1, 2005, response to Generic Letter 2004-02, Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors. Areas reviewed included: Permanent modification of the Containment Recirculation Sump to include a large-area, complex geometry passive strainer

assembly including a cross connect under the fuel transfer canal between the North and South containment sumps as well as replacement of fibrous and particulate insulation with reflective metal insulation.

The inspectors reviewed the corresponding Modifications Packages (PC/Ms), and their corresponding 10 CFR 50.59 evaluations. The inspectors conducted a visual walkdown to verify the installed sump strainer assembly configuration and that insulation replacements were consistent with drawings and specifications provided in the modifications packages.

b. Findings and Observations

No findings of significance were identified.

The inspectors determined the following answers to the Reporting Requirements detailed in TI 2515/166-05 issued 5/16/07:

- 05.a FPL implemented plant modifications and procedure changes at Turkey Point committed to in their GL 2004-02 response for Unit 3. A list of modifications for Turkey Point 3 is in the attachment to this report.
- 05.b FPL updated the Turkey Point 3 licensing bases to reflect the corrective actions taken in response to GL 2004-02.
- 05.c No extensions of 12/31/2007 deadline for GL 2004-02 commitment completions have been applied for or granted to Turkey Point Unit 3. Turkey Point Unit 4 has received an extension and will complete its GL 2004-02 committed modifications and procedural changes during the Spring 2008 Refueling Outage.

TI 2515/166 will remain open until December 31, 2007 for Turkey Point Unit 3 while ongoing chemical effects testing to validate the design are being performed.

4OA6 Exit

Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. Jefferson and other members of licensee management on October 18, 2007. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary information. The licensee did not identify any proprietary information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

J. Antignano, Fire Protection Supervisor
J. Alvarez, Acting Corrective Actions Supervisor
R. Barnes, Training Manager
G. Hettel, Maintenance Manager
J. Connolly, Interim Licensing Manager
R. Hughes, Acting Engineering Manager
D. Hoffman, Operations Superintendent
W. Jefferson, Site Vice-President
E. Lyons, Engineering (BACC)
R. Pell, Acting Operations Manager
K. O'Hare, Radiation Protection and Safety Manager
M. Pearce, Plant General Manager
W. Pravat, Work Controls Manager
D. Sluszka, Radiation Protection Manager
G. Warriner, Emergency Preparedness Manager
W. Webster, Senior Vice President, Operations

NRC personnel:

S. Vias, Chief, Branch 3, Division of Reactor Projects
R. Torres, NRC Nuclear Safety Professional Development Program

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Open

Temporary Instruction (TI) 2515/166 Pressurized Water Reactor Containment Sump Blockage
(NRC Generic Letter 2004-02) Unit 3 (Section 40A5)

Opened and Closed

050000250,251/2007004-01	NCV	Failure to Perform Required ASME Code Section XI Leakage Testing (Section 1R08).
05000250/2007004-02	NCV	Inappropriate Blanket Overtime Authorization. (Section IR20)
050000250, 251/2007004-03	NCV	Failure to Include an Accurate Emergency Response Telephone Number on Radioactive Waste Shipping Papers (Section 2PS2).
0500000250,251/200704-04	FIN	Recurring Problems with Alternate Shutdown Communication Equipment. (Section 4OA2)

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05000250,251/2007004-05	NCV	Failure to Appropriately Procure Replacement Parts Leads to Reactor Shutdown. (Section 4OA3)
<u>Closed</u> 050000250/2007002-00	LER	Completion of Shutdown Required by Technical Specifications due to Inoperable Rod Position Indication for Two Control Rods in the Same Control Bank (Section 4OA3)
050000250,251/200703-03	URI	Incorrect Connector Components Cause Inoperability of Multiple Rod Position Circuits (Section 4OA3)
05000250,251/200703-04	URI	Availability and Functionality of Unit 3 and Unit 4 Alternate Shutdown Systems (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R08: Inservice Inspection Activities

Procedures

NDE 5.4, "Ultrasonic Examination of Austenitic Piping Welds," Revision 17

NDE 3.3, "Liquid Penetrant Examination Solvent Removable - Visible Dye Technique,"
Revision 9

NDE 5.1, "Ultrasonic Examination of Pressure Vessel Welds," Revision 11

54-ISI-24-30, "Written Practice for Personnel Qualification in Eddy Current Examination,"
Revision 12/14/06

54-ISI-400-15, "Multi-Frequency Eddy Current Examination of Tubing," Revision 7/17/06

51-5022683-05, "Turkey Point Unit 3 and 4 Eddy Current Data Analysis Guidelines, Fall 2007,"
Revision 6/15/07

Welding Procedure Specification - 43, Revision 11

0-OSP-041.26, "Containment Visual Leak Inspection," Revision 6/28/2007

0-ADM-537, "Turkey Point Nuclear Plant, Boric Acid Corrosion Control Program Procedure,"
Revision 10/20/2006

Corrective Action Documents

CR 2006-8035

CR 2007-18169

CR 2007-16766

CR 2007-27546

CR 2007-28338

CR 2006-8621

CR 2004-12917

CR 2006-9040

CR 2007-20760

CR 2007-27751

CR 2007-27654

CR 2007-28134

CR 2007-29183

CR 2007-29036

CR 2007-29298

CR 2007-29337

Other Records

PT Examination Reports: 3.3-004, 3.3-005, and 3.3-006

UT Examination Reports: 5.4-002, 5.4-001, and 5.1-001

Certification for PT Examination Consumables: Batch No. 05L17k, 04C15K, and 90J046

Certification for UT Examination Couplant: Batch No. 01225N

Certification for UT Transducers: 00X6D8 and 00X6DC

Fabrication Drawings for Calibration Blocks: UT-27 and UT-41

Welding Procedure Qualification Records: PQR N335, Revision 0; PQR 8.8-4; PQR 8.8-3, PQR N140, Revision 0; and PQR N334, Revision 0

Certified Material Test Reports for Welding Filler Metal UTC Nos. 460927 and 465675

UT Instrument Linearity Record for Instrument Sonic 136/Serial No. 136P1200E081441

Work Order 36008818-01, "3"-RC-2501R-22 Piping, Pressurizer PORV Block Valve MOV-3-535"

Work Order 36007812-02, "SI to Loop C Cold Leg Check Valve"

Turkey Point Unit 3 Cycle 22 System Pressure Testing Final Report for Refueling Outage dates: 3/6/06-5/10/06

Boric Acid Corrosion Control Program Quick Hit Self Assessment Plan and Report for Period dates: 7/1/07-7/31/07

CSI-NDE-07-006, "Turkey Point Unit 3 EOC-22 - Eddy Current Examination Implementation Plan for Steam Generator Tubing," Revision 0

PTN-ENG-SESJ-07-018, "Degradation Assessment for Turkey Point Unit 3 and 4 Steam Generators, Update for the Turkey Point Unit 3 End-of-Cycle 22 Refueling Outage," Revision 0

ENG/CSI-NDE-99-051, "Turkey Point Units 3 and 4 Steam Generator Secondary Side Integrity Plan," Revision 8

51-5029214-07, "Qualified Eddy Current Techniques for Turkey Point (PTN) Units 3 and 4," Revision 7

PTN-ENG-SESJ-05-006, "Condition Monitoring and Operational Assessment for the Turkey Point Unit 3 Steam Generators Based on Eddy Current Examination, End of Cycle 20, October 2004," Revision 0

51-5002881-00, "Appendix H Equivalency, MRPC Exams Probe Extensions, Cable Length and Motor Unit Length," Revision 0

51-500-1223-00, "Appendix H Equivalency Cable Lengths," Revision 0

51-5014354-00, "Eddy Current Probe Extension Cable Comparison," Revision 0

ETSS No. 1 - Bobbin Standard ASME Code Examination, Revision 0

ETSS No. 2 - MRPC TTS and Special Interest, Revision 0

ETSS No. 3 - Low Row U-bend MR Plus Point exam and Special Interest, Revision 0

Data Analysis Personnel Qualification Records for Primary and Secondary Analysts, Primary and Secondary Resolution Analysts, and Qualified Data Analysts

Instrument Calibration Certificates for Eddy Current Testers, Model MIZ-80iD

Certificate of Conformance for ECT probes 680PP and 720UL

Section 2OS1: Access Controls to Radiologically Significant Areas

Procedures, Manuals, and Guidance Documents

- 0-Administrative Procedure (ADM)-038, PTN Industrial Diving Operations, 08/31/05
- 0-ADM-604, Radiological Protection Guidelines and Practices, 02/28/07C
- 0-Health Physics Administrative Procedure (HPA)-021, Radiation Protection Restricted Area Key Control, 08/03/06
- 0-HPA-031, Personnel Monitoring of Internal Dose, 04/09/07
- 0-HPA-031.2, Multibadge Exposure Monitoring, 09/26/06C
- 0-Health Physics Surveillance Procedure (HPS)-020, Radiation Surveys, Dated 08/07/00C
- 0-HPS-021, Surface Contamination Surveys, 04/24/07
- 0-HPS-022, Airborne Contamination Surveys and Remote Containment Air Sampling, 04/09/07
- 0-HPS-025.1, General Posting Requirements for Radiological Hazards, 10/24/06
- 0-HPS-025.2, Posting and Survey Requirements for Fuel Movement, 03/21/07
- 0-HPS-053.6, Postings and Controls for Resin Transfers, 04/10/07C
- 0-HPS-055, Steam Generator Radiation Protection Work Controls, 03/21/07
- 0-HPS-104, Radiography Operations, 08/16/05
- 0-HPS-105, Surveys for Chemical Crud burst and Cleanup of the Reactor Coolant System (RCS), 10/23/06
- 0-HPS-106, Survey & Posting Guidelines for Plant Evolutions, 04/08/05

Licensee Records and Data

- Intake Evaluation For Ingestion on 3/15/06
- Memo to file: Diver Exposure Considerations from Tritium Exposure, Dated 3/6/2007
- Summary of Internal Doses of Divers from Tritium Exposure, Covering period of 11/2-16/2006
- HP-301.1-5,8, Various Checklists for draining or refilling

Corrective Action Program (CAP) Documents

- QAO-PTN-06-005, Chemistry and Effluents Audit, June 20, 2006
- PTN-07-03, Radiation Protection Functional Area Audit, April 30, 2007
- 06-0003, PTN Nuclear Assurance Quality Report, 2006 Radiological Work Permit Reviews, 01/09/06
- 06-0030, PTN Nuclear Assurance Unit 3 Quality Report, Radiological Controls For Unit 3 Cycle 22 Refueling Outage, 04/27/06
- 06-0072, PTN Nuclear Assurance Quality Report, Unit 4 Cycle 23 Refueling Outage (U4R23) Radiation Protection, 12/19/06

07-0010, PTN Nuclear Assurance Quality Report, Radiation Protection And RW Training Program, 02/28/07
07-0013, PTN Nuclear Assurance Quality Report, External Radiation Dose Control, 02/28/07
07-0032, Nuclear Assurance Quality Report, ODCM - Radioactive Effluent Releases, 05/23/07
CR 2006-7095, Shielding could not be installed as planned.
CR 2006-8469, Work Created a Physically Restricted (Narrow) Walkway in Unit 3 Containment
CR 2006-10655, Electronic Dosimeters in Multiple Extremity Dosimetry Packs Not Turned On.
CR 2006-22755, Hotspot Discovered During Survey of a Posted High Radiation Area
CR 2006-23127, Untimely Survey of Dewatered HIC
CR 2006-31441, Worker Briefed Using a Survey From Previous Day In Which Conditions Had Changed.
CR 2006-31649, Administrative Key Issue Problem
CR 2007-2308, Improper Software Classification

Section 2OS2: As Low As Reasonably Achievable

Procedures, Instructions, and Guidance Documents

0-Administrative Procedure (ADM)-602, ALARA Program, 02/09/06C
0-Nuclear Chemistry Operating Procedure(NCOP)-001.1, Primary Chemistry Control During Shutdown, 06/27/07
0-Health Physics Procedure (HPA)-072, Installation, Control, and Removal of Permanent and Temporary Shielding, 04/07/03C
Specification (SPEC)-C-003, Lead Shielding Installation, Turkey Point Units 3 & 4, Rev. 2 U3R23RP Pre-Outage Plan

Records and Data Reviewed

2007 U3 Refuel Outage, ALARA Report, 09/10-14/07 and 09/24-28
2007 U-3 R23 Outage Dose Reporting by RWP; 09/10-14/07 and 09/24-28
Major Job Comparison U3 R23 (estimate), U3 R22 by RWP, 09/11/07
ALARA Review Number (No.) 2007-011, Pressurizer Relief Tank (PRT) Asbestos Abatement, 08/24/07
ALARA Review No. Containment Coatings, 09/05/07
ALARA Review No. 2007-013, Emergency Sump Modification
ALARA Review No. 2007-015, Reactor Coolant Pump (RCP) Bowl Insulation Removal/ Installation, 08/24/07
ALARA Review No. 2007-021, Steam Generator Bundle Flush, Sludge Lance, and FOSAR during the U3 refueling outage, 08/20/07
ALARA Review No. 2007-022, Valve Maintenance in U3 during the U3R23RFO, 08/24/07
ALARA Review No. 2007-024, Insulation Removal and Installation in U3 Containment during the U3R23RFO, 08/20/07
ALARA Review No. 2007-025, Scaffold Installation and Removal in Unit 3 Containment during the U3R23 RFO, RWP-2007-3012, 08/20/07
ALARA Review No. 2007-027, Remove and Replace all Three S/G Strongbacks and Diaphragms, RWP No. 2007-3072, 08/20/07
ALARA Review No. 2007-028, Eddy-current testing of all three S/Gs, Includes RP Surveys and Job Coverage, Shield Door Installation and Removal, QC Inspections, and Nozzle

Cover Installation and Removal, RWP No. 2006-4075, 08/20/07
ALARA Review No. 2007-029, Remove Replace the Support Pins (Split Pins), 08/20/07
ALARA Review Board Meeting Minutes, 08/20/07; Split Pins (2007-029), Insulation (2007-024) Scaffold (2007-025, and Steam Generators (20070021, -028, -029)
ALARA Review Board Meeting Minutes, 08/24/07; PRT Asbestos Abatement (2007-011), Sump Modification (2007-013), Core Bore (2007-014), RCP Insulation (2007-015), AND Valves (2007-022)
ALARA Review Board Meeting Minutes, 09/05/07; Containment Coatings and Annual Review of Radworker Training and Effectiveness, U3 EOC 22, Steam Generator Activities, Pre-Job Exposure Estimate, 07/25/07
Temporary Shielding Request (TSR) Number (No.) 2007-24, Reactor sump mod core bore hole fuel movement, 09/03/07
TSR No. 2007-25, U3 Containment 14', Install Temporary Lead Shielding in Cavity Drain Valve Area, 09/08/07
TSR No. U3 Containment 14' Pressurizer Line Shielding, in accordance with SPEC-C-003, 09/09/07
Unit 3 (U3) Crud Cleanup Trend U3R23 2007
Unit 3 (U3) Crud Cleanup Trend U3R22 2006
SFP Activity, 12/14/05-08/06/07
Drawing No. 5610-M-900-3, Pressurizer Safety Relief Valve RV-3-551A,B,&C; RV-4-551A,B, &C, Rev 2 & Rev. 5
Drawing No. 6610-M-900-3, Y-Globe Valve, Full Port Socket Ends SS 14' IMP TEE Non-Cobalt TH'D Backseat Size: 2' CL:1878
Declared Pregnant Worker Log Sheets and Supporting Dosimetry Documents, November November 2005 through September 2007
HP Survey Log No. 07-4935, U3 Steam Generator A, 09/12/07
HP Survey Log No. 07-4922, U3 Steam Generator B, 09/12/07
HP Survey Log No. 07-4890, U3 Steam Generator A, 09/12/07
HP Survey U3 Steam Generator A, 10/05/04
HP Survey U3 Steam Generator B, 10/05/04
HP Survey U3 Steam Generator C, 10/05/04

CAP Documents

Quality Assurance Audit PTN-07-03, Radiation Protection Functional Area Audit, 04/30/07
CR2006-7095, Engineering specification C-003 Does Not Allow Hanging Temporary Shielding on the Pressurizer Spray Lines at the Top of the Pressurizer and on 455A/B at the Same Time, 03/09/06
CR 2006-32447, A Steam Generator Manway Removal Delayed Due to Misplaced Shield Doors, 11/08/06
CR 2006-33757, WHT Sludge Limits Processing of Radwaste and Increased /changeout of Inlet Filters Added to Doses Received by Personnel Processing, 11/17/06
CR 2007-7136, Containment Briefing Enhancement, 03/09/07
CR 2007-12498, ALARA Review Paperwork is not Consistently Documented in RWP Packages as Required, 04/25/07
CR 2007-14390, Abandoned Plant Equipment is Causing Unnecessary Exposure, 05/09/07

Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Procedures, Instructions, and Guidance Documents

0-ADM-115, Notification of Plant Events, 09/11/07

0-NCAP-103, Secondary Radiochemistry Sampling and Analysis, 06/07/06

Records and Data Reviewed

PTN - Tritium Summary Results, April 2006 - May 2007

Tritium Activity Calculation Worksheet, Manhole Sample Results, 09/27/07

CAP Documents

CR 2006-13488, Sampling man holes in the RCA, 05/03/06

CR 2006-17093, Implementation of Industry Initiative on Inadvertent Releases into Groundwater, 05/10/06

CR 2006-17607, Implementation of NEI Institute Industry Initiative on Managing Situations Involving Inadvertent Radiological Releases into Groundwater, 06/07/06

CR 2006-18007, Radioactive containments and drain on RWST recirc pumps and sampling system inadequate to prevent contamination of ground. Potential source for ground water contamination, 06/12/06

CR 2006-21168, Ground-water contamination due to undetected leakage of radioactive water, 07/20/2006

CR 2007-00721, Equipment deficiency causing contamination at the RWST pump area, 01/09/07

CR 2007-3306, Back leakage of radioactive water into abandoned equipment NP-922, 02/02/07

CR 2007-30281, Tritium samples of manholes in the RCA not being performed when water is found in the manholes, 09/26/07

Section 2PS2: Radioactive Material Processing and Transportation

Procedures, Instructions, and Guidance Documents

0-HPS-040.7, Marking, Labeling and Placarding for Radioactive Waste/Material Shipments, 9/22/04

0-HPS-040.8, Radioactive Waste/Material Surveys for Shipments, 9/22/04

0-HPS-044.2, Characterizing Radioactive Material/Waste for Transport, 11/21/05

0-HPS-044.9, Radioactive Material/Waste Shipment Documentation, 11/21/05
Nuclear Training Department Lesson Plan No. 2402080, Radioactive Material Shipping, 3/7/07

0-HPA-045, Process Control Program, 11/20/02

NAP-204, Condition Reporting, Rev. 13

Records and Data Reviewed

Shipment 2005-055, Dewatered filters, 6/2/05

Shipment 2005-081, Primary resin, 7/13/05

Shipment 2005-101, High-rad trash, 9/9/05

Shipment 2006-059, Core exit thermocouple waste spools, 11/16/06

Shipment 2007-011, Refueling outage equipment, 3/12/07

10 CFR Part 61 Radioactive Waste Stream Analysis Reports, DAW, 10/31/04 and 3/28/06;

Primary Resin, 6/9/06; Resin, 11/8/06
2006 Annual Radioactive Effluent Release Report
New York State Department of Labor Radioactive Materials License No. 2684-3943, 7/22/04
Torque Wrench Calibration Data Sheet, M779, 8/10/05
CoC No. 9168, Model No. CNS 8-120B Shipping Package, Rev. 15

CAP Documents

CR 2006-9123, Rad trash bags <1 mrem/hr found in "Green Is Clean" sealand, 03/24/06
CR 2006-19158, New resin storage cask does not have the required lifting beam, 06/19/06
CR 2006-34270, Steel radwaste liner was deformed upon receipt at Studsvik, 11/22/06
CR 2007-7629, Administrative discrepancies found between PCP and FSAR requirements, 3/15/07
CR 2007-15609, Shipment receipt survey not performed in a timely manner, 05/18/07
CR 2007-28133, Radwaste shipments did not contain an accurate emergency response number on the official shipping papers, 09/12/07
PTN-07-03, Radiation Protection Functional Area Audit, 04/30/07
WMG 07-090-RE-081, Independent Assessment of 10 CFR 61 Compliance and Radioactive Materials Shipping Program, August 2007

Section 40A1: Performance Indicator Verification

Records and Data Reviewed

CAP Documents

CR 2006-4100, R-3-18 Out of Service, 02/13/06
CR 2006-8065, Early termination of 'B' Monitor Tank Release, 03/15/06
CR 2006-8084, Count rate increased during liquid release to warning level, 03/16/08
CR 2006-8462, PRMS radiation Monitor R-3-18 declared inoperable, 03/18/06
CR 2006-00396, Radioactive gas release during VCT purge, 01/06/06
CR 2006-5948, High than expected dose rates in U3 Emergency Escape Hatch, 02/28/06
Gas Gamma Beta Dose Summary Sheets, December 2006, and August 2007
Iodine Dose Summary Sheets, December 2006, and August 2007
Liquid Dose Summary Sheets, December 2006, and August 2007

Plant Modification Packages (40A5)

PC/M 06-030, Containment Recirculation Sump Debris GSI-191 Resolution, Rev. 0
PC/M 06-075, Containment Recirculation Sump Cross-Connect Core Bore, Rev. 1
PC/M 07-006, Reactor Coolant Pump & Pressurizer Surge Line Insulation Replacement, Rev. 0

Status of GL 2004-02 Commitments for Turkey Point 3

GL 2004-02 REQUEST	ACTIONS IMPLEMENTED	STATUS
<p>GL 2004-02 Request 2(b)-“A general description of an implementation schedule for all corrective actions, including any plant modifications that you identified while responding to this generic letter.”</p>	<p>To date FPL has implemented three PC/Ms at Turkey Point 3 to comply with GSI-191, including:</p> <ul style="list-style-type: none"> • 06-030, “Containment Recirculation Sump Debris GSI-191 Resolution” • 06-075, “Containment Recirculation Sump Cross-Connect Core Bore” • 07-007, “Reactor Coolant Pumps and Pressurizer Surge Line Insulation Replacement” 	<p>These three PC/Ms are scheduled to be completed during the current outage PTN3-23 (Fall 2007). As of 9/24/2007 PC/M 06-030 is approximately 90% field installation complete (Remainder to be completed by 10/1/2007) while 07-006 and 06-075 are 100% complete in the field with paper closeout in progress.</p>
<p>GL 2004-02 Request 2(f)- “A description of the existing or planned programmatic controls that will ensure that potential sources of debris introduced into containment (e.g., insulations, signs, coatings and foreign materials) will be assessed for potential adverse effects on the ECCS and CSS recirculation functions.”</p>	<p>Turkey Point 3 and 4 have an aggressive program that ensures the materials in the containment building remain within the bounds of the GSI-191 analysis. This includes detailed cleanliness and debris inspections, controls on insulation and coatings work, and engineering design control procedure, including:</p> <ul style="list-style-type: none"> • 0-ADM-730, Foreign Materials Exclusion Controls • QI 2-PTN-4 Housekeeping • 0-SMM-051.3, Containment Closeout Inspection • 0-SMM-050.1 Containment Recirculation Sump Screen Inspection • SPEC-M-068, Thermal Insulation at Turkey Point Units 3 & 4 • 0-ADM-701.1, Desktop Instructions for PWO Planning and Assembly of Work Packages. • SPEC-C-034, Protective Coatings for Service Level 1 Applications Inside the Reactor Containment Building. • Engineering QI 1.8, Design/Operability Reference Guide 	<ul style="list-style-type: none"> • 0-ADM-730 – no additional changes • QI 2-PTN-4– no additional changes • 0-SMM-051.3 – revise to reflect changes in the containment sump strainer configuration and ensure refueling cavity drain covers are removed prior to operation. Will be completed prior to containment closeout during the fall 2007 outage. • 0-SMM-050.1 – procedure being modified to incorporate inspection of new sump strainer system. Will be completed prior to containment closeout during fall 2007 outage. • SPEC-M-068 – changes in progress to evaluate insulation changes in containment. To be completed by 12/31/2007. • 0-ADM-701.1 – minor changes will be processed to direct work package planners to Insulation Specification M-068 for guidance on replacement of insulation inside containment. This action will be completed by 12/31/2007. • SPEC-C-034 – revised to incorporate GSI-191 requirements for unqualified coatings in containment. No additional changes. • QI 1.8 – revised to review new designs for affect on debris generation, debris transport, or recirculation functions. No additional changes.

LIST OF ACRONYMS

ALARA	As Low As Reasonably Achievable
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DOT	Department of Transportation
HPA	Health Physics Administrative Procedure
HPS	Health Physics Surveillance Procedure
HPT	Health Physics Technician
HRA	High Radiation Area
NAP	Nuclear Administrative Procedure
NDE	Nondestructive Examination
NCV	Non-cited violation
PI	Performance Indicator
PS	Public Radiation Safety
RWP	Radiation Work Permit
RP	Radiation Protection
SDP	Significance Determination Process
TS	Technical Specification
FSAR	Final Safety Analysis Report