



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

July 30, 2008

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
05000250/2008003 AND 05000251/2008003

Dear Mr. Stall:

On June 30, 2008, 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 July 11, 2008, 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.

This report documents three findings, two self-revealing and one NRC identified, all of very low safety significance (Green). Two of these findings were determined to involve violations of NRC requirements. Because these findings were of very low safety significance, and they are entered into your corrective action program, the NRC is treating these 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 1- CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document

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

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000250/2008003 and 05000251/2008003
w/Attachment: Supplemental Information

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NAME	SStewart	MBarrilas	AVargas-Mendez	RMoore	HGepford	JHamman	SNinh
DATE	07/29/2008	07/29/2008	07/22/2008	07/22/2008	07/22/2008	07/22/2008	07/21/2008
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

cc w/encl
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FP&L

4

Letter to J. Art Stall from Marvin D. Sykes dated July 30, 2008

SUBJECT: TURKEY POINT NUCLEAR PLANT - INTEGRATED INSPECTION REPORT
05000250/2008003 AND 05000251/2008003

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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: 05000250/2008003, 05000251/2008003

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: April 1 to June 30, 2008

Inspectors: J. Stewart, Senior Resident Inspector
M. Barillas, Resident Inspector
A. Vargas Mendez, Reactor Inspector (1RO8), (4OA5.1)
R. Moore, Senior Reactor Inspector (4OA5)
H. Gepford, Sr. Health Physicist (2OS1, 4OA1)

Accompanied by: J. Hamman, NRC Region II, Reactor Engineer

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

Enclosure

SUMMARY OF FINDINGS

IR 05000250/2008-003, 05000251/2008-003; 4/1/2008 – 6/30/2008; Turkey Point Nuclear Power Plant, Units 3 and 4; Fire Protection, Refueling and Other Outage Activities, Problem Identification and Resolution.

The report covered a three month period of inspection by resident inspectors and region based health physics and reactor inspectors. 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", and Revision 4, dated December, 2006.

A. Inspector Identified & Self-Revealing Findings

Cornerstone: Initiating Events

(Green) A Self-Revealing finding of very low safety significance was identified after smoke and welding fumes from maintenance entered the control room through the ventilation system causing smoke alarms. When identified, the licensee stopped the maintenance and entered the issue into the corrective action program as CR 2008-17166.

The Initiating Events cornerstone was affected when smoke alarms occurred requiring the operators to initiate actions to protect themselves and the plant. The event screened as Green when mitigating systems remained unaffected and would have functioned, if needed. The cause of the finding is related to the cross-cutting area of Human Performance, Work Practices, (H.4.b) when personnel did not follow procedures in developing the work package for metalizing operations outside of the control room. (1R05)

Cornerstone: Mitigating Systems

(Green) The inspectors identified a non-cited violation of Technical Specification (TS) 6.8.1, Procedures for failure to implement Unit 4 plant startup requirements regarding alignment of components that support operability of the recirculation sump. When identified, the licensee corrected the alignments and entered the issues into the corrective actions program as CR 2008-15444 and 2008-15505.

The Mitigating Systems cornerstone was affected when standby equipment was not in the specified ready lineup. The finding screened to be of very low safety significance when no loss of safety function occurred. The cross-cutting area of Human performance – Work Practices (H.4.c) was affected when the licensee did not assure supervisory oversight of work activities (valve lineup and debris gate position) to assure that nuclear safety was supported. (1R20)

A (Green) A Self-revealing Non-cited violation of 10 CFR 50, Appendix B, Criterion XVI was identified when external corrosion of a Unit 3 emergency diesel radiator was not promptly repaired resulting in a diesel failure. The licensee repaired the radiator and entered the event into their corrective action program as CR 2008-11134.

The finding affected the equipment performance attribute of the Mitigating System cornerstone due to the impact on availability and reliability of the EDG system. The finding screened to be of very low safety significance, Green, when the loss of safety function for the single train did not exceed the allowed outage time. The finding involved the cross-cutting area of Problem Identification, and Resolution, (P.1.c), when the licensee did not thoroughly evaluate the radiator corrosion such that the issue could be resolved prior to failure. (4OA2)

B. Licensee Identified Violations

None.

REPORT DETAILS

Summary of Plant Status:

Unit 3 operated at full power throughout the inspection period with the following exception: On June 28, the plant was placed in Mode 2 with reactor power reduced to 2 percent for secondary system maintenance. The unit was returned to Mode 1 later that day and reached full power on June 29.

Unit 4 started the period shutdown in Mode 5 for refueling outage 24. Unit 4 was critical on May 9 at 1627 hours and returned to power operation on May 11, 2008. Unit 4 was returned to full power on May 16.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection

a. Inspection Scope

During the weeks of June 9 and June 30, the inspectors reviewed and verified the status of licensee actions in accordance with their procedural requirements for hurricane season. The inspectors used licensee procedures 0-ONOP-103.3, Severe Weather Preparations, 0-ADM-116, Hurricane Season Preparation, 0-ADM-216, PTN and PTF Shared System Work Control and Switchyard Access, and 0-SMM-102.1, Flood Protection Stoplog and Penetration Seal Inspection in making their assessment. Licensee procedure 0-ONOP-004.6, Degraded Switchyard Voltage, was reviewed and discussed with operators to assure that actions taken when switchyard voltage is outside of limits or cannot be predicted (post-trip) were appropriate. Licensee procedure 0-ADM-225, Online Risk Assessment and Management was reviewed to verify that appropriate actions are specified for risk management of degraded grid conditions. The inspectors performed site walk downs and tours of vulnerable areas to verify no activities that would prevent the licensee from making storm preparations, if needed. The inspectors reviewed the Hurricane Season Preparation exemption list and verified that the open exemptions were being documented in the corrective action program with a plan in place to correct them prior to a hurricane event. The following areas of the site were specifically inspected:

- Unit 3 and 4 turbine areas
- Diesel fuel oil storage tank berm area
- Component cooling water pumps and heat exchangers
- High head safety injection pumps
- Ultimate heat sink cooling canals

b. Findings

No findings of significance were identified.

Enclosure

1R04 Equipment Alignment

.1 Partial Equipment Walkdowns

a. Inspection Scope

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

- Unit 4 emergency diesel generators, the Unit D buses including the station blackout cross tie, and the Unit 3 4160 volt electrical busses following failure of the Unit 3A emergency diesel generator during a surveillance run (CR 2008-11134)
- Unit 4 high head safety injection system outside containment using licensee procedure 4-OP-062, Safety Injection, following identification that safety injection manual valve 4-867 was shut vice locked open as required for Mode 3 operations above 380 degrees F (CR 2008-15431)
- Unit 3B emergency diesel generator while the Unit 3A emergency diesel generator was removed from service for the 24-hour full load run test

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

.1 Fire Area Walkdowns

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

- Main Control Room
- Cable Spreading Room
- Intake Area
- 4B Motor Control Center Room
- Unit 4 Containment Building
- Unit 3 Emergency Diesel Rooms

b. Findings

Introduction: (Green) A self-revealing finding of very low safety significance was identified involving metalizing operations outside of the control room, after smoke and welding fumes entered the control room causing smoke alarms, challenging the operators to take action to protect themselves and the plant.

Description: On May 21, 2008, during metalizing operations on auxiliary feedwater piping outside of the control room building, smoke and irritating fumes were generated and entered the control room envelope via the intake duct on the control room exterior. Although the work had employed fire watch personnel and workers wore safety gear, the control room intake had not been considered as a possible ingress path for the fumes. As smoke was drawn into the control room smoke alarms occurred and the operators responded by looking for fires. The operators quickly identified that the exterior metalizing was the cause, the operation was halted, and the control room was ventilated. A condition report was generated for the event and the control room ventilation was placed in recirculation mode prior to resumption of metalizing.

The inspectors reviewed Material Safety Data Sheet PWP-DAW-1xxx, and found that the largely aluminum material used in metalizing can produce irritating dusts or fumes when used. FPL procedure 0-ADM-559, Control Room Habitability, specified that all work orders that affect the control room envelope include a statement that the habitability of the control room will be affected. This statement was not included in work order number 38005231-05, "AFW XCI, Loc 30, Auxiliary feedwater piping metalizing, turbine control room elevation 18." Had this statement been included, personnel approving the start of work would have taken actions to prevent hazardous fumes from being drawn into the control room.

Analysis: Not instituting specified procedural controls contributed to hazardous materials and fumes entering the control room which was considered a performance deficiency. The finding affected the integrity of the control room envelope because habitability was challenged and the issue was considered greater than minor. The Initiating Events cornerstone was affected because smoke alarms occurred and challenged the operators to initiate actions to protect themselves and the plant. The event was screened using NRC Manual Chapter 0609, Appendix A, Attachment 1, and when the transient initiator question was answered No (mitigating systems not affected), the finding screened as Green. The cause of the finding is related to the cross-cutting area of Human Performance, Work Practices, when personnel did not follow procedures in developing the work package for metalizing operations outside of the control room. (IMC 0305, H.4(b)).

Enforcement: No violation of regulatory requirements occurred. The inspectors determined that the non-conformances although specified by the licensee to be accomplished in accordance with licensee procedure, 0-ADM-559, Control Room Habitability, were not required by regulations because the external metalizing operations were not covered by 10CFR50, Appendix B requirements. The licensee entered this issue into the corrective actions program as CR 2008-17166. This issue is being attached as (FIN) 50-250,251/2008003-01: Maintenance causes smoke and debris to enter the control room, causing fire alarms.

.2 Annual Fire Drill

a. Inspection Scope

On June 4, 2008, the inspectors observed the licensee fire brigade response to a simulated fire at the Unit 3 emergency diesel generator transfer pumps. The inspectors verified that the drill was administered in accordance with licensee procedures FPAD-010, Fire Brigade and Mutual Aid Drill Scenario Development and 0-ONOP-016.10, Pre-Fire Plan Guidelines and Safe Shutdown Manual Actions. The inspectors checked the brigade's communications, ability to set-up and execute fire operations, and their use of fire fighting equipment. The inspectors noted that the licensee elected to not practice 0-EPIP-20101, Duties of the Emergency Coordinator, and the drill was not classified using the emergency action levels. The inspectors verified that the licensee implemented the aspects as described below, when the brigade simulated the firefighting activities and during the post-drill critique. The inspectors checked that licensee personnel documented drill observations in CR 2008-18978.

- The brigade, including the fire brigade leader, consisted of five team members.
- The team members acquired and donned the appropriate turnout gear.
- Self contained breathing apparatus (SCBA) were available and properly used.
- SCBA use was evaluated for proper storage, training, expectations for use, and maintenance.
- Control Room personnel verified and announced the fire location. The fire alarm was sounded and fire brigade personnel were dispatched.
- Fire brigade leader maintained control. Members were briefed (including potential hazards), discussed plan of attack, received individual assignments, and performed communications checks.
- Fire brigade arrived at the scene in a timely manner, taking the appropriate access route specified in the strategies and procedures.
- Command and control was established near the fire location.
- Communications were established with the control room personnel.
- Communications were effective between the control room, command post, plant operators and fire brigade members.
- Fire hose lines were capable of reaching the fire area; the lines were laid out without flow restrictions and were simulated as being charged. Use of additional fire equipment (i.e., foam cart) was simulated.

Enclosure

- The fire brigade arrived with sufficient fire fighting equipment to perform its fire fighting duties.
- The drill scenario was followed and the drill acceptance criteria were met.
- A post-drill critique was held to identify strengths and weaknesses.
- All fire-fighting equipment associated with the drill was returned to a state of readiness following completion of the drill.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors verified heat exchanger performance monitoring for the following two sets of heat exchangers in accordance with licensee procedure 3/4-OSP-030.4, Component Cooling Water Heat Exchanger Performance Testing. The testing verified adequate heat transfer for safety related equipment during normal and emergency operations. On May 19, 2008, the inspectors observed maintenance personnel perform intake cooling basket strainer cleaning and inspection activities under work order number 38006743 and licensee procedure 0-PMM-0197, Intake Cooling Water Basket Strainer Cleaning and Inspection. The inspectors checked monitoring and trending of heat exchanger performance done weekly and verified the operational readiness of the system should it be needed for accident mitigation. The inspectors verified that the licensee employed the heat transfer method described in EPRI-NP-7552, Heat Exchanger Performance Monitoring Guidelines. The inspectors walked down portions of the cooling systems for integrity checks and to assess operational lineup and material condition. Maintenance rule monitoring of the system was verified. The inspectors verified that significant heat sink issues, such as a check of minimum net positive suction head documented in condition report CR 2007-1339, were entered into the corrective action program and resolved.

- Unit 3 intake cooling water to component cooling heat exchangers
- Unit 4 intake cooling water to component cooling heat exchangers

Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) Activities (71111.08P, Unit 3).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 4 Spring 2008 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, Section XI (Code of record: ASME Section XI 1998 Edition 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).

NDE reviewed/witnessed consisted of:

Ultrasonic Testing (UT):

- Reactor Coolant System Loop B Hot Leg, weld # 29-RCS-1405-2
- Steam Generator (SG) B Blow down Inside Containment, weld # 6-BDB-2402-11
- Steam Generator (SG) B Blow down Inside Containment, weld # 6-BDB-2402-12
- Reactor Coolant System, Pressurizer Surge Line, branch connection to pipe, weld # 12-RC-1404-1

Visual Testing (VT):

- SG C Blowdown Inside Containment, double acting restraint, weld # 78102B-H422-03

Magnetic Particle Examination (MT):

- SG B Blowdown Inside Containment, weld attachment, weld # 6-BDB-2402-11
- SG B Blowdown Inside Containment, weld attachment, weld # 6-BDB-2402-12

Liquid Penetrant Testing (PT):

- Reactor Pressure Vessel Control Rod Drive Mechanism (CRDM), weld # 4-CRDM-66 (F2)
- Reactor Pressure Vessel CRDM weld # 4-CRDM-68 (B10)
- Reactor Pressure Vessel CRDM weld # 4-CRDM-64 (P6)
- Reactor Pressure Vessel Head lifting lug, weld # 4-Liftinglug-1
- Reactor Pressure Vessel Head support lug, weld # 4-Support lug-

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:

- Main Feedwater System Loop C, pipe to reduce, weld # 14-FWC-2403-2008
- Main Feedwater System Loop C, elbow to pipe, weld # 14-FWC-2403-3C08
- Containment Emergency Filter A & B Charcoal Solenoid Valve # SV-4-2905
- Containment Emergency Filter A & B Charcoal Solenoid Valve # SV-4-2907
- Containment Emergency Filter Backup Charcoal Solenoid Valve # SV-4-2908

b. Findings

No findings of significance were identified.

.2 PWR Vessel Upper Head Penetration (VUHP) Inspection Activitiesa. Inspection Scope

There were no volumetric or bare metal visual exams scheduled for the spring 2008 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.

b. Findings

No findings of significance were identified

.4 Steam Generator (SG) Tube Inspection Activities

a. Inspection Scope

No SG inspections were planned for this outage.

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, and BACC 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

.1 Resident Inspector Quarterly Review

a. Inspection Scope

On May 11, 2008, the inspectors observed and assessed licensed operators' performance in the plant specific simulator. The inspectors observed the operators' use of 4-GOP-301, Hot Standby to Power Operation, for just in time training in preparation to place the unit on line upon completion of unit 4 refueling outage. The operators' actions were checked to be in accordance with licensee procedures. 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 operation procedures
- Control board operation and manipulation, including high-risk operator actions
- Oversight and direction provided by supervision
- Crew overall performance and interactions

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

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

Enclosure

inspectors checked that when operator actions were credited to prevent failures, the operator was dedicated at the location needed to accomplish the action in a timely manner, and that the action was governed by applicable procedures. Furthermore, the inspectors verified that equipment problems were being identified and entered into the corrective action program. The inspectors used licensee maintenance rule data base, system health reports, and the corrective action program as a source of information on tracking and resolution of issues.

- CR 2008-13097, 4A Emergency diesel generator locked out during surveillance test (April 17, 2008).
- CR 2008-11134, Failure of 3A emergency diesel generator during surveillance test 3-OSP-023.3, 3A EDG monthly Surveillance, due to radiator failure. Licensee nuclear administrative procedure NAP-415, Attachment 4, Functional Failure Determination Checklist was also reviewed.

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 seven 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:

- Unit 3: April 1, risk assessment for Unit 3 following failure of the 3A EDG during a surveillance test due to loss of engine coolant.
- Unit 3: April 11, risk assessment when the standby steam generator feedwater pump and the 4B 4160 volt safety bus were removed from service for planned maintenance.
- Unit 3: April 24, risk assessment following failure of instrument air compressor 3CD to start. Compensatory measures included installation of a portable air supply compressor.
- Unit 4: May 12, risk assessment when the 4A safety injection pump was removed from service for its quarterly surveillance run.
- Unit 4: May 19, risk assessment when intake cooling water basket strainer BS-4-1403 was removed from service due to clogging with sea grass. The strainer was mechanically cleaned under work order 38006743 and returned to service.

Enclosure

- Unit 4: June 5, risk assessment when switchyard repairs were needed after a grid transient (CR 2008-18849).
- Unit 3: June 23, risk assessment for switchyard work preparing for Unit 3 short notice outage.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

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

- CR 2008-16685, Operability of 4A 2 battery charger after the test equipment stopped the load test after 7 ½ hours when eight hours were required.
- CR 2008-16717, Residual heat removal valve 3-757B not open full since September 2007; operability of residual heat removal train after the valve was opened three turns but not to the backseat position.
- CR 2008-17582, Residual Heat Removal Valve 4-752B remote deck operator will not move.
- CR 2008-11134, 3A EDG radiator plugged tube
- CR 2008-19235, During review of licensee surveillance data from 4-OSP-049.1, Reactor Protection system Logic Test, an engineer noted a trip breaker opening time of 1msec, which is too fast for breaker operation.
- CR 2008-19635, Plastic foreign material exclusion plugs were found on the main seal gland drain lines for both containment spray pumps.
- CR 2008-20696, 3A EDG crankcase air box drain valve found out of its throttled position.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testinga. Inspection Scope

For the four post maintenance tests listed below, the inspectors reviewed the test procedures and either witnessed the testing and/or reviewed test records to determine whether the scope of testing adequately verified that the work performed was correctly completed and demonstrated that the affected equipment was operable. The inspectors verified that the requirements of licensee procedure 0-ADM-737, Post Maintenance Testing, were incorporated into testing plans.

- Unit 4, 4-OSP-051.5, Local Leak Rate Test, for penetration 7 following repair of the air actuator for containment isolation valve CV-4-519A under work order 38008431-01
- Unit 4: 4-OSP-203.1, Engineered Safeguards Integrated Test, Section 7.3, Loss of Offsite Power with Safety Injection (Attachment 8 and 9) following 4A sequencer relay replacement under work orders 36023920, 36023909, and 36023921
- Unit 4: Appendix P stroke test of 4-MOV-843A, high head safety injection to cold leg valve, following overhaul of the actuator using work order 37018517
- Unit 3: 3-OP-75, Auxiliary Feedwater System, and 3-OSP-75.1, Auxiliary Feedwater Train 1 Operability Verification following work order 36022137-01; Auxiliary feedwater pump A governor replacement in accordance with 0-PMM-75.15, Auxiliary Feedwater Pump Governor Removal and Installation

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities.1 Unit 4 Refueling Outage

For the Unit 4 refueling outage that started on March 31, 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 Monitoring and Shutdown Activitiesa. Inspection Scope

The inspectors observed portions of the plant 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.

b. Findings

No findings of significance were identified.

.3 Licensee Controls of Outage Activities

a. Inspection Scope

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

- Unit 4 containment sump modification
- Equipment clearance order 4-07-10-014, Zone P-07, Local Leak Rate Test as left

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. The inspectors verified that crane operators involved in lifting the reactor vessel head and moving other heavy loads about the containment had met the qualification standards set by the licensee.

b. Findings

No findings of significance were identified.

.4 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 reactor coolant temperature using core exit thermocouples, procedure compliance for control of reactor water level, and oversight of the draining evolution. The licensee did not drain to the mid-loop condition during the outage.

b. Findings

No findings of significance were identified.

.5 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

Enclosure

observed refueling activities to verify that the location of fuel assemblies was tracked from core offload through core reload, and monitored by control room personnel. Checks were made of foreign material controls in vicinity of the open reactor vessel.

b. Findings

No findings of significance were identified.

.6 Monitoring of Heatup and Startup Activities

a. Inspection Scope

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

b. Findings

Introduction: The inspectors identified a non-cited violation of Technical Specification (TS) 6.8.1, Procedures for failure to implement plant startup requirements regarding alignment of components that assure readiness of the recirculation sump.

Description: The inspectors conducted a containment closeout inspection of the Unit 4 containment on May 5, 2008, when the unit was in Mode 4, in transition to Mode 3. The licensee was performing the plant heatup procedure (4-GOP-503, Cold Shutdown to Hot Standby) and had signed steps that establish readiness of the containment recirculation sump for higher mode operation.

During the tour, the inspector identified that cavity drain valves that assure that injected RWST water in the refueling cavity can drain to the sump, were found open, but not locked open as required by the licensee's procedure 4-OP-041.8, Filling and Venting the Reactor Coolant System. Further, the inspector found a sump debris gate open, contrary to the requirements of licensee procedure 0-SMM-051.3, Containment Closeout Inspection. Completion of both procedures is a prerequisite to plant heatup and pressurization to Mode 3 (4-GOP-503).

The inspector informed the licensee of the issues and action was taken to shut the debris gate and lock the valves. The inspector was later informed that the debris gate had been left open by contractors doing valve work inside the bioshield and was caused by poor communications between the workers and their supervision. Further, the valves had remained not-locked due to an error by a plant operator that may have involved unclear expectations on final component positioning. The licensee shut the debris gate, locked the valves, and documented each issue in their corrective action program for further review. The licensee found that having the debris gate open may have allowed

Enclosure

increased fiber to reach the recirculation sump filters, causing some degradation but the sump remained operable.

Analysis: The failure of licensee personnel to assure the alignment of recirculation sump components, (debris gate, and cavity drain valves) as specified by the Turkey Point reactor startup procedures was a performance deficiency. The finding involving reliability of the recirculation sump, was more than minor, and the Mitigating Systems cornerstone was affected. The finding screened as Green using NRC Manual Chapter 0609, Appendix A, Attachment 1, when no loss of function occurred and all mitigating system screening questions were answered no. The cross-cutting area of Human performance – Work Practices was affected when the licensee did not assure supervisory oversight of work activities (valve lineup and debris gate position) to assure that nuclear safety was supported (H.4.c).

Enforcement: Turkey Point Technical Specification 6.8.1 requires that written procedures required by the FPL Quality Assurance Topical Report be implemented. The topical report includes procedures for starting the reactor and is implemented at Turkey Point, in part with procedure 4-GOP-503, Cold Shutdown to Hot Standby, which includes requirements to assure readiness of the containment recirculation sump by implementing alignment procedures: 4-OP-041.8, Filling and Venting the Reactor Coolant System, and 0-SMM-051.3, and Containment Closeout Inspection. These procedures require that the reactor cavity drain valves (4-12-001 and 4-12-002) are locked open and the debris interceptors closed and latched prior to entry into Mode 4. Contrary to the above, on May 6, 2008, with the reactor having entered Mode 4 and escalating to Mode 3, the inspector found cavity drains 4-12-001 and 4-12-002 not locked open, and a debris interceptor gate was open (not closed and latched). When identified to the licensee, action was taken to lock open the valves and close and latch the debris interceptor. The issues were documented in the corrective action program as CR 2008-15444 and 2008-15505. Because this issue is of very low safety significance and has been entered into the licensee's corrective action program, the violation is being treated as a Non-cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000250251/2008-03-02, Failure to implement procedures that assure component lineups prior to power escalation.

.8 Identification and Resolution of Problems

a. Inspection Scope

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

b. Findings

No findings of significance were identified.

1R22 Surveillance Testinga. Inspection Scope

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

- Unit 4, 4-OSP-206.1, Inservice Valve Testing – Cold Shutdown; testing of 4-POV-2604, 4-POV-2605, 4-POV-2606 (CI)
- Unit 4, 4-OSP-051.5, Local Leak Rate Testing, Penetration 7 (CI)
- Unit 4: 4-OSP-206.1, Inservice Valve Testing - Cold Shutdown, testing of MOV-4-866A/B, verified after licensee used these valves in assessing the closure of 4-867 safety injection manual valve (IST).
- Unit 4, 0-OSP-062.2, Safety Injection System Inservice Test, section 7.3, 4A pump quarterly surveillance test
- Unit 3: 0-SME-003.5, Battery Charger Maintenance – 18 Month Load Test done under Work Order 37011401-01 3A2 Battery Charger Load Test
- Unit 3, 3-OSP-023.2, Diesel Generator 24-Hour Full Load Test and Load Rejection, 3A EDG

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control for Radiologically Significant Areasa. Inspection Scope

Access Controls The inspectors reviewed and evaluated licensee guidance and its implementation for controlling and monitoring worker access to radiologically significant areas and tasks associated with Unit 3 (U3) and Unit 4 (U4) operations and U4 Refueling Outage 24 (U4R24). The inspectors evaluated changes to, and adequacy of, procedural guidance; directly observed implementation of established administrative and

Enclosure

physical radiation controls; appraised radiation worker (radworker) and health physics technician (HPT) knowledge of, and proficiency in, implementing radiation protection (RP) activities; and assessed radworker exposures to radiation and radioactive material.

The inspectors directly observed controls established for radworker and HPT staff in actual or potential airborne radioactivity area, radiation area, high radiation area (HRA), locked high radiation area (LHRA), and very high radiation area (VHRA) locations. Established radiological controls were evaluated for selected U4R24 tasks including changing out flux map detectors, upper and lower cavity work, cable pulling, coatings work, scaffolding, and insulating. The inspectors also observed and evaluated preparation for, and execution of, activities associated with moving a resin liner from radioactive waste (radwaste) storage to the truck bay. Postings and physical controls established within the radiologically controlled area for access to the U4 containment, U3 and U4 auxiliary buildings, and the radwaste building were evaluated directly during facility tours. The inspectors also independently measured radiation dose rates during these tours. In addition, the inspectors directly observed conduct of licensee surveys of radiation levels, airborne radionuclide concentrations, and/or surface contamination levels for select areas and equipment associated with outage activities including coatings work. Results were compared to current licensee surveys and assessed against established postings and established radiation controls.

For select tasks, the inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements to workers. Radworker adherence to selected RWPs and HPT proficiency in providing job coverage were evaluated through direct observations of work activities (including remote monitoring) and interviews with licensee staff. Direct reading dosimeter (DRD) equipment alarm set-points were evaluated against area radiation survey results for select outage and routine operations activities. Worker exposure as measured by DRD and via licensee evaluations of skin dose were reviewed and assessed.

The inspectors walked down the U3 and U4 spent fuel pool areas to determine appropriate controls were applied to materials and equipment stored in the pools and reactor cavity. The inspectors also reviewed the inventory of items stored in the pools. Controls and their implementation for LHRAs and for storage of irradiated material within the Unit 3 and Unit 4 spent fuel pools were reviewed and discussed.

The inspectors evaluated implementation and effectiveness of licensee controls for both airborne and external radiation exposures. The inspectors reviewed and discussed select whole-body count analyses to evaluate implementation and effectiveness of personnel monitoring, administrative controls, and physical controls, including air sampling, barrier integrity, engineering controls, and postings. Effectiveness of external radiation exposure controls were evaluated through review and discussion of individual worker dose as measured by direct reading dosimeters from September 1, 2007, to April 30, 2008, for select non-outage and U4R24 tasks.

RP activities were evaluated against Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS), and 10 CFR Parts 19 and 20 requirements. Specific assessment criteria included UFSAR Section 12, Radiation Protection; 10 CFR 19.12; 10 CFR 20, Subparts B, C, F, G, H, and J; TS Section 6.8, Procedures and Programs,

Enclosure

and 6.12, High Radiation Area; and approved licensee procedures. Licensee guidance documents, records, and data reviewed within this inspection area are listed in Section 2OS1 and 4OA1 of the report Attachment.

Problem Identification and Resolution The inspectors reviewed and assessed self-assessments and select Condition Report documents associated with access control to radiologically significant areas. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with procedure NAP-204, Condition Reporting, Rev. 17. Specific corrective action program (CAP) documents associated with access control issues, personnel radiation monitoring, and personnel exposure events reviewed and evaluated during inspection of this program area are identified in Sections 2OS1 and 4OA1 of the report Attachment.

The inspectors completed 21 of the required line-item samples described in Inspection Procedure (IP) 71121.01.

b. Findings

No findings of significance were identified.

OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

Cornerstone: Barrier Integrity

The inspectors checked licensee submittals for the two performance indicators (PIs) listed below for the period January 1, 2007 through December 31, 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. 5, were used to check the reporting for each data element. The inspector reviewed operator logs and chemistry department analysis data (0-NCSP-002, Radiochemistry Documentation) to verify that the licensee had identified and reported the proper values for reactor activity and leakage, as applicable. In addition, the inspectors observed chemistry personnel obtain and analyze primary coolant samples from both reactor units. The inspectors checked that deficiencies that could affect the licensee's performance indicator program were entered into the corrective action program.

- Reactor Coolant System Specific Activity
- Reactor Coolant System Leakage (FPL procedure 3/4-OSP-041.1 Reactor Coolant System Leakage Determination was reviewed)

b. Findings

No findings of significance were identified.

Enclosure

Cornerstone: Radiation Safety

a. Inspection Scope

The inspectors sampled licensee data for the performance indicators (PI) listed below. To verify the accuracy of the PI data reported during the period reviewed, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, and Rev. 5 was used to verify the basis for each data element.

Occupational Radiation Safety Cornerstone: The inspectors reviewed the Occupational Exposure Control Effectiveness PI results from October 2007 through March 2008. For the assessment period, the inspectors reviewed electronic dosimeter alarm logs and assessed CAP records to determine whether high radiation area (HRA), very high radiation area (VHRA), or unintended radiation exposures had occurred. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. In addition, the inspectors reviewed select personnel contamination event data and internal dose assessment results. Report section 2OS1 contains additional details regarding the inspection of controls for exposure significant areas. Documents reviewed are listed in sections 2OS1 and 4OA1 of the report Attachment.

Public Radiation Safety Cornerstone: The inspectors reviewed the RETS/ODCM Radiological Effluents Occurrence PI results from October 2007 through March 2008. The inspectors reviewed and evaluated selected radiological liquid and gaseous effluent release data, abnormal release results, cumulative and projected doses to the public, and selected condition reports for the period. Documents reviewed are listed in section 4OA1 of the report Attachment.

The inspectors completed two of the required samples described in IP 71151.

b. Findings

No findings of significance were identified.

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 2008-11134, 3A EDG inoperable due to radiator coolant leak

b. Findings

Introduction

(Green) A Self-revealing Non-cited violation of 10 CFR 50, Appendix B, Criterion XVI was identified when longstanding external corrosion of an emergency diesel radiator was not promptly repaired. The radiator subsequently failed during testing.

Description

On April 1, 2008, during the 3A emergency diesel generator (EDG) monthly operability surveillance testing, 3-OSP-23.3, the test was stopped and the 3A EDG was declared inoperable. A radiator tube rupture caused the EDG coolant level to rapidly lower out of the coolant expansion tank as approximately 55 gallons of coolant spilled in the Unit 3 radiator fan rooms. The engine was declared inoperable and a repair was initiated. The affected radiator tube was removed from service by plugging, and the diesel returned to operable status on April 4, 2008, following a successful surveillance test. The licensee determined the root cause for the radiator tube rupture was externally induced corrosion.

The inspectors walked down the 3A EDG radiator, reviewed operator logs, procedures, the condition reports database, maintenance documents from the previous six months, and interviewed licensee staff. The inspectors observed signs of external corrosion on most of the radiator surface exhibited by a red/orange corrosion layer. The inspectors were told that the colors showed that the protective coating on the radiator had worn away allowing external corrosion. The inspectors learned that although the corrosion

Enclosure

had been noted in engineering walkdowns and documented in a July 2005 condition report (CR 2005-20793), no formal inspection or operability assessment of the corrosion had been done and no corrective action document tracked the corrosion or specified compensatory measures to assure reliability of the radiators. The inspectors found that the radiator inspection, done at two year intervals, was due in March 2008 and had been postponed. The radiator replacement was due in 2007 and had been delayed without engineering evaluation of the extent of corrosion damage and assurance of operability. The inspectors noted that Unit 3 had gone through refueling outages in Spring 2006 and Fall 2007 without repair of the radiator.

The inspectors found that in 1998, the 3A EDG radiator had failed due to external corrosion and the radiator was subsequently replaced. Two EDG radiator tube failures had also occurred at FPL's St. Lucie plant in 2001 where radiators of similar design are used. St. Lucie condition report (CR 2001-1491) specified compensatory measures and corrective actions to preclude EDG radiator failures including cleaning, inspections, and shortened replacement intervals. None of these compensatory actions had been adopted at Turkey Point.

The licensee failed to follow procedure step 4.10 of 0-ADM-215, Plant Surveillance Tracking Program, and did not perform an engineering evaluation to demonstrate continued operability of the degraded EDG and its ability to perform its design function for a 24 hours mission time under a loss of power condition, when replacement of the radiator was postponed from 2007 and re-scheduled for 2009. The licensee also did not implement compensatory measures for the existing degraded condition in accordance with NRC Technical Guidance 9900.

Analysis: The inspectors determined failure to implement compensatory measures to assure reliability of the emergency diesel generator given that the known external corrosion was a performance deficiency. Operating experience at Turkey Point and St. Lucie demonstrated that radiator failures would occur due to corrosion, if not corrected. The finding was determined to be more than minor because if left uncorrected, the practice of not promptly correcting conditions adverse to quality would lead to continuing failures of standby safety equipment and would become a more significant safety concern. The inspectors assessed this issue using Appendix A, "Significance Determination of Reactor Inspection Findings for At Power Situations," in accordance with Inspection Manual Chapter 0609, and determined it affected the equipment performance attribute of the Mitigating System cornerstone due to the impact on availability and reliability of the EDG system. Because the corrosion could not be specifically assessed after the failure, the inspectors used a t/2 estimate that resulted in a loss of safety function of a single train from the previous 3A EDG surveillance run on March 7, 2008, to the time the 3A EDG failed on April 1, 2008 for less than the allowed outage time of 14 days and the evaluation determined the finding to be of very low safety significance, Green. The finding involved the cross-cutting area of Problem Identification, and Resolution, (P.1.c), when the licensee did not thoroughly evaluate the radiator corrosion such that the issue could be resolved prior to failure.

Enforcement

10 CFR 50 Appendix B, Criterion XVI, Corrective Action, states in part, that measures shall be established to assure that conditions adverse to quality, such as deficiencies, defective material and equipment, and non-conformances are promptly corrected. Contrary to the above, external corrosion of the 3A emergency diesel generator radiator, identified in July 2005, was not promptly corrected resulting in failure of the radiator on April 1, 2008. Following the failure, the diesel was declared inoperable, technical specifications were entered, the failed tube was removed from service, and the engine was run to demonstrate operability. The radiator remained in service and the licensee planned replacement for summer 2008. The issues were documented in the corrective action program as CR 2008-11134. Because this issue is of very low safety significance and has been entered into the licensee's corrective action program, the violation is being treated as a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000250251/2008-03-03, Failure to take timely corrective actions leads to emergency diesel generator failure.

.3 Semi-Annual Trend Review

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, the inspectors reviewed the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector corrective actions item screening discussed in section 4OA2.1 above, plant status reviews, plant tours, document reviews, and licensee trending efforts. The inspectors' review nominally considered the six month period of December through June 2008. The review also included issues documented outside the normal CAP such as in the Fleet Management Review Meeting Report, dated June 16, 2008. Corrective actions associated with a sample of the issues identified in the licensee's corrective action program were reviewed for adequacy.

b. Assessment and Observations

No findings of significance were identified.

4OA5 Other Activities

.1 (Closed) NRC Temporary Instruction (TI) 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds

a. Inspection Scope

The scope of the inspections identified in NRC TI 2515/172, "Reactor Coolant System Dissimilar Metal Butt Welds (DMBW)," includes primary system piping DMBWs one inch nominal pipe size and larger. The objectives of the inspections include the verification that each pressurized water reactor (PWR) plant conforms to its

commitments to conduct an inspection program and mitigation techniques are consistent with the industry guidelines of the Materials and Reliability Program (MRP)-139, "Primary System Piping Butt Weld Inspection and Evaluation Guidelines," July 2005.

b. Findings and Observations

No findings of significance were identified.

The inspector verified that the licensee has implemented MRP-139 for Units 3 and 4. The inspector verified that locations with Alloy 600/182/82 only exist in the Reactor Vessel Bottom-Mounted Instrumentation Penetrations. These locations are J-groove welds and, in accordance with MRP-139, fall outside of the program. Inspections for these penetrations are performed in accordance with the Boric Acid Corrosion Control Program (BACC). The BACC program states that these locations will be inspected via visual examination every outage. During the last 10-year vessel examination, UT examinations on the Unit 4 BMI penetrations were performed and no recordable indications were identified. Pending guidance from MRP-139 and the NRC, the licensee will continue to monitor these locations in Units 3 and 4 via the BACC program. Since no other locations with Alloy 600/182/82 exist in either Unit 3 or Unit 4, this TI will be closed for both Units 3 and 4.

.2 (Closed) Temporary Instruction (TI) 2515/166, Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02) Units 3 and 4

a. Inspection Scope

The inspector reviewed the Unit 4 implementation of the licensee's actions in response to GL 2004-02, Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors. Additionally, the inspector reviewed the status of GL 2004-02 actions which were not complete during the previous Unit 3 TI 2515/166 inspection (NRC Report No. 50-250/200704). The inspector reviewed the licensee's single active failure analysis related to GL 2004-02, associated with the emergency core cooling (ECCS) and containment spray (CS) systems recirculation mode to verify the analysis was complete and implemented in accordance with the stations approved design control process.

The inspector reviewed the Unit 4 implementation of GL 2004-02 actions, which included plant modifications and program changes, to verify these actions were complete and implemented consistent with regulatory design control and 10 CFR 50.59 requirements. A field observation was performed to verify the modifications were complete and consistent with design documentation. The following Unit 4 modifications were related to GL 2004-02 actions;

- Installation of modified passive containment sump strainers
- Installation of debris interceptors in lower containment
- Modification of reactor coolant pump insulation
- Removal of cal-sil insulation from the pressurizer relief tank
- Modification of CS pump seal

Enclosure

Program changes included changes to procedures and station specifications related to control of materials in containment to ensure the assumptions of the sump debris generation and transport analysis remain valid.

b. Findings and Observations

No findings of significance were identified.

The Unit 4 modifications and program changes related to GL 2004-02 actions were complete and implemented in accordance with design control and 10 CFR 50.59 regulatory requirements.

The following were incomplete Unit 4 and Unit 3 GL 2004-02 actions related design and licensing documentation which had received NRC approval for completion date extension:

Unit 4: Incorporation of chemical effects test results into ex-core downstream effects analysis for high head safety injection pumps. Extension to June 30, 2008 approved by NRC letter dated April 29, 2008.

Unit 3: Chemical effects testing and evaluation. Extension to June 30, 2008 was approved by NRC letter dated April 13, 2006.

This documentation of TI-2515/166 completion as well as any results of sampling audits of licensee actions will be reviewed by the NRC staff (Office of Nuclear Reactor Regulation - NRR) as input along with the Generic Letter (GL) 2004-02 "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors" responses to support closure of GL 2004-02 and Generic Safety Issue (GSI)-191 "Assessment of Debris Accumulation on Pressurized-Water Reactor (PWR) Sump Performance". The NRC will notify each licensee by letter of the results of the overall assessment as to whether GSI-191 and GL 2004-02 have been satisfactorily addressed at that licensee's plant(s). Completion of TI-2515/166 does not necessarily indicate that a licensee has finished all testing and analyses needed to demonstrate the adequacy of their modifications and procedure changes. Licensees may also have obtained approval of plant specific extensions that allow for later implementation of plant modifications for which completion may subsequently be verified

.3 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the plant inspection period, the inspectors conducted the following observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

- Multiple tours of operations within the Central and Secondary Security Alarm Stations
- Tours of selected security towers/security officer response posts
- Direct observation of personnel entry screening operations within the plant's main access building
- Security force shift turnover activities, and
- Owner control area vehicle search activities

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspection activities.

b. Findings

No findings of significance were identified.

40A6 Exit

Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. Jefferson and other members of licensee management on July 11, 2008. 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
B. Carberry, Radiation Protection Manager (Acting)
R. Coffey, Maintenance Manager
M. Crosby, Quality Manager
D. Grissett, Vice-President, Nuclear Operations South
J. Hamm, Engineering Manager
O. Hanek, Acting Licensing Manager
L. Hardin, Emergency Preparedness Manager
W. Jefferson, Site Vice-President
M. Kiley, Plant General Manager
E. Lyons, Engineering Programs Supervisor
K. O'Hare, Performance Improvement Manager
S. Shaffer, Assistant Operations Manager
P. Skinner, Acting Chemistry Manager
D. Slivon, ISI Coordinator
R. Wright, Operations Manager

NRC personnel:

D. Klein, NRC Chairman
L. Reyes, Region II Administrator
M. Sykes, Chief, Reactor Projects Branch 3, Division of Reactor Projects (DRP)
S. Vias, Chief, Support Branch, (DRP)

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000250&251/2008-03-01	FIN	Maintenance causes smoke and fumes to enter the control room causing fire alarms.
05000250&251/2008-03-02	NCV	Failure to implement procedures that assure component lineups prior to power escalation.
05000250&251/2008-03-03	NCV	Failure to take timely corrective actions leads to emergency diesel generator failure.

Closed

TI 2515/166, Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02)
TI 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds

LIST OF DOCUMENTS REVIEWED

Section 1R08: In-service Inspection Activities

Procedures

- 0-ADM-537, "Turkey Point Nuclear Plant Boric Acid Corrosion Control Program Procedure," Revision 2007
- 0-OSP-041.26, "Containment Visual Leak Inspection," Revision 6/28/2007
- NDE 2.2, "Magnetic Particle Examination," Revision 13
- NDE 3.3, "Liquid Penetrant Examination Solvent Removable - Visible Dye Technique," Revision 10
- NDE 4.1, "Visual Examination VT-1, Welds/Bolting/Washers," Revision 13
- NDE 4.3, "Visual Examination VT-3," Revision 11
- NDE 5.2, "Ultrasonic Examination of Ferritic Piping Welds," Revision 14
- NDE 5.4, "Ultrasonic Examination of Austenitic Piping Welds," Revision 18
- NDE 5.6, "Ultrasonic Examination Technique For Detection Cracking in Feedwater Piping," Revision 10
- NDE 5.25, "Ultrasonic Examination of Welds Adjoining Cast Materials," Revision 3
- RPBMI-IP, "RPV BMI Penetration Inspection Program," Revision 1

Corrective Action Documents

- 2007-12023, TCV4-143 found crack weld on leak offline at valve body.
- 2007-21851, U4 containment walkdown inspection for leakage. Heavy dry boric acid at 4-868C and 4P218B & discolored boric acid at 4-572.
- 2007-30976, Bleeder trip valve BTV-3-1520 has several unacceptable indications.
- 2007-410203, Unit 4 SI sump dry boric acid at casting nuts and flange.
- 2008-742, Dry boric acid brownish in color from allen head seal bolt of 4P215B high-head SI pump.
- 2008-3421, B CCW as-found condition based on 100% ECT results.
- 2008-11359, performed boric acid visual leak inspection after cooldown. 24 locations at valves found to have dry boric acid.
- 2008-11643, dry boric acid at the packing of valve 4-954E.
- 2008-12089, 4C MSR east steam enclosure plates cracks at weld.
- 2008-12219, localized pitting in weld area 90 degree feedwater elbow.

Other

- ENG-CSI-A600, "Alloy 600 Management Program," Revision 1
- NRC Bulletin 2002-01, "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity"
- Response to NRC Bulletin 2002-01
- NRC Bulletin 2003-002, "Leakage from Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity"
- Response to NRC Bulletin 2003-02

- NRC Bulletin 2004-01, "Inspection of Alloy 82/182/600 Materials Used in The Fabrication of Pressurizer Penetrations and Steam Space Piping Connections At Pressurized Water Reactors"
- Response to NRC Bulletin 2004-01
- Boric Acid Corrosion Control Program Quick Hit Self-Assessment Plan and Report, 7/12/07 to 7/31/2007
- 2007-41038-SA, "Self-Assessment BOP at Exchanger, FAC & ISI"

2OS1: Access Control To Radiologically Significant Areas

Procedures

0-HPA-001, Radiation Work Permit Initiation and Termination, 11/16/07
 0-HPA-031, Personnel Monitoring of Internal Dose, 2/27/08
 0-HPA-031.2, Multibadge Exposure Monitoring, 9/26/06
 0-HPA-073, Hot Spot Tracking and Reduction Program, 7/13/07
 0-HPS-020, Radiation Surveys, 8/7/00
 0-HPS-025.1, General Posting Requirements for Radiological Hazards, 11/16/07
 0-HPS-025.3, High Radiation Area Posting and Controls, 1/31/08
 0-HPS-027.1, Work Controls in Hot Particle Areas, 8/16/05
 0-HPS-033.6, Exposure Investigations, 4/30/01
 0-HPT-071, Remote Personnel Monitoring, 11/7/07

Radiation Work Permits

RWP 07-212, Aux Bldg: Perform ISI on Misc. Equipment and Components
 RWP 08-1019, Radwaste Building /HLSA (LHRA): Load Liner for Shipment and Support Work
 RWP 08-4003, U4 Containment: Management Outage Inspections and Support Work
 RWP 08-4012, U4 Containment: Scaffold for Containment – Erect and Remove
 RWP 08-4038, U4 Containment: Flux Map Detectors - Change A, B, C, D, & E Detectors
 RWP 08-4032, U4 Containment: Insulation – Removal and Installation
 RWP 08-4050, U4 Containment: RCPs – All Work
 RWP 08-4060, U4 Containment: Regen HX – HP Surveys, Inspections, and Valve Manipulations
 RWP 08-4061, U4 Containment: Rx Sump – Surveys, Inspections, Valve Manipulations, & LLRT
 RWP 08-4077, U4 Containment: Sludge Lancing Operations
 RWP 08-4089, U4 Containment: Painting Inside Containment on 14' Elevation (airborne)
 RWP 08-4097, U4 Containment: Containment Sump Debris Interceptors and Strainer Installation
 RWP 08-4108, U4 Containment 58' Reactor Cavity: Reactor Head Reassembly, Insul, Install, Tensioning, Studs, and Cable Assy and Support Work
 RWP 08-4202, U4 Containment: Mech. Maint, Elec. Maint., I&C and Projects Outage Support

Records and Data

Survey 07-7654, RWB South Filling Room, 12/10/07
 Survey 07-7602, RWB High Level Storage, 12/7/07
 Survey 07-7474, RWB High Level Storage, 11/29/07
 Survey 07-7933, RWB High Level Storage, 11/27/07

Survey 08-2168, U4 Seal Table 30'6", 4/10/08
 Survey 08-1578, U4 Seal Table 30'6", 4/1/08
 Survey 06-6984, U4 Seal Table 30'6", 11/15/06
 Survey 08-1479, U4 Containment 30'6" Elevation, 3/31/08
 Survey 07-6390, U3 Pipe and Valve Room, 10/3/07
 Survey 07-6316, U3 Pipe and Valve Room, 10/2/07
 Survey 07-6466, U3 Pipe and Valve Room, 10/4/07
 Survey 08-1597, U4 Charging Pump Room Verification, 4/2/08
 Survey 08-1598, U4 Charging Pump Room Verification, 4/2/08
 Survey 08-1559, U4 Charging Pump Room Posting Change Survey, 4/1/08
 Initial Containment Entry Surveys, 3/31/08: 08-1475, 08-1474, 08-1479, 08-1481, 08-1476
 Recent Containment Surveys, 4/28/08: 08-3328, 08-3342, 98-5307, 98-3332, 08-3331, 08-3330,
 08-3329, 08-3332
 PTN U4R24 PCEs (spreadsheet), 4/30/08
 Air Sample Log, 4/4/08-4/6/08
 Personnel Contamination Report, RER 08-054
 Personnel Contamination Report, RER 08-055
 Electronic Dosimeter Alarm Setpoint Change Forms (RWP 08-4038, 4/29/08)
 TEDE ALARA Evaluation, RWP 08-4038, 4/10/08
 Job Dosimetry Evaluation Sheet, RWP 08-4038, 4/10/08
 Exposure Investigation Report, RER 07-151, 10/31/07
 Exposure Investigation Report, RER 08-001, 1/3/08

CAP Program Documents

Self-Assessment, Alpha Monitoring Program, 5/1/06
 Self-Assessment, PCE's During the First 11 Days of Unit 3 RFO, 9/14/07
 Self-Assessment, Radiation Protection Documentation and Records, 12/12/06
 PTN 07-03, Radiation Protection Functional Area Audit, 4/30/07
 CR 05-11985, Inventory of radwaste material in trash baskets in PTN spent fuel pools, 4/22/05
 CR 07-31349, Worker deconning hub seal on reactor head with scotch bright highly
 contaminated, 10/1/07
 CR 07-31493, Individuals violated RWP by entering HRA without HRA brief, 10/2/02
 CR 07-34832, Maintenance supervisor entered U3 charging pump room while posted as high
 radiation area without briefing, 10/24/07
 CR 07-35926, Individual received a dose rate alarm while performing radiation survey from the
 RWB crane, 10/31/07
 CR 07-35997, Radwaste building crane ladder posted high radiation area, 10/31/07
 CR 07-40532, Wrong RWP used for task, 12/7/07
 CR 08-218, I&C tech received dose rate alarm while calibrating control room HVAC, 1/3/08
 CR 08-1710, Actions to address RP self-assessment weakness concerning HRA posting
 controls was not sustained, 1/17/08
 CR 08-8138, Investigate and trend condition reports for "wrong RWP", 3/7/08
 CR 08-11596, CR 07-34832 closed without discussing radiological significance, 4/4/08
 CR 08-11253, RCS filter cubicle downposted contrary to the posting requirements of posting
 procedure 0-HPS-25.3, 4/1/08

40A1: Performance Indicator VerificationProcedures

0-ADM-032, NRC Performance Indicators Turkey Point, 8/1/07
 NAP-206, NRC Performance Indicators, Rev.3

Records and Data

RWP 07-245, U3 Charging Pump Room/RWB HLSA: Change Out RCS, SWI, and SWR Filters
 Exposure Investigation Report, RER 07-143
 Survey 07-6595, U3 Charging Pump Room, 10/9/07
 Survey 07-6596, RWP High Level Storage, 10/9/07
 Radioactive Liquid Release Permit, LRP-70135, 12/20/07
 Radioactive Liquid Release Permit, LRP-80047, 3/31/08
 Radioactive Gaseous Release Permit, GRP 07-31, 10/18/07
 Radioactive Gaseous Release Permit, GRP 08-08, 3/4/08

CAP Documents

CR 07-31444, Worker received dose rate alarm at 4000 mrem/hr, 10/2/07
 CR 07-32601, Dose and dose rate alarm, 10/9/07
 CR 07-33504, Note in ADM-009 not consistently followed, 10/15/07
 CR 07-40532, Wrong RWP used for task, 12/7/07

Temporary Instruction (TI) 2515/166Correspondence

Letter, USNRC to FPL, Turkey Point Nuclear Plant Unit 4 – Approval of Extension Request for GL 2004-02, “Potential Impact of Debris Blockage On Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors”, dated 4/29/08
 Letter, UNSRC to FPL, Turkey Point Plant, Unit NO. 4 – Approval of GSI-191/GL 2004-02 Extension Request, dated 4/13/06
 Letter, UNSRC to FPL, St. Lucie Nuclear Plants Units 1 and 2, and Turkey point Unit 3 – GL 2004 “Potential Impact of Debris Blockage On Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors”, Extension Request Evaluation, dated 12/28/07
 Letter, FPL to USNRC, Supplemental Response to NRC GL 2004-02 “Potential Impact of Debris Blockage On Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors”, dated 2/28/08
 Letter, FPL to USNRC, NRC GL 2004-02: Potential Impact of Debris Blockage On Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors – Second response, dated 9/1/05
 Letter, FPL to USNRC, NRC GL 2004-02: Potential Impact of Debris Blockage On Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors, dated 4/4/05
 Letter, FPL to USNRC, Supplemental Response to NRC GL 2004-02 “ Potential Impact of Debris Blockage On Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors”, dated 1/27/06
 Letter, FPL to USNRC, Request for Extension of Completion Date of St. Lucie Unit 1, St. Lucie Unit 2, and Turkey Point Unit 3, GL 2004-02 Actions, dated 12/7/07

Attachment

Letter, FPL to USNRC, NRC GL 2004-02, Turkey Point Unit 4, Extension to the Completion Date for Ex-Vessel Downstream Effects Evaluation, dated 4/14/08

Letter, FPL to USNRC, Completion of Single Active Failure Analysis related to NRC GL 2004-02, Potential Impact of Debris Blockage On Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors, dated 4/28/08

Calculations

PTN-ENG-SEMJ-08-025, Turkey Points Unit 3 and 4, Emergency Core cooling and Containment Spray Systems Recirculation Mode Single Failure Analysis, Rev. 0, dated 4/24/08

PTN-108129-M01, Unit 4 Recirculation Mode NPSH Calculation, dated 4/25/08

PTN-BFSM-97-032, Minimum Containment Sump Level for ECCS Switchover, dated 1/17/08

AREVA Document No. 66-9078023-000, Turkey Point Unit 4 Test Report for ECCS Strainer Performance Testing, dated 4/24/08

EC-6019-PTN4-03, AES Document NO. PCI-5798-S02, "Structural Qualification of Turkey Point Strainer Piping and Supports" Rev. 1

PCI Calculation, TDI-6019-06, Total Head Loss, FPL – Turkey Point Nuclear Plant, Unit 4, dated 4/28/08

Modifications

Plant Change/Modification (PC/M) 06-031, Unit 4 Containment Recirculation Sump Debris GSI-191 Resolution, Rev. 1

PC/M 06-071, Unit 4 Containment Recirculation Sump Cross-Connect Core Bore, Rev. 0

PC/M 07-007, Unit 4 Reactor Coolant Pump Insulation Replacement, Rev. 0

PC/M 07-081, Containment Spray Pump Seal Modification, Rev. 0

PCI Calculation TDI-6019-06, Total Head Loss, FPL-Turkey point Nuclear Plant Unit 4, dated 4/24/08

Miscellaneous Documents

ENG-QI 2.0, Engineering Evaluations, Rev. 13, dated 12/1/2008

Condition Report 2008-13303, Mode 4 Hold Requiring Letter to NRC Regarding NRC GL 2004-02 (Containment Sump Issue) Resolution, dated 4/18/08

Specification, SPEC-M-068, Thermal Insulation, Turkey Point Units 3&4, Rev.6

4-SMM-050.1, Containment Recirculation Sump Strainer Inspection, dated 4/22/08

0-SMM-051.3, Containment Closeout Inspection, dated 4/7/08

Work Order (WO) 38000872, Install "B" Strainer, dated 4/20/2008

WO 38000882, Install New Sump Pipe, dated 4/23/08

3/4-EOP-ECA1.1. Loss of Emergency Coolant Recirculation, dated 12/14/02

3/4-EOP-ES-1.3, Transfer to Cold Leg Recirculation, dated 12/14/02