



UNITED STATES
NUCLEAR REGULATORY COMMISSION

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

February 1, 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: ST. LUCIE NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT
05000335/2007005, 05000389/2007005

Dear Mr. Stall:

On December 31, 2007, the US Nuclear Regulatory Commission (NRC) completed an inspection at your St. Lucie Plant Units 1 and 2. The enclosed integrated inspection report documents the inspection findings which were discussed on January 8, 2008, with Mr. Johnston and other members of your staff.

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

This report documents two NRC identified findings of very low safety significance (Green). Two of these findings were determined to involve a violation of NRC requirements. Additionally, two licensee-identified violations which were determined to be of very low safety significance are listed in Section 4OA7 of this report. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the St. Lucie facility.

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 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 By M. Sykes For/

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

Docket Nos.: 50-335, 50-389
License Nos.: DPR-67, NPF-16

Enclosure: Inspection Report 05000335/2007005, 05000389/2007005
w/Attachment - Supplemental Information

cc w/encl: (See page 3)

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cc w/encls:

Mr. Mano Nazar, Senior Vice President
and Nuclear Chief Operating Officer
Electronic Mail Distribution

William E. Webster
Vice President, Nuclear Operations
South Region
Florida Power & Light Company
Electronic Mail Distribution

Gordon L. Johnston
Site Vice President
St. Lucie Nuclear Plant
Florida Power & Light Company
Electronic Mail Distribution

Christopher R. Costanzo
Plant General Manager
St. Lucie Nuclear Plant
Electronic Mail Distribution

Bill Parks
Operations Manager
St. Lucie Nuclear Plant
Electronic Mail Distribution

Terry L. Patterson
Licensing Manager
St. Lucie Nuclear Plant
Electronic Mail Distribution

Rajiv S. Kundalkar
Vice President - Nuclear Technical Services
Florida Power & Light Company
Electronic Mail Distribution

Don E. Grissette
Vice President, Nuclear Training
and Performance Improvement
Florida Power & Light Company
Electronic Mail Distribution

Seth B. Duston
Training Manager
St. Lucie Ocean Drive
Florida Power & Light Company
Electronic Mail Distribution

M. S. Ross, Managing Attorney
Florida Power & Light Company
Electronic Mail Distribution

Marjan Mashhadi, Senior Attorney
Florida Power & Light Company
Electronic Mail Distribution

William A. Passetti
Bureau of Radiation Control
Department of Health
Electronic Mail Distribution

Craig Fugate, Director
Division of Emergency Preparedness
Department of Community Affairs
Electronic Mail Distribution

J. Kammel
Radiological Emergency
Planning Administrator
Department of Public Safety
Electronic Mail Distribution

Douglas Anderson
County Administrator
St. Lucie County
2300 Virginia Avenue
Ft. Pierce, FL 34982

Letter to J. A. Stall from Steven J. Vias dated February 1, 2008

SUBJECT: ST. LUCIE NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT
05000335/2007005, 05000389/2007005

Distribution w/encl:

B. Mozafari, NRR

C. Evans (Part 72 Only)

L. Slack, RII EICS

OE Mail (email address if applicable)

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NRC Resident Inspector

U.S. Nuclear Regulatory Commission

P.O. Box 6090

Jensen Beach, FL 34957-2010

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-335, 50-389

License Nos.: DPR-67, NPF-16

Report Nos.: 05000335/2007005, 05000389/2007005

Licensee: Florida Power & Light Company (FPL)

Facility: St. Lucie Nuclear Plant, Units 1 & 2

Location: 6351 South Ocean Drive
Jensen Beach, FL 34957

Dates: October 1 - December 31, 2007

Inspectors: T. Hoeg, Senior Resident Inspector
S. Sanchez, Resident Inspector
S. Anderson, Resident Inspector (Acting)
R. Aiello, Senior Operations Engineer
R. Chou, Reactor Inspector
J. Diaz-Velez, Radiation Protection Inspector
J. Dodson, Senior Reactor Inspector
G. Kuzo, Senior Radiation Protection Inspector
E. Michel, Reactor Inspector
C. Peabody, Reactor Inspector
J. Rivera-Ortiz, Reactor Inspector
G. Khouri, Reactor Inspector

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

Enclosure

SUMMARY OF FINDINGS

IR 05000335/2007-005, 05000389/2007-005; 10/01/2007 - 12/31/2007; St. Lucie Nuclear Plant, Units 1 & 2; Occupational Radiation Safety and Public Radiation Safety.

The report covered a 3-month period of inspection by resident inspectors and announced inspections by region based inspectors. Two Green NRC-identified violations and two Green licensee-identified 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. NRC-Identified and Self-Revealing Findings

Cornerstone: Occupational Radiation Safety (OS)

- Green. A self-revealing non-cited violation (NCV) of Technical Specification (TS) 6.8.1(a) for failure to follow procedural guidance established for radioactive resin replacement activities was identified. Specifically, on November 13, 2007, Operations personnel failed to follow details in Procedure 2-0520020, Appendix E necessary to ensure depressurization of the 2B Purification Ion Exchange system during conduct of a volumetric test associated with resin replacement activities. The failure to follow the established guidance resulted in the unanticipated and uncontrolled release of radioactive materials from the system and the subsequent contamination of personnel and the surrounding clean areas. The licensee entered aspects of this finding into their Corrective Action Program (CAP) as Condition Report (CR) Numbers 2007-37764, 2007-37632 and 2007-37618.

This finding was determined to be more than minor because the failure to follow established operations procedures is associated with the Occupational Radiation Safety cornerstone attributes of program and controls, and affected the cornerstone objective to protect occupational workers from unplanned and unintended exposure to radiation. The event is of very low safety significance based on the resulting exposures being within regulatory limits for all workers involved in the event and its cleanup. This finding involved the cross-cutting area of human performance and the aspect of work practices ((IMC 305, H.4.b) (Section 2OS1)

Cornerstone: Public Radiation Safety (PS)

- Green. The inspectors identified a Green NRC-identified NCV of 10 CFR 71.5 for failure to implement package design specifications for the proper closure of Type A shipping packages as required by Department of Transportation (DOT) regulations. Specifically, for Type A packages containing Unit 1 Spent Resin Tank resin (shipment #06-27) shipped on April 30, 2006, and Unit 2 resin (shipment #06-32) shipped on April 14, 2006, the licensee failed to close the

packages in accordance with vendor specifications as required by 49 CFR 173.22. The licensee entered the finding into their CAP as CR 2007-35026.

The licensee's failure to comply with 10 CFR 71.5 which requires compliance with 49 CFR Part 173 for DOT Type A package vendor engineering analysis specifications, instructions and procedures, was a performance deficiency. The finding was more than minor because it was associated with the public radiation cornerstone program and transportation program attribute and it affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive material released into the public domain. The issue was reviewed using the Public Radiation Safety Significance Determination Process and was determined to be of very low safety significance (Green) because it did not involve a radiation limit being exceeded nor packaging being breached. This finding involved the cross-cutting area of human performance and the aspect of work practices (IMC 305, H.4.b) for failure to follow procedures. (Section 2PS2)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at Rated Thermal Power (RTP) and operated at or near RTP for the entire inspection report period. Unit 2 shutdown for a refueling outage on October 1, 2007, and remained shutdown for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

On October 29 through November 1, the inspectors reviewed and verified licensee actions taken in accordance with their procedural requirements prior to the onset of Tropical Storm Noel. The inspectors observed plant conditions and evaluated those conditions using criteria documented in licensee procedure 0005753, "Severe Weather Preparations." The inspectors performed site walkdowns and plant tours to verify the licensee had made the required preparations. The inspectors performed reviews of plant exterior areas vulnerable to high wind conditions which included the following areas:

- Unit 1 and 2 Component Cooling Water (CCW)
- Unit 1 and 2 Turbine Buildings
- Unit 1 and 2 Intake Cooling Water (ICW) Basins
- Unit 1 and 2 Radiologically Controlled Areas (Outdoors)

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial Walkdowns

a. Inspection Scope

The inspectors conducted three partial equipment alignment verifications of the safety-related systems listed below to review the operability of required redundant trains or backup systems while the other trains were inoperable or out of service (OOS). The inspectors looked to identify any discrepancies that could impact the function of the system, and therefore, potentially increase risk. These inspections included reviews of applicable Technical Specifications (TS), plant lineup procedures, operating procedures, and piping and instrumentation drawings (P&ID), which were compared with observed equipment configurations. The inspectors also reviewed applicable control room logs, equipment OOS and operator workaround (OWA) lists, active temporary system

alterations (TSA), and outstanding condition reports (CRs) regarding system alignment and operability.

- Unit 2 Spent Fuel Pool (SFP) Pumps and Heat Exchangers
- Unit 1 'B' Emergency Diesel Generator (EDG) While Unit 1 'A' EDG OOS
- Unit 2 'B' Shutdown Cooling (SDC) While Unit 2 'A' SDC OOS

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

The inspectors performed a detailed alignment verification of the Unit 2 auxiliary feedwater (AFW) system using applicable equipment lineup sheets and system training guides to walkdown and verify equipment alignment. The inspectors reviewed relevant portions of the Updated Final Safety Analysis Report (UFSAR) and TS. This detailed walkdown also verified electrical power requirements, component labeling, and associated support systems status. The inspectors also included evaluation of selected system components to verify that: 1) wiring and terminal board assemblies did not show evidence of wear; 2) electrical cabinet meters and indications were normal; 3) component foundations were not degraded. Furthermore, the inspectors examined OOS lists, active open work orders (WO), the AFW system health report, and open CRs that could affect system alignment and operability.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Protection - Tours

a. Inspection Scope

The inspectors conducted tours of the seven areas listed below to verify they conformed with licensee procedure AP-1800022, Fire Protection Plan. The inspectors specifically examined any transient combustibles in the areas and any ongoing hot work or other potential ignition sources. The inspectors also assessed whether the material condition, operational status, and operational lineup of fire protection systems, equipment and features were in accordance with the Fire Protection Plan. Furthermore, the inspectors evaluated the use of any compensatory measures being performed in accordance with the licensee's procedures and Fire Protection Plan.

- Unit 1 SFP Building
- Unit 2 SFP Cooling Pump and Heat Exchanger Rooms
- Unit 2 Reactor Containment Building (RCB) During Hot Work Conditions

- Unit 1 AFW Pump Area
- Unit 1 'A' EDG Room
- Unit 1 'B' EDG Room
- Unit 1 Remote Shutdown Panel Room

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed UFSAR Section 3.4, Water Level (Flood) Design and UFSAR Table 3.2-1, Design Classification of Structures, Systems and Components for the Unit 1 engineered safety features pump room. Equipment affected by a flood in this room included High Pressure Safety Injection (HPSI), Low Pressure Safety Injection (LPSI), and Containment Spray (CS) pumps. The inspectors also reviewed procedure 1-ONP-24.01, Reactor Auxiliary Building Flooding and verified certain actions required to be taken could be accomplished as written. The inspectors reviewed the Unit 1 engineered safety features pump room sump level indication and control system preventative maintenance (PM) schedule. The inspectors also verified the corrective action program (CAP) was being used to identify equipment issues that could be impacted by potential internal flooding.

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 Program

a. 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 2 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 (BPVC), Sections II, V, IX, and XI (Code of record for St. Lucie Unit 2 third 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 examination procedures, NDE reports, equipment and consumables certification records, personnel qualification records, calibration reports, and calibration block fabrication drawings (as applicable) for the following examinations:

- Ultrasonic (UT) examination of welds RC-121-2 and RC-121-3, Reactor Coolant Piping - Loop B, Steam Generator (SG)-2B to Reactor Coolant Pump (RCP)-2B1 (RCS, ASME Class 1)
- UT examination of welds RC-124-2 and RC-124-3, Reactor Coolant Piping - Loop B, SG-2B to RCP-2B2 (RCS, ASME Class 1)
- Liquid Penetrant (PT) examination of weld SI-110-8A-SW-1, Safety Injection (SI) Piping to SI Tank 2B2 (SI System, ASME Class 2)
- PT examination of welds SI-176-SW-13 and SI-176-FW-17, Combined Discharge to High Pressure Safety Injection Tie in Loop 2B (SI System, ASME Class 2).

The inspectors' review of welding activities included a sample of in process welding activities for ASME Class 1 piping to evaluate compliance with procedures and the ASME Code. The inspectors also reviewed weld process control reports, welding procedures, procedure qualification records, certified material test reports for filler material, and welder qualification records. The inspectors directly observed part of the welding process and verified welding machine settings for the welding activities described below.

- Weld Overlay on Pressurizer Surge Nozzle as part of Alloy 600 mitigation, layers 1 through 4 (RCS, ASME Class 1)
- Weld RC-112 (FW-2000), SG 2A1 Cold Leg (RCS, ASME Class 1)
- Weld RC-115 (FW-2000), SG 2A2 Cold Leg (RCS, ASME Class 1)
- Weld RC-114 (FW-2010), SG 2A Hot Leg (RCS, ASME Class 1)
- Weld RC-121 (FW-2000), SG 2B1 Cold Leg (RCS, ASME Class 1)
- Weld RC-124 (FW-2000), SG 2B2 Cold Leg (RCS, ASME Class 1)
- Weld RC-123 (FW-2010), SG 2B Hot Leg (RCS, ASME Class 1)

b. Findings

No findings of significance were identified.

.2 Vessel Upper Head Penetration (VUHP) Inspection Activities

a. Inspection Scope

There were no volumetric or bare metal visual examinations scheduled for the Fall 2007 refueling outage because the licensee replaced the reactor upper head during the aforementioned outage. The inspectors reviewed fabrication records for the replacement head in accordance with NRC inspection procedure IP 71007 (See section 4OA5).

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 Components in PWR Plants," and applicable industry guidance documents. Specifically, the inspectors performed an on-site record review of procedures and the results of the licensee's containment walkdown inspections performed during the Unit 2 Fall 2007 outage. The inspectors also conducted an independent walk-down of the reactor building to evaluate compliance with the licensee's BACC program requirements and to 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 2006-2168, Wet Boric Acid Indications on Insulation of Valve V3891
- CR 2006-25004, Boric Acid Indication on Valve V3438
- CR 2007-4383, Active Leak From Seal Injection Piping RC-227
- CR 2007-25493, Results of Reactor Coolant System Leak Test Procedure for SNO on August 18, 2007.

b. Findings

No findings of significance were identified.

.4 Steam Generator Tube Inspection Activities

a. Inspection Scope

The licensee did not perform eddy current (ECT) examination of Unit 2 SG tubes during the Fall 2007 outage because both SGs were replaced during the aforementioned outage. The inspectors reviewed the baseline ECT examination in accordance with NRC inspection procedure IP 50001 (See section 4OA5).

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 inspections that were identified by the licensee and entered into the CAP 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 Requalification Program

.1 Resident Inspector Quarterly Review

a. Inspection Scope

On November 6, 2007, the inspectors observed and assessed licensed operator actions during a simulated steam generator tube leak followed by a steam generator tube rupture event to verify that operator performance was adequate and that evaluators were identifying and documenting crew performance problems. The inspectors also reviewed simulator physical fidelity and specifically evaluated the following attributes related to the operating crews' performance:

- Clarity and formality of communication
- Prioritization, interpretation, and verification of alarms
- Control board operation and manipulation, including high-risk operator actions
- Oversight and direction provided by operations supervision, including ability to identify and implement appropriate TS actions, regulatory reporting requirements, and emergency plan actions and notifications
- Effectiveness of the post-evaluation critique

b. Findings

No findings of significance were identified.

.2 Annual review of Licensee Requalification Examination Results

a. Inspection Scope

On September 14, 2007, the licensee completed the requalification annual operating tests, required to be given to all licensed operators by 10 CFR 55.59(a)(2). The

inspectors performed an in-office review of the overall pass/fail results of the individual operating tests and the crew simulator operating tests. These results were compared to the thresholds established in Manual Chapter 609 Appendix I, Operator Requalification Human Performance Significance Determination Process.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

Quarterly Evaluation

a. Inspection Scope

The inspectors reviewed the reliability and deficiencies associated with the two systems listed below, including associated CRs. The inspectors verified the licensee's maintenance effectiveness efforts met the requirements of 10 CFR 50.65 and licensee Administrative Procedure ADM-17.08, Implementation of 10 CFR 50.65, Maintenance Rule. The inspectors focused on the licensee's system functional failure determination, a(1) and a(2) classification determination, corrective actions, and the appropriateness of established performance goals and monitoring criteria. The inspectors also attended applicable expert panel meetings and interviewed responsible engineers. The inspectors reviewed associated system health reports, along with the licensee's goal setting and monitoring requirements.

- Unit 1 Emergency Diesel Generators
- Unit 1 Vital 125 Volt DC

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the risk assessments for the following five Systems, Structures, and Components (SSCs), or a combination thereof, that were non-functional due to planned and/or emergent work. The inspectors also walked down and/or reviewed the scope of work to evaluate the effectiveness of licensee scheduling, configuration control, and management of online risk in accordance with 10 CFR 50.65(a)(4) and applicable licensee program procedure ADM-17.16, Implementation of the Configuration Risk Management Program. The inspectors interviewed responsible Senior Reactor Operators on-shift, verified actual system configurations, and specifically evaluated results from the online risk monitor (OLRM) and the outage risk monitor for the combinations of OOS risk significant SSCs listed below:

- Unit 2 Reactor Coolant System Water Level Lowered With Containment Open
- Unit 1 'A' EDG and Unit 2 'A' EDG OOS
- Unit 1 'A' EDG and 'A' Charging Pump OOS
- Unit 2 Mode 3 With 'A' Charging Pump, 'C' AFW Pump, and 'B1' Circulating Water Pump OOS
- Unit 2 Reduced Inventory Condition for Seal Replacement on 2B2 Reactor Coolant Pump

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following six CR interim dispositions and operability determinations to ensure that operability was properly supported and the affected SSCs remained available to perform its safety function with no increase in risk. The inspectors reviewed the applicable UFSAR, along with the associated supporting documents and procedures, and interviewed plant personnel to assess the adequacy of the interim disposition.

- CR 2007-31385, Unit 2 'B' EDG Load Spikes
- CR 2007-35613, Missed CR Operability Screening for Unit 1 Plenum Doors Not Properly Secured
- CR 2007-37680, Unit 1 'A' Steam Generator P-8013B Failed
- CR 2007-381757, Unit 1 Reactor Cavity Leakage
- CR 2007-42112, Unit 2 Pressurizer Code Safety Relief Valve Leakage
- CR 2007-42630, 2A1 Safety Injection Tank Valve Would Not Open

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed licensee procedures QI-3-PSL-1, Design Control, ENG-QI-1.7, Design Input Verification, ADM-17.11, 10 CFR 50.59 Screening, and observed part of the licensee's activities to implement a design change that upgraded the Unit 2 'A' and 'B' HPSI pump seal coolers. The inspectors reviewed the associated 10 CFR 50.59 screening against the system design basis documents to verify that the modifications had not affected system operability and availability. The inspectors reviewed selected ongoing and completed work activities to verify that installation was consistent with design control documents.

- Plant Change/Modification 07090M, Unit 2 HPSI Pump Seal Modification

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors witnessed and reviewed Work Order (WO) post maintenance test (PMT) activities of the five risk significant SSCs listed below. The following aspects were inspected: (1) Effect of testing on the plant recognized and addressed by control room and/or engineering personnel; (2) Testing consistent with maintenance performed; (3) Acceptance criteria demonstrated operational readiness consistent with design and licensing basis documents such as TS, UFSAR, and others; (4) Range, accuracy and calibration of test equipment; (5) Step by step compliance with test procedures and/or work orders (WO), and applicable prerequisites satisfied; (6) Control of installed jumpers or lifted leads; (7) Removal of test equipment; and, (8) Restoration of SSCs to operable status. The inspectors also reviewed problems associated with PMTs that were identified and entered into the licensee's CAP.

- WO#36015023, Unit 2 'B' Battery Profile Test
- WO#37015146, Unit 2 'B' CS Pump
- WO#37024460, Unit 1 'A' EDG Radiator Replacement
- WO#36022196, Unit 2 Integrated Leak Rate Test of the RCB
- WO#37026197, Unit 2 'C' AFW Pump MV-08-3 Stop Valve Maintenance

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities

a. Inspection Scope

Outage Planning, Control, and Risk Assessment

During pre-outage planning, the inspectors reviewed the risk reduction methodology employed by the licensee for refuel outage SL2-17, in particular the Risk Assessment Team (RAT) notebook. The inspectors also examined the licensee's implementation of shutdown safety assessments during SL2-17 in accordance with Administrative Procedure 0-AP-0010526, Outage Risk Assessment and Control, to verify whether a defense in depth concept was in place to ensure safe operations and avoid unnecessary risk. Furthermore, the inspectors regularly monitored outage planning and control activities in the Outage Control Center (OCC), and interviewed responsible OCC management during the outage to ensure SSC configurations and work scope were consistent with TS requirements, site procedures, and outage risk controls.

Monitoring of Shutdown Activities

The inspectors observed portions of the reactor plant shutdown and cooldown of Unit 2 beginning on October 1, 2007. The inspectors also monitored plant parameters and verified that shutdown activities were conducted in accordance with TS and applicable operating procedures, such as: 2-GOP-123, Turbine Shutdown - Full Load to Zero Load; 2-GOP-203, Reactor Shutdown; 2-GOP-305, Reactor Plant Cooldown - Hot Standby To Cold Shutdown; and 2-NOP-03.05, Shutdown Cooling.

Outage Activities

The inspectors examined outage activities to verify that they were conducted in accordance with TS, licensee procedures, and the licensee's outage risk control plan. Some of the more significant inspection activities accomplished by the inspectors were as follows:

- Walked down selected safety-related equipment clearance orders
- Verified operability of RCS pressure, level, flow, and temperature instruments during various modes of operation
- Verified electrical systems availability and alignment
- Reviewed actions taken in preparation for Hurricane season
- Verified shutdown cooling system and spent fuel pool cooling system operation
- Evaluated implementation of reactivity controls
- Reviewed control of containment penetrations
- Examined foreign material exclusion (FME) controls put in place inside containment (e.g., around the refueling cavity, near sensitive equipment and RCS breaches) and around the SFP
- Walked down the new containment sump modification

Review of Operating Experience Smart Sample (OpESS) FY2007-03, Crane and Heavy Lift Inspection, Supplemental Guidance for IP-71111.20

The inspectors performed an operating experience smart sample in the area of handling of heavy loads. The inspectors reviewed selected heavy lifting evolutions in the containment building. Specifically, the inspectors observed and reviewed licensee procedures, equipment, and personnel qualifications used in the rigging and lifting of the reactor vessel head.

Refueling Activities and Containment Closure

The inspectors witnessed selected fuel handling operations being performed according to TS and applicable operating procedures from the main control room, refueling cavity inside containment and the SFP. The inspectors also examined licensee activities to control and track the position of each fuel assembly. Furthermore, the inspectors evaluated the licensee's ability to close the containment equipment, personnel, and emergency hatches in a timely manner per procedure 2-MMP-68.02, Emergency Closure of Containment Penetrations, Personnel Hatch, and Equipment Hatch.

Heatup and Mode Transition Activities

The inspectors examined selected TS, license conditions, license commitments and verified administrative prerequisites were being met prior to mode changes. The inspectors also verified containment integrity was properly established. The inspectors also conducted containment walkdowns on December 21 and 27, 2008, after Unit 2 had reached Mode 3 and was at normal operating pressure and temperature. The inspectors witnessed portions of the RCS heatup in accordance with the following plant procedures:

- 2-GOP-201, Reactor Plant Startup - Mode 2 to Mode 1
- 2-GOP-302, Reactor Plant Startup - Mode 3 to Mode 2
- 2-GOP-303, Reactor Plant Heatup - Mode 3 <1750 to Mode 3 >1750
- 2-GOP-403, Reactor Plant Heatup - Mode 4 to Mode 3
- 2-GOP-504, Reactor Plant Heatup - Mode 5 to Mode 4

Correction Action Program

The inspectors reviewed CRs generated during SL2-17 to evaluate the licensee's threshold for initiating CRs. The inspectors reviewed CRs to verify priorities, mode holds, and significance levels were assigned as required. Resolution and implementation of corrective actions of several CRs were also reviewed for completeness. The inspectors routinely reviewed the results of Quality Assurance (QA) daily surveillance's of outage activities.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors witnessed portions of the following eight surveillance tests and monitored personnel conducting the tests as well as equipment performance, to verify that testing was being accomplished in accordance with applicable operating procedures. The test data was reviewed to verify it met TS, UFSAR, and/or licensee procedure requirements. The inspectors also verified that the testing effectively demonstrated the systems were operationally ready, capable of performing their intended safety functions, and that identified problems were entered into the licensee's CAP for resolution. The tests included one inservice test (IST) and one containment isolation valve (CIV) leak rate test.

- OP-2-0410025, Safety Injection Tank Dump Test
- OSP-1-14.01B, 1B CCW Pump Code Run
- OP-1-3200020, Unit 1 Calorimetric
- OSP-1-3.05A, 1A HPSI Pump Code Run (IST)
- OSP-1-3.05A, 1A LPSI Pump Code Run
- OSP-1-07.04A, 1A CS Pump Code Run

- OP-2-0400050, Periodic Test of Engineered Safety Features
- OSP-2-68.02, Local Leak Rate Test (CIV)

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 October 22, 2007, and November 13, 2007, the inspectors evaluated licensee activities for controlling and monitoring worker access to radiologically significant areas and tasks associated with the Unit 2, Refueling Outage 17 (SL2-17). 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. In addition, radiation protection program implementation and its results for routine Unit 1 (U1) and Unit 2 (U2) normal operations conducted from October 2006 through November 2007 were reviewed.

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 radworker practices. The observed work evolutions included old reactor vessel closure head (ORVCH) and old steam generator (OS/G) removal and replacement activities within the U2 reactor containment building (RCB); movement and temporary on-site storage of the ORVCH and OS/Gs; ORVCH disassembly; weld overlay activities; sump modifications; and reactor coolant pump (RCP) maintenance activities. 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 both direct coverage activities by HPT staff and radiation protection (RP) coverage being provided by the remote monitoring facilities. Access control procedures for posted LHRA and VHRA locations were reviewed and discussed with selected RP management, supervision, and technicians. In addition, radiation protection and contamination control activities associated with routine operations prior to and during the ongoing outage were reviewed and discussed.

During facility tours, the inspectors evaluated selected radiological postings, barricades, and surveys associated with radioactive material storage areas and radiologically significant areas within the U1 and U2 reactor auxiliary building (RAB) areas, U1 and U2 spent fuel pool (SFP) buildings, ORVCH and OS/G temporary storage areas, Radioactive Waste Processing facility, and the U2 RCB. The inspectors conducted independent dose-rate measurements at various building locations, work areas, and storage facilities, and compared those results to licensee radiation survey map data. The inspectors independently assessed implementation of HRA 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 reviewed and evaluated management oversight of selected radiological controls, including worker dose extensions, and reviews of RP evaluations of both external and internal personnel contamination events.

Radiation protection activities were evaluated against Updated Final Safety Analysis Report (UFSAR) Section 12, Radiation Protection; TS Sections 6.8, Procedures and Programs, 6.11 Radiation Protection Program, 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 Condition Report (CR) documents 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 (Rev.) 13.

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

b. Findings

Introduction. A Green self-revealing non-cited violation (NCV) of Technical Specification (TS) 6.8.1(a) was identified for the failure to follow procedures for volumetric test activities associated with the 2B Purification Ion Exchange system.

Description. On November 13, 2007, operations personnel were conducting actions to replace resin in the Chemical and Volume Control System (CVCS) 2B Chemical Purification Ion Exchanger in accordance with Procedure 2-0520020, Appendix E,

Radioactive Waste Resin Replacement. Specifically, the operations personnel were conducting a volumetric test for the subject system and had completed activities through Step 7 as outlined in the applicable procedure. However, Step 8 requiring opening of the Vent Valve for the Purification Inlet (V2863) had been marked 'Not Applicable' by the Nuclear Watch Engineer (NWE) based on the vent valve being in a locked high radiation area and on general knowledge that the resin fill valve had proven to be more than adequate as a vent path during previous evolutions of the subject task. However, when the operators opened Isolation Valve (V2387) for Purification IX 2B resin fill, radioactive material (liquid) spurted from the resin fill funnel into the surrounding non-contaminated area and onto one of the operators. This unexpected and uncontrolled release of material contaminated an area of approximately 50 square feet and resulted in the contamination of one of the operators involved in the evolution. For the affected operator, maximum contamination levels of approximately 5 millirad per hour/probe area (beta) and 3 milliR/hr (gamma) initially were reported on the individuals shirt, pants, and shoes; and an initial whole body count identified a minor body burden of approximately 31 nanocuries (nCi) of Cobalt-58.

Preliminary licensee review determined that the operators failed to consider that the ion exchanger could be pressurized, and inappropriately waived the steps requiring access to a locked high radiation area. The licensee review further noted that the observed actions circumvented all appropriate reviews associated with the changes to the approved procedure.

Analysis. The inspectors determined that the finding was more than minor because the failure to follow established operations procedures is associated with the Occupational Radiation Safety cornerstone attributes of program and process, and affected the cornerstone objective to protect occupational workers from unplanned and unintended exposure to radiation. The finding was evaluated using the Occupational Radiation Safety Significance Determination Process (SDP) and was determined to be of very low safety significance because all individuals involved in the event were monitored for exposures from external radiation fields and subsequently from exposures resulting from surface contamination and from internally deposited radionuclides, as appropriate. Further, no individuals involved in the actual event or cleanup exceeded occupational exposure limits. This finding involved the cross-cutting area of human performance and the aspect of work practices (H.4(b)).

Enforcement. TS Sections 6.8.1(a) Procedures and Programs, requires, in part, procedures to be established, implemented and maintained covering the applicable procedure recommended in Appendix A of Regulatory Guide (RG) 1.33, Revision 2. Appendix A of RG 1.33 requires, in part, procedures for startup, operation and shut down including Chemical and Volume Control (CVCS) operation and procedures for Control of Radioactivity to limit materials released to the environment and to limit personnel exposure. Contrary to the above, on November 13, 2007, the operators failed to follow Procedure 2-0520020, Appendix E associated with radioactive resin replacement for the 2B Purification Ion Exchange system resulting in the unanticipated and uncontrolled release of radioactive material from the system and the subsequent contamination of personnel and surrounding areas. Because the failure to follow these procedures is of very low safety significance and has been entered into the licensee's corrective action program, CR Numbers 2007-37764, 2007-37632 and 2007-37618, this

violation is being treated as a Non-cited Violation (NCV), consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 50-335,389/2007005-01, Failure to follow procedures for the 2B Purification Ion Exchange system resin change-out activities.

2OS2 ALARA Planning and Controls

a. Inspection Scope

As Low As Reasonably Achievable (ALARA) Inspectors reviewed ALARA program guidance and its implementation for ongoing SL2-17 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. The inspectors observed two ALARA review board meetings.

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 U2 Emergency Core Cooling System (ECCS) sump modifications, OS/G removal and replacement activities, alloy 600 weld overlay work, and ORVCH replacement activities. For the selected tasks, the inspectors evaluated radworker and HPT 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 U2 RCB and the U2 RAB 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 U2 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) 2005 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 U2 outages. The inspectors reviewed procedural guidance for dose monitoring

of declared pregnant workers, and determined that no declarations of pregnant workers occurred from January 2006 to August 2007.

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 6 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 Systems

a. 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. 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 approximately 50 onsite groundwater wells initially sampled, electrical vaults, onsite ponds located within the owner controlled area were discussed in detail. All tritium and gamma-emitting radionuclide concentration results were less than detection levels of approximately 400-500 picocuries per liter (pCi/l) or below the established Offsite Dose Calculation Manual (ODCM) reporting limits with highest values of approximately 15,000 picocuries per liter (pCi/l) or less reported for monitoring well (MW)-4 and MW-6. These elevated tritium concentrations are trending downward and are believed to be the result of previous spills and leaks from U1 onsite refueling water tank and associated piping. Current capabilities and routine surveillances to minimize and rapidly identify any abnormal leaks from tanks containing

liquid radioactive waste, 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 Transportation

a. Inspection Scope

Waste Processing and Characterization: The inspectors reviewed and discussed with licensee representatives, the installed liquid and solid radioactive waste (radwaste) processing systems as described in the UFSAR. In addition, radwaste stored onsite, and radwaste disposal records as documented in Effluent Release Report for CY 2005 and CY 2006 were reviewed and discussed with licensee representatives.

The operability and configuration of liquid and solid radwaste processing systems and equipment were evaluated. Inspection activities included a review of documentation, interviews with licensee personnel, and direct inspection of processing equipment and piping. The inspectors observed equipment material condition and configuration for liquid and solid radwaste processing systems and interviewed licensee staff regarding equipment use and operability. The licensee's policy regarding abandoned radwaste equipment was discussed with various licensee representatives. Procedural guidance involving resin dewatering activities and fill of waste packages was reviewed for consistency with the licensee's Process Control Program (PCP) and procedures.

Licensee radionuclide characterizations and scaling factors for the following waste streams were evaluated: dry active waste (DAW), resin, and filters. The inspectors evaluated the licensee procedural guidance against 10 CFR 61.55 and the Branch Technical Position (BTP) on Radioactive Waste Classification. Part 61 data, scaling factors, and quantification of hard-to-detect nuclides, were reviewed and discussed with licensee representatives for radwaste processed or transferred to licensed waste reduction and burial facilities from September 2005, through September, 2007. The inspectors discussed potential for changes in plant operating conditions and reviewed selected DAW and primary resin waste stream radionuclide data to determine if known plant changes were assessed and radionuclide composition remained consistent for the period reviewed. Procedures and records reviewed within this inspection area are listed in Section 2PS2 of the report Attachment.

Transportation: The inspectors evaluated licensee activities related to transportation of radioactive material. The evaluation included review of shipping records and procedures, assessment of worker training and proficiency, and direct observation of shipping activities.

The inspectors assessed shipping-related procedures for compliance with applicable regulatory requirements. Selected shipping records were reviewed for completeness, accuracy, and for consistency with licensee procedures. Training records for individuals qualified to ship radioactive material were checked for completeness. In addition, inspectors assessed the specific training provided to workers involved with packaging and preparing the radwaste for temporary storage and subsequent shipment. Inspectors directly observed the preparation of a radwaste shipment of dry active waste to a processing vendor; independently verified results of contamination and direct radiation surveys; evaluated shipping paperwork for completeness; and assessed initial loading, bracing, and placarding of the transport vehicle. Licensee personnel were interviewed to assess their knowledge of package preparation specifications, and applicable radiation and contamination control limits.

Transportation program guidance and implementation were reviewed against regulations detailed in 10 CFR 71, 49 CFR 170-189, and applicable licensee procedures. In addition, training activities were assessed against 49 CFR 172 Subpart H, and the guidance documented in NRC Bulletin 79-19. Procedures and records reviewed within this inspection area are listed in Section 2PS2 of the report Attachment.

Problem Identification and Resolution: Licensee CAP documents associated with radwaste processing and transportation activities were reviewed and assessed. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with licensee procedures, and program audits. Selected documents reviewed for this inspection area are identified in Section 2PS2 of the report Attachment.

The inspectors completed the six specified line-item samples detailed in IP 71122.02.

b. Findings.

Introduction: A Green NRC-identified NCV of 10 CFR 71.5 was identified for failure to implement package design specifications for the proper closure of Type A shipping packages as required by Department of Transportation (DOT) regulations

Description: The inspectors determined that the licensee did not demonstrate that all required package preparation instructions provided in the vendor cask specifications and procedures were met, as required for use as a DOT Type A package. The inspectors noted that the vendor documents and instructions, provided torque specifications for the inner and outer lid closure devices, bolt closure sequence, and seal gasket inspection procedures. From review of shipping documents and discussions with licensee representatives, the inspectors identified two shipments which used a DOT Type A package to ship resin to other licensed offsite facilities where the torque closure values did not demonstrate meeting the vendor cask closure specifications in accordance with 49 CFR 173. Specifically, for a Type A package containing Unit 2 resin (shipment #06-32) shipped on April 14, 2006, the licensee exceeded the specified vendor document closure lid torque values, and for a Type A shipment of Unit 1 Spent Resin Tank resin (shipment #06-27) shipped on April 30, 2006, the licensee could not provide any documentation verifying that the closure was made in accordance with the subject vendor specifications.

Analysis. The inspectors noted that the finding was more than minor because the failure to follow Type A package specifications and instructions for closure is associated with the Public Radiation Safety cornerstone attributes of programs and process, and affected the cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as the result of routine civilian nuclear reactor operations. This finding was analyzed using the Public Radiation Safety SDP and was determined to be of very low safety significance because it did not involve a radiation limit being exceeded nor packaging being breached. This finding involved the cross-cutting area of human performance and the aspect of work practices (H.4.b) for failure to follow procedures.

Enforcement. 10 CFR 71.5 requires licensees to comply with the regulations in DOT 49 CFR Parts 170 through 189. 49 CFR 173.22(a)(4) states in part that for DOT specification packaging, a person must perform all functions necessary to bring the package into compliance as identified by the packaging manufacturer or distributor, for example applying closures consistent with manufacturer's closure instructions. Additionally, 49 CFR 173.475(e) requires in part, that each special instruction for closing and preparation of a package be followed. Contrary to the above, for shipments of Type A packages made on April 14, 2006 and April 30, 2006, the licensee failed to demonstrate implementation of vendor required instructions and specifications for torque closure assembly values of the DOT specification Type A cask packages. The licensee documented this issue in its CAP as CR 2007-35026. Since this violation is of very low safety significance and the licensee entered the finding into their CAP, this violation is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000335, 389/2007005-02, Failure to Implement Appropriate DOT Type A Package Closure Requirements.

40A1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors assessed the accuracy of the following PIs reported to the NRC. The inspectors reviewed the PI data of Units 1 and 2 for the previous four quarters (i.e., Fourth Quarter 2006 through Third Quarter 2007). Monthly Operating Reports, LERs, RCO Chronological Logs, and CRs were reviewed to verify the reported PI data was complete and accurate.

- Unit 1 Mitigating Systems Performance Indicator
- Unit 2 Mitigating Systems Performance Indicator

b. Findings

No findings of significance were identified.

Radiation Protection Performance Indicators

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 October 2006, through September 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 October 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

4OA2 Problem Identification and Resolution of Problems

.1 Review of Items Entered into the Corrective Action Program

As required by NRC inspection procedure 71152, Identification and Resolution of Problems, and to help identify repetitive equipment failures or specific human performance issues for followup, the inspectors performed screening of items entered into the licensee's CAP. This was accomplished by reviewing the CR summaries from daily printed reports and periodically attending CR oversight group meetings. Documents reviewed are listed in the attachment.

.2 Annual Sample: Unit 1 'A' EDG 1A1 Diesel Engine Radiator Leak

a. Inspection Scope

The inspectors selected CR 2007-36761, 1A-EDG 1A1 Diesel Engine Radiator Leak, for a detailed review to understand how and why this leak occurred. The inspectors reviewed the apparent cause evaluation, interviewed Engineering personnel, and observed portions of the maintenance repair activities. The inspectors evaluated the CR

in accordance with the licensee's corrective action process as specified in licensee procedure NAP-204, "Condition Reporting."

b. Findings

No findings of significance were identified.

.3 Annual Sample: Review of Operator Work Around (OWA) Associated With Unit 1 Flow Recorder FRC-2210X/FRC-2210Y

a. Inspection Scope

The inspectors selected CR 2007-2088, Inaccurate Unit 1 Volume Control Tank Blending Station, associated with OWA 1-002-1, for a detailed review of the effects of operations personnel having to bypass the ion exchanger when changing the charging pump lineup due to letdown temperature swings and resulting reactor reactivity changes. The inspectors reviewed the potential for misoperation of the system and the affect of the workaround on the operators ability to respond in a correct and timely manner to plant transients and accidents. The inspectors evaluated the CR in accordance with the licensee's corrective action process as specified in licensee procedure NAP-204, "Condition Reporting."

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 Reactor Pressure Vessel Head (RPVH) Replacement

a. Inspection Scope

The inspectors reviewed a sample of records related to the fabrication, testing, and examination of the Unit 2 replacement RPVH and Control Element Drive Mechanisms (CEDMs) to verify compliance with the applicable construction and examination Codes. The Code of record for the fabrication of the RPVH was the ASME BPVC, Section III, 1989 Edition with no Addenda; and 1998 Edition through 2000 Addenda for the fabrication of the CEDMs. The inspectors reviewed the documents described below to verify compliance with Sections II, III, V, IX, and XI of the aforementioned ASME Code Editions:

- Certified Material Test Report (CMTR) for RPVH material, including ultrasonic (UT) examination reports, magnetic particle (MT) examination reports, dimensional (DT) examination report, and visual (VT) examination report.
- CMTR for support blocks material, including UT examination report.
- CMTR for CEDM penetration nozzles material, including hydrostatic test report, UT and liquid penetrant (PT) examination reports, DT examination report, and heat treatment records.

- CMTR for CEDM Upper Pressure Housing material, including UT examination report.
- CMTR for In-Core Instrumentation (ICI) nozzles material, including hydrostatic test report, UT and PT examination reports, DT examination report, and heat treatment records.
- CMTR for ICI nozzle adaptor material, including UT and PT examination reports, and heat treatment records.
- Clad weld W1002 records: production weld data sheets, CMTR for welding material, welding procedure specification (WPS), procedure qualification record (PQR), a sample of welder qualifications, PT and UT examination reports, and DT examination report.
- J-groove butter weld B/D001 records: production weld data sheets, CMTR for welding material, WPS, PQR, PT examination reports, PT examination procedure, and DT examination report.
- J-groove weld S/P001 records for CEDM penetrations 1 through 43: production weld data sheets, CMTR for welding material, WPS, PQR, PT examination reports, PT examination procedure, welder performance qualification procedure, and a sample of NDE personnel qualifications.
- CEDM nozzle to flange weld S/C001 records: production weld data sheets, CMTR for welding material, WPS, PQR, and radiographic (RT) examination films for CEDM housing numbers 1, 3, 10, and 16.
- ICI nozzle to quick-lock adaptor weld records: production weld data sheets, CMTR for welding material, WPS, and PQR.
- CEDM motor housing welds records: CMTRs for welding material, WPSs, PQRs, a sample of welder qualifications, and RT examination films for CEDM motor housing serial number 5321.
- CEDM upper pressure housing welds records: CMTRs for welding material, WPS, PQRs, a sample of welder qualifications, and RT examination films for CEDM motor housing serial number 5405.
- Support blocks welds: CMTR for welding material, WPS, and PQR.
- Post Weld Heat Treatment report after cladding and J-groove butter welding, including DT examination report for J-groove butter thickness.
- Final Hydrostatic Test report for RPVH and CEDMs, including MT examination report and PT examination report after the test using "PT White" criteria (i.e. no surface indications allowed before operation).
- Nonconformance Reports (NCRs) for conditions, including repairs, not in accordance with the design specifications or the construction code. The NCRs reviewed by the inspectors are in the report attachment.

The inspectors also reviewed reports for NDE activities performed to meet Section XI of the ASME Code and NRC Order EA-03-09. The inspectors reviewed the scope of the examinations and the summary of results to verify that the examinations were adequate to support future inservice examinations required by the applicable edition of Section XI and the NRC Order.

The inspectors reviewed documentation and interviewed QA personnel to verify that the licensee implemented an adequate QA oversight of the manufacturer activities. The inspectors reviewed a sample of surveillance reports prepared by the licensee's QA

personnel at the vendor facilities to assess the thoroughness of the audits and the impact of audit findings on the fabrication of the RPVH.

In addition, the inspectors reviewed Plant Change/Modification documents associated with the replacement RPVH and CEDMs, including the associated 10 CFR 50.59 screening to verify that changes between the original and replacement RPVHs and modifications resulting from installation of the replacement RPVH were properly evaluated in accordance with 10 CFR 50.59. The inspectors also reviewed documentation to verify that the replacement RPVH and CEDMs fabrication requirements were reconciled with the original construction code.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed Unit 2 implementation of the licensee's 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. These commitments included the permanent modification of the containment building ECCS sump strainer assembly and installation of new seals for the HPSI pumps and Containment Spray (CS) pumps. The inspectors reviewed the sump strainer assembly PC/Ms, corresponding 10 CFR 50.59 evaluation, ECCS sump inspection requirements, and the post-modification requirements for the HPSI and CS pumps. The inspectors conducted a visual walkdown to verify the installed strainer assembly and HPSI and CS pumps configurations were consistent with drawings and specifications provided in the PC/Ms.

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 May 16, 2007:

05.a FPL implemented plant modifications and procedure changes at St. Lucie committed to in their GL 2004-02 response for Unit 2. A list of commitments and their respective completion dates are listed in the attachment titled "St. Lucie 2 GL 2004-02 Commitments Applicable to TI 2515/166."

05.b FPL updated the St. Lucie 2 licensing bases to reflect the corrective actions taken in response to GL 2004-02.

05.c No extensions of the December 31, 2007, deadline for GL 2004-02 commitment completions have been granted to St. Lucie Units 1 and 2. FPL will seek an extension for ongoing chemical effects testing to validate the design.

TI 2515/166 is closed for St. Lucie Unit 2, no additional modifications or procedural changes under GL 2004-02 are anticipated.

.3 Unit 2 Steam Generator Replacement Inspection (IP 50001)

a. Inspection Scope

Design and Planning

The inspectors reviewed the following related to the licensee's steam generator replacement (SGR) project design and planning: the scope and schedule to identify special inspection needs; the Plant Change Modification (PCM) packages; the 50.59 evaluation; the Quality Assurance Program; the preparation of cutting and closure for the creation of a temporary containment opening; the applicable engineering design, modification, and analysis associated with the steam generator (SG) lifting and rigging; the radiation protection program controls, planning, and preparation associated with the SGR; the security considerations associated with vital and protected area barriers that were affected during the SGR activities; and the controls and plans to minimize any adverse impact the activities may have had on the operating unit and common systems.

The licensee used ASME Boiler and Pressure Vessel Code (ASME Code) Sections III and XI, 1998 Edition through 2000 Addenda, for the design, fabrication, and replacement of the new or replacement SGs (RSGs). The licensee used ASME Code Section III 2001 Edition through 2002 Addenda for the fabrication and installation of the following major component modifications: RCS Primary Piping Connections; Main Steam and Feed Water Piping Connections; and Steel Containment Vessel. The inspectors reviewed and examined the SGR activities and compared to the requirements of the ASME Code.

The inspectors reviewed PSL-ENG-SENJ-07-039, Overall Project Evaluation Report Volumes 1 to 4, which included RSGs, components, design basis, documents, and supplemental documents. The inspectors reviewed PCM 05137, Replacement Steam Generators 2A & 2B and Areva Report No. 77-5069878-02, Replacement Steam Generator Report for Florida Power & Light St. Lucie Unit 2. The PCM 05137 included the design changes, analyses, and evaluations, safety analyses, 10 CFR 50.59 Change Evaluation, configuration, materials, implementation, and post modification acceptance testing. The inspectors reviewed the following other major modification packages: PCM 05129, Feed Water and Main Steam Piping; PCM 05132, Main Steam Rupture Restraints; PCM 05133, Steam Generator Supports; PCM 05134, Reactor Coolant System Primary Piping; PCM 05145, Temporary Lifting Device; PCM 05146, Outside Lift System and Hatch Transfer System; PCM 05147, Removal and Reinstallation of Shield Building Concrete Construction Hatch; and PCM 05148, Containment Building Steel Construction Hatch. The inspectors also reviewed other miscellaneous and temporary modifications.

The inspectors reviewed design calculations and analyses for design methods, assumptions, loadings, computations, and accuracies. The inspectors also selected work packages prepared for the construction and implementation of the PCMs to review the work steps for the appropriate processes to be used and hold points designated for the proper verifications by the engineers and quality control (QC) inspectors.

The inspectors reviewed the change screening and/or evaluation for all PCMs reviewed to verify that the modifications were properly evaluated in accordance with 10 CFR 50.59.

Removal and Replacement

During the removal of the original SGs (OSGs) and replacement of the new SGs, the inspectors reviewed and evaluated the associated temporary and permanent modifications; the cutting, disconnecting, and the providing of temporary supports for the OSGs; the lifting, rigging, and transporting of the OSGs, RSGs, and associated equipment; machining and preparations of the existing piping for the connections to the RSGs; welding and nondestructive examination (NDE) activities; and the radiological safety plans for temporary storage and disposal of the retired steam generators. The inspectors reviewed and observed the major structural modifications including activities associated with the restoration of the temporary containment opening. The controls for excluding foreign material and the establishment of operating conditions including defueling, Reactor Coolant System (RCS) draindown and system isolation, were inspected during the SG removal and replacement.

The inspectors observed the in-process and/or reviewed records for the welding, NDE, preservice inspections, baseline inspections, and corrective action activities for the Class 1 piping and components of the SGs.

The inspectors reviewed procedures, examination results, the modification packages, work requests, and work packages related to the modifications including the steel containment vessel (SCV) construction hatch reinstallation, to ensure compliance with the requirements of the ASME Code. The inspectors also examined the condition of the hatch prior to reinstallation of the hatch cover during a plant walkdown.

RSG Preservice and Baseline Inspections

The inspectors reviewed the manufactured records for the materials, welding, NDE, and certificates as shown in the Quality Assurance Data Packages associated with the fabrication of the RSGs manufactured in Chalon, France, to verify compliance with the ASME Code.

The inspectors selected the records for review which included certificate of conformance to the ASME code, N-stamped, certified material test reports (CMTRs), chemical analyses, impact tests, tensile strength tests, drop weight tests, mechanical tests, visual examination (VT) reports, liquid penetrant examination (PT) reports, magnetic examination (MT) reports, ultrasonic examination (UT) reports, radiograph examination (RT) reports, eddy current examination (ET) reports, the hydrotest reports, design drawings, nonconformance reports (NCRs), and repairs. The inspectors reviewed the

records for the manufactured process, material properties, calibrations, and the NDE for the construction, preservice, and tube baseline inspections. The inspectors reviewed the welding process, fit-up, data sheets and maps, procedures, filler materials, specifications, procedural qualifications, preheat and post heat treatment, and equipment and personnel certifications. The inspectors also reviewed material changes, functionality changes, flow increase, and tube diameter changes related to the RSGs.

The review of the NDE for the construction, preservice, and baseline inspections for the RSGs were shown below:

Procurement:

- Divider Plate
- V-shaped anti-vibration bars (AVB)
- Tube sheet
- Alloy 690 TT tubes
- Plate for the AVB support
- Feed Water nozzle
- Safe end nozzle
- Divider plate closure

NDE:

VT:

- Lifting lugs on tube sheet, weld # S/KP01
- Repair of inconel cladding, weld # R/D002
- Tube to tubesheet, weld # SP001
- Primary manway flange surface sheet, weld # R/D021
- Secondary manway nuts, ID# B/L 120

PT:

- Lifting lugs on tube sheet, weld # S/KP01
- Repair of inconel cladding, weld # R/D002
- Tube to tube sheet, weld # SP001
- Primary Head to tube sheet, weld #S/C001
- Blowdown 2" taps to tube sheet, weld # S/P006

MT:

- Recirculation nozzle to shell, weld #S/T003

RT:

- Safe end to primary outlet nozzle, weld # SC002
- Conical shell to intermediate shell, weld # SC005
- Feed Water nozzle to shell, weld # ST001
- Recirculation nozzle to shell, weld #ST003

Preservice Inspection:

UT:

- Repair of inconel cladding, weld # R/D002
- Cladding on Primary head, weld #'s R/D021, R/D023, R/D025, R/D027
- Tube sheet curved area cladding, Weld # R/D003
- Elliptical head to upper shell, weld #S/C008-314-1
- Feed water nozzle to shell, weld #S/T001
- Conical shell to intermediate shell, weld #S/C005

Preservice and Baseline Inspections:

ET:

- A sample of tubes

Welding

The inspectors reviewed a sample of welding activities associated with the installation of the RSGs to evaluate compliance with licensee/contractor procedures and the applicable ASME Code. The inspectors' review consisted of joint configuration drawings, welding procedures, welding specifications, welding procedure qualifications, CMTRs for filler materials, welder qualification records, weld data records, post weld heat treatment procedures, and the RT procedure for the welds joining the SGs and the RCS piping.

The inspectors performed field observations, via video monitors located outside containment, of the machine welding of the RCS hot leg and cold leg piping connections listed below. The inspectors also reviewed and verified a sample of welding machine settings for the RSG 2A weld equipment to verify that welding parameters were being maintained within the qualified procedure limits. In addition, the inspectors directly observed portions of the welding process for welds RC-121 and RC-124 of RSG 2B.

- RC-112 (FW-2000), SG 2A1 Cold Leg
- RC-115 (FW-2000), SG 2A2 Cold Leg
- RC-114 (FW-2010), SG 2A Hot Leg
- RC-121 (FW-2000), SG 2B1 Cold Leg
- RC-124 (FW-2000), SG 2B2 Cold Leg
- RC-123 (FW-2010), SG 2B Hot Leg

NDE

The inspectors reviewed the NDE procedures, calibration and examination reports, and observed in-process NDE examinations for the following piping or component welds and compared them to the requirements of the procedures and the ASME Code for the construction, preservice, and baseline inspections.

PT & MT - Construction

- CNTMT VSL FW 2000, Construction Hatch Steel Containment

RT - Construction

- MS-28 FW 2000, Main Steam Riser Nozzle to SG 2B
- BF-51 FW 2000, Feed Water Nozzle to SG 2A
- RC-121 FW 2000, RCS Cold Leg to SG 2B
- RC-123 FW 2010, RCS Hot Leg to SG 2B
- RC-112 FW 2000, RCS Cold Leg to SG 2A
- RC-114 FW 2010, RCS Hold Leg to SG 2A
- CNTMT VSL FW 2000, Construction Hatch Steel Containment

UT - Preservice

- RC-112 FW 2000, RCS Cold Leg to SG 2A
- RC-114 FW 2010, RCS Hot Leg to SG 2A
- RC-115 FW 2000, RCS Cold Leg to SG 2A
- RC-121 FW 2000, RCS Cold Leg to SG 2B
- RC-124 FW 2000, RCS Cold Leg to SG 2B

Construction Hatch Opening and Closure - Steel and Concrete Containment

The inspectors reviewed the licensee's activities associated with the removal and restoration of the construction hatch opening and closure, as detailed in the PCM 05147, Removal and Reinstallation of Shield Building Concrete Construction Hatch, Rev. 0, and PCM 05148, Containment Building Steel Construction Hatch, Rev. 1.

The inspectors reviewed the preparation and records of the cutting of the SCV for the construction hatch opening. The inspectors observed the cutting of the containment concrete opening for the construction hatch and reviewed the work packages for the cutting to verify the steps had been completed and documented. Activities associated with SCV welding for the restoration were observed/reviewed and compared to the applicable ASME Code.

The inspectors observed in-process welding activities for the new construction hatch weld, FW-007, including the control of welding materials. The inspectors reviewed the welding procedures, procedure qualification records, and welder qualification records to confirm that the Code required essential and supplemental essential welding variables for Manual Shielded Metal Arc Welding (SMAW) were met. The inspectors reviewed the in-process work package, welding electrode receipt inspection and material certification records, qualification and certification records for NDE personnel and equipment and consumables. The welding electrode material certifications were compared to their appropriate specifications in ASME Code SFA 5.1 and SFA 5.01. The inspectors also observed the MT of the back gouge for the weld FW-007.

The inspectors examined reinforcing steel and steel form work for the construction hatch concrete closure restoration to ensure that they were installed with cleanliness and tightness requirements and that the licensee had measured the reinforcing steel diameter, spacing, splice length, and the concrete minimum protection coverage in accordance with the requirements of the design drawings and the American Concrete Institute. The inspectors reviewed the procedures, specifications, concrete pre-

placement inspection checklist, and preparation performed by the licensee QC inspectors prior to the concrete pour.

The inspectors observed concrete placement activities for the construction hatch concrete closure to verify that activities pertaining to concrete delivery time, flow distance, layer thickness and concrete consolidation or vibration, conformed to industry standards established by the American Concrete Institute. Concrete batch tickets were examined to verify that the specified concrete mix was being delivered to the site. The inspectors observed that concrete placement activities were continuously monitored by the licensee and qualified independent contractors. The inspectors witnessed in-process testing and reviewed the results for slump, air content, temperature, unit weight, and molding of the concrete cylinders for the compressive strength testing. The inspectors examined the cylinders to ensure they were molded in accordance with applicable American Society for Testing and Materials (ASTM) requirements, and reviewed records to ensure that concrete field testing was performed by qualified inspectors from an independent testing company.

Quality Assurance (QA) Program and Corrective Actions

The inspectors conducted a review of the Quality Assurance Program and its implementation for the SG replacement to assess compliance with the requirements of 10CFR50, Appendix B. The inspectors reviewed Daily Quality Summaries, QA Audit Procedures, and QA personnel certifications, and conducted interviews with QA personnel.

The inspectors reviewed the licensee's corrective action program (CAP). The inspectors also reviewed the surveillance reports, NCRs, and CRs issued for the root cause analyses, evaluations, repairs, or disposition during the manufacturing of the RSGs. The inspectors also selected the NCRs and CRs for review during the implementation of the removal and reinstallation of the SGs. The review was to ensure that issues were being identified appropriately, entered into the CAP correctly, and dispositioned adequately. The inspectors also reviewed procedures associated with the training of personnel for the identification, disposition, and documentation of the NCRs and CRs.

Post Installation Verification and Testing

The inspectors reviewed the post installation verification and testing program to verify that the required post installation verification and testing, procedural changes, and the adjustment of the instruments were properly identified. The inspectors verified the modifications were completed in accordance with the design, reviewed RCS leakage testing, evaluated containment testing, and verified SG thermal and hydraulic performance testing.

The inspectors reviewed the work packages to verify that the required NDE and preservice inspections were completed as designed and met code requirements for the major modifications of the SGs, structures, and piping.

b. Findings

No findings of significance were identified.

.4 Review of Reactor Vessel Closure Head (RVCH) and Steam Generator Replacement Rigging, Lifting and Transportation Program Activities (IPs 71007 and 50001)

a. Inspection Scope

The inspectors reviewed FPL administrative procedures 0010438, Control of Heavy Load, Rev. 44A, and 0010443, St. Lucie Site Rigging Controls and Rigging Considerations, Rev. 22A. The inspectors reviewed the RVCH and SG lifting programs as described in the following PCM Packages to ensure that they were prepared in accordance with regulatory requirements, appropriate industrial codes and standards, and to verify that the maximum anticipated loads to be lifted would not exceed the capacity of the lifting equipment and supporting structures: PCM 05145, Temporary Lifting Device, Rev. 0; PCM 05146, Outside Lift System and Hatch Transfer System, Rev. 0; and PCM 05151, Steam Generator and Reactor Vessel Closure Head Offload and Transportation, Rev. 0 .

The inspectors examined the RVCH and SGR Project lifting and transportation equipment including the polar crane, mobile crane, temporary lifting device, hatch transfer and skid system, the down/up-ender device, outside lifting system, and the Self Propelled Modular Transport. The inspectors observed portions of rigging, lifting, transportation, and setting in position of the original and replacement SGs.

The inspectors reviewed procedures, calculations, drawings, work packages, crane and equipment operator training and certificates, and load test records to ensure that they had been prepared and tested in accordance with regulatory requirements, appropriate industrial codes, and standards. The inspectors also reviewed polar crane and Containerized Winch System inspection and maintenance records to ensure they were in good condition.

The inspectors reviewed the licensee's analyses for buried piping located beneath the transport path as documented in SGT Calculation 0010003769-NL02-D-C02, Rev. 0, Evaluation of Buried Utilities for RVCH/SG Transport, and beneath the hatch transfer tower as documented in SGT Calculation 7012-CALC-C-077, Foundation Design and Evaluation of Underground Pipes Due to Hatch Transfer Tower, Rev. 0E1/AFU. The inspectors also reviewed Calculation 7012-CALC-C-073, Evaluation of Unit 2 Component Replacement Project Heavy Haul Paths, Rev. 0E1/AFU.

The inspectors reviewed the 10 CFR 50.59 Screening/Evaluation contained in the PCM packages associated with the rigging, lifting, and transportation program for the RVCH and SG Replacement.

b. Findings

No findings of significance were identified.

.5 Independent Spent Fuel Storage Installation

a. Inspection Scope (60854.1)

During the week of December 17-21, 2007, an inspection of portions of the ISFSI dry run work was conducted at TriVis, Inc for welding, non-destructive testing (NDE), dewatering, drying, vacuum, helium gas input, and mechanical cutting of a mockup of the Transnuclear NUHOMS-HD 32PTH Type 1 System (CoC 72-1030). The inspection was to confirm the adequacy of procedures including the Work Order, personnel training /qualification and the equipment. While the ISFSI demonstration at TriVis is intended for the Seabrook and St Lucie sites, it is also applicable to the Turkey Point plant site provided the same ISFSI system and equipment is used there.

For the dry shielded canister (DSC) Welding Operations, the inspectors observed welding and nondestructive testing (NDE) of the inner top cover, vent & siphon port covers, and the outer top cover including the threaded access opening. A majority of the welding was done with the Automatic Welding System (AWS) using the gas shielded tungsten electrode (GTAW) process. The use of manual GTAW welding was also demonstrated. The application of visual examination (VT), dye penetrant testing (PT) and helium leak testing nondestructive examination (NDE) methods on the welds was inspected. A comparison of the welding procedures and NDE procedures to their respective work practices was made. Additionally, the welding procedure documentation, welder performance qualification, and NDE procedures and NDE personnel qualifications were verified against their respective Code and procedural requirements.

For the DSC Drying and Backfilling Operations, the inspectors reviewed the work control package, MMP-116-12 and observed the system valve position changes including communication and verification practices to execute the work control procedural steps. The mockup was drained and vacuum-dried to demonstrate capabilities to satisfy NUHOMS CoC 72-1030, TS, and FSAR Chapter 8 procedural steps.

Inspection was performed on the DSC unloading / lid cutting operations of a welded 32PTH DSC mockup. This included cutting into the outer top cover to access the vent & siphon ports, taking a gas sample, and the reflood process simulation. Tri-Tool cutter and the keyway cutter was rigged and installed on the DSC, and the appropriate lid cuts were made and removed in sequence.

The inspectors observed the health physics (HP) practices and controls were employed during the above dry run demonstrations to simulate expected radiation conditions. Additionally, the inspectors observed the daily, special pre-job and post job briefings that were held as part of the work control and team building process.

As the ISFSI staff worked thru the process steps of the work packages and applied the related procedures, opportunities for enhancement were identified and entered into the procedure revision process.

b. Findings

No findings of significance were identified.

4OA6 Meetings

Exit Meeting Summary

On January 8, 2008, the resident inspectors presented the inspection results to Mr. Gordon Johnston and other members of your staff, who acknowledged the findings. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- Technical Specification 6.11 requires procedures for personnel radiation protection to be prepared consistent with the requirements of 10 CFR 20 and are to be maintained and adhered to for all operations involving personnel radiation exposure. Contrary to this the following examples of licensee-identified violations involving radiation protection activities were reviewed:
- On April 11, 2007, a work crew inappropriately removed LHRA postings and completed setup bundle flush equipment at the U1 'A' S/G hand-holds without required RPT coverage. This event was entered into the licensee's CAP as CR 2007-11143 and is considered to be of very low safety significance because the work crew was briefed on the actual radiological conditions, and the briefed workers remained in the area no entries were made into the LHRA while the posting were removed.
- On August 3, 2007, a worker used general RWP Number (#) 17 rather than a Specific RWP required for entry into the U2 Letdown Valve Cubicle, an area controlled as a contaminated and high radiation area. This event was entered into the licensee's CAP as CR 2007-23577 and is considered to be of very low safety significance because the entry did not involve actual HRA conditions nor any personnel over-exposures.
- On November 11, 2007, two individuals on RWP # 3545 which allowed HRA access, improperly traversed the U2 23 foot elevation Sump Area which required entry controls in accordance with RWP # 3419. This event was entered into the CAP as CR 2007-36400. This finding is very low safety significance because the improper entry was identified in a timely manner and worker exposures were negligible based on the individuals entering dose rate fields of 3 - 5 mrem/hr.
- On November 13, 2007, a welder was observed in the U2 Containment Sump without protective gloves as required by RWP 2007-3419. This event was

entered into the licensee's CAP as CR 2007-37505. The finding was of very low safety significance based on the timely identification of the improper protective clothing use and lack of any identifiable inappropriate personnel contaminations.

- 10 CFR 50.55a(g)(4) requires, in part, that components classified as ASME Code Class 3 must meet the requirements set forth in Section XI of the ASME Code. The 1983 Edition (applicable for the second ISI interval of Unit 2) and the 1989 Edition (applicable for the second ISI interval of Unit 1) of Section XI, Article IWA-5244, "Buried Components", requires that in nonredundant systems where the buried components are isolable by means of valves, the visual examination for leakage (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 and AFW systems during the second 10-year ISI interval of Units 1 and 2. This was identified in the licensee's CAP as CR 2007-20652. The licensee generated corrective actions to update the ISI program to support testing of the affected piping. This finding is of very low safety significance because it was not a design or qualification deficiency resulting in a loss of operability, did not represent an actual loss of a safety function, did not result in exceeding a TS allowed outage time, and did not affect external event mitigation.

ATTACHMENT: SUPPLEMENTAL INFORMATION

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000335, 389/2007005-XX NCV	Failure to follow procedures for the 2B Purification Ion Exchange system resin change-out activities (Section 2OS1).
05000335, 389/2007005-XX__NCV	Failure to Implement Appropriate DOT Type A Package Closure Requirements. (2PS2)

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

E. Armando, Site Quality Manager
D. Calabrese, Emergency Preparedness Supervisor
D. Cecchett, Licensing Engineer
T. Cosgrove, Site Engineering Manager
C. Costanzo, Plant General Manager
M. Danford, Performance Improvement Department Supervisor
M. Delowery, NCAR-Manager
S. Duston, Training Manager
K. Frehafer, Licensing Engineer
B. Jacques, Security Manager
G. Johnston, Site Vice President
B. Kelly, System Engineer
M. Macleod, NCAR-Engineering
R. McDaniel, Fire Protection Supervisor
R. Merle, Projects Manager
M. Navin, Assistant Operations Manager
L. Neely, Work Control Manager
D. Nowakowski, ISI Engineering
M. Page, Assistant Operations Manager
W. Parks, Operations Manager
T. Patterson, Licensing Manager
M. Snyder, Quality Assurance Supervisor
G. Swider, Systems Engineering Manager
J. Tucker, Maintenance Manager
R. Walker, Emergency Preparedness
G. Ward, NCAR Engineering
R. Weis, Quality Assurance
S. Wisla, Project Manager
J. Zudans, Engineering Supervisor

NRC Personnel

B. Mozafari, NRR Senior Project Manager
 S. Ninh, Region II Senior Project Engineer

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Closed

05000335, 389/2007003-1 URI Inadequate Procedure Fails to Limit the Likelihood of Heavy Load Drop Accident in Containment (1R20)

LIST OF DOCUMENTS REVIEWED

Condition Reports

2007-31385	2007-36556	2007-38281	2007-42451
2007-31649	2007-36557	2007-38291	2006-12793
2007-31619	2007-36558	2007-38354	2007-33264
2007-32318	2007-36592	2007-38451	2006-24195
2007-32410	2007-36632	2007-38696	2007-10640
2007-32459	2007-36650	2007-38790	2006-13882
2007-32522	2007-36655	2007-38847	2007-20669
2007-32073	2007-36701	2007-38966	2007-23600
2007-32595	2007-36848	2007-38950	2007-20671
2007-32609	2007-36889	2007-39024	2007-10014
2007-32614	2007-36970	2007-39209	2007-18693
2007-32688	2007-36986	2007-39288	2007-33523
2007-32694	2007-37556	2007-39481	2007-20652
2007-32706	2007-37618	2007-39531	2007-23943
2007-32730	2007-37080	2007-39955	2007-5479
2007-32740	2007-37549	2007-40160	2007-34095
2007-32748	2007-37556	2007-40711	2007-35459
2007-33432	2007-37605	2007-40781	2007-33059
2007-35423	2007-37618	2007-40847	2007-34264
2007-35387	2007-37760	2007-40853	2007-34707
2007-35437	2007-37860	2007-40937	2007-33172
2007-35502	2007-38161	2007-41168	2007-38843
2007-35792	2007-38148	2007-41317	2007-37281
2007-35885	2007-38160	2007-41351	
2007-36143	2007-38175	2007-41727	
2007-36167	2007-38311	2007-41651	
2007-36499	2007-38293	2007-42112	
2007-36548	2007-38198	2007-42071	

Other Documents

PC/M 2006139, Unit 2 Containment Sump Modification, Rev. 0
 PC/M 200790, HPSI Pump Seal Modification, Rev. 0
 PC/M 200791, Containment Spray Pump Seal Modification, Rev. 0
 2-MSP-68.01, Containment recirc Sump Inspection, Rev. 0
 2-PTP-34, CCW Flow Adjustment for New HPSI and CS Pump Seals, Rev. 1
 NDE 5.2, Ultrasonic Examination of Ferritic Welds, Revision 13
 NDE 3.3, Liquid Penetrant Examination - Solvent Removable Technique, Revision 9
 WPS WP1/8/43/F43OLTBSCa3, Revision 2 with PQRs 5394, 7200, 7213, and 7214
 WPS WP3/8/F43OLTBSCa3, Revision 2 with PQRs 7164, 7213, 7280, and 7281
 WPS 55-WP8/8/F6AW3, Revision 7 with PQR 7062
 WPS WP3/8/F43OLSCa1, Revision 0 with PQRs 7213, 7280, and 7281
 WPS WP1/8/43/F43OLSCa1, Revision 0 with PQRs 7213, 7280, and 7281
 WPS WP8/8/F6AW1, Revision 18 with PQRs 7037 and 7038
 Operating Instruction (OI) 0058, Machine GTAW Structural Weld Overlay, Revision 1
 2-0120022, Reactor Coolant System Leak Test, Revision 40
 ADM-29.03, Boric Acid Corrosion Control Program, Revision 6B
 UT Data Sheets: 5.2-001, 5.2-002, 5.2-003, and 5.2-004
 UT Instrument Linearity Report CAL-1
 Temperature Indicator Calibration Record for Serial Numbers: 177281 and 177798
 UT Transducer Certification for Serial Numbers: M31143 and 01D06Y
 Fabrication Drawings for Calibration Block UT-6
 Certificate of Conformance for Ultragel II Couplant, Batch 01225N
 PT Data Sheets: 3.3-004 and 3.3-001
 Certification of Contaminants for PT consumables: Developer SKD-S2 (Batch 96J07K),
 Cleaner/Remover SKC-S (Batch Nos. 06A09K and 05L17K), and Penetrant SKL-HF/S (Batch
 90J046)
 Results of Procedure 2-0120022 for Unit 2 SNO
 Results of Procedure 2-0120022 for Unit 2 RFO-17, Cooled Down Condition
 Flow Diagram 8770-G-082, Unit 1 Circulating and Intake Cooling Water System, Revision 24
 Flow Diagram 8770-G-080, Unit 1 Feedwater and Condensate Systems, Revision 40
 Flow Diagram 2998-G-082, Unit 2 Circulating and Intake Cooling Water System, Revision 53
 Flow Diagram 2998-G-080, Unit 2 Feedwater and Condensate Systems, Revision 35
 Plant Change/Modification (PCM) 05127, Reactor Vessel Closure Head Replacement
 PCM 05128, Modified Service Structure
 08-5031877, Certified Design Specification for Saint Lucie Unit 2 Reactor Vessel Closure Head
 Replacement, Revision 3
 13172-RCE-0311, Certified Design Specification for Saint Lucie Unit 2 Replacement Control
 Element Drive Mechanism, Revision 4
 51-5071456, Saint Lucie Unit 2 Replacement Reactor Vessel Closure Head Reconciliation,
 Revision 1
 DAR-ME-06-03, Saint Lucie Unit 2, CEDM Section XI ASME Reconciliation, Revision 1
 WDI-PJF-1303855-FSR-001, Pre-service Examination for CEDM Upper Pressure Assembly
 and CEDM Motor Housings, Dated May 2007
 NUPIC Audit 19511, Audit of Areva NP Inc. – Paris and Chalon/St. Marcel, France

23-9039734, RVCH Quality Assurance Package, Volumes 1, 2, 3, 5, 6, 7, 8, 9, and 10 (Selected Records Only)
CMTR for Base Material Heat Numbers: 03W86-1-1 (RPVH), 30817W (support blocks), WP141 (CEDM nozzles), RE508 (CEDM nozzle flange), S234 for Part S/N 5101 through 5120 (CEDM Motor Housing), 506816 Lot 20598 (CEDM Upper Pressure Housing), RE529 (ICI nozzles), and R1922 (ICI nozzle adaptor)
CMTR for Weld Material Heat Numbers: 0084001, 4374711, and 8V146 (cladding); WC34G4 (J-groove butter); WC96F5 (J-groove filler); NX3900JK (CEDM nozzle to flange); NX4203JK and NX9090JK (ICI nozzle to quick-lock adaptor); NX0A80TS, NX4719TK, NX5285TK, 726159, and 234134 (CEDM Motor Housing); AT6289, CT7591, DH8336, DM8505, XT6289, and X-8134 (CEDM Upper Pressure Housing); and 2095901 (Support blocks).
UT Examination Reports: 2084-2-16-1, 2084-2-18-1, and 3208-1-15-1
MT Examination Reports: 2084-2-16-2, 2084-2-16-2-1, 2084-2-18-2, and CC/SL002-3720-0060
PT Examination Reports: CC/SL002-3510-0210, CC/SL002-3510-0250, CC/SL002-3510-0430, CC/SL002-3510-0290, CC/SL002-3510-0330, CC/SL002-3060-0057, CC/SL002-3080-0080, 3208-1-15-2, CC/SL002-3720-0090, and CC/SL002-3720-0170
DT Examination Reports: 2084-2-18-3, 3208-1-17-1, and CC/SL002-3420-0100
VT Examination Report: 2084-2-18-4
Hydrostatic Test Reports: E043469, and CC/SL002-3710-0240
Heat Treatment Report: CC/SL002-3400-0130
Production Weld Data Sheets: 3510, 3060, CC/SL002-CRDHC-3300-0100, CC/SL002-CRDHC-3310-0090, 3208-1-10-WR, 9020, 9025, 9040, 9030, and 9035
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DN 4500153340-04 (NCR 10342), N5009-1 Wiring Trough Support Issue
DN 4500153340-05 (NCR 10372), Galling of Motor Housing Assembly
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WP2-1033, Installation of Outside Lift System, Rev. AFU

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UT Calibration and Examination Reports for Welds RC-112 FW 2000, RC-114 FW 2010, RC-115 FW 2000, RC-121 FW 2000, and RC-124 FW 2000
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Procedure QI-2-QAD-1, QA Training Program, Rev. 25
Procedure QI-2-QAD-18, Certification of Quality Control Inspection Personnel, Rev. 3
Procedure QI-10-QAD-1, Surveillance, Rev.3
Procedure QI-16-QAD-14, Corrective Actions, Rev. 32
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Procedure QA-001, Steam Generator / Reactor Vessel Closure Head Replacement (SGRP/RVCH) Project FPL St. Lucie (PSL) Unit 2 Nuclear Assurance Project Plan, Rev. 0
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PCM 05147, Removal and Reinstallation of Shield Building Concrete Construction Hatch, Rev. 0
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NCR 38428-02-167, Material found in tube sheet area around cyclone tubes close to the fins
NCR 38428-02-165, PT of FW-2005 A 5/15" linear indication noted on 45 degree elbow
NCR 02-161, Use of the incorrect Drill Bit for ½" Hilti Kwikbolt 3
NCR 02-187, During Lift of OSG CWS Rigging Block Would not Clear TLD Girder
NCR 02-188, Weight of OSG 2B from the Load Indicator Shown a Huge Difference from the Assumed and Calculated Weight

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ADM-05.03, Radiation Work Permits, Rev. 6
Health Physics Procedure (HPP)-1, Preparing Radiation Work Permits, Revision (Rev.) 29
HPP-3, High Radiation Areas, Rev. 22
HPP-20, Area Radiation and Contamination Surveys, Rev. 26
HPP-22, Air Sampling, Rev. 17
HPP-30, Personnel Monitoring, Rev. 42
HPP-39, Response Protocols for Whole Body Counting and Personnel Contamination Monitoring, Rev/ 3A
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Investigative Whole Body Count Analysis Data: January 1, 2007- November 15, 2007
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PSL Operations Event Report 07-018, 11/13/07

Corrective Action Program (CAP) Documents

Condition Report (CR) 2007-7897, Entry into LHRA on Improper RWP 2010,
CR 2007-9060, Unposted High Radiation Area,
CR 2007-11143, LHRA Posting Removed Without HP Present,
CR 2007-21242, Survey Record in High Radiation Area Book Was Over a Week Old,
CR 2007-23577, High Radiation Area Access and RWP Entry Violation,
CR 2007-25233, Un-posted High Radiation Area
CR 2007-29976, Un-Posted High Radiation Area
CR 2007-32847, Authorized Drinking Area Not Implemented IAW Authorization Letter Posted
CR 2007-33976, Work Group Briefed from Older RP Survey
CR 2007-34023, Carpenter Crew Moved High Radiation Area Posting
CR 2007-34825, Internal Dose Calculation Form HPP-30.18 Was Not Retained in Individual's Personal File
CR 2007-36400, Two Individuals Exited the 23' High Radiation/Confined Space Area Without the proper High Radiation Area Briefing or Being Signed in with the Confined Space Monitor
CR 2007-36508, Individual Received Actual Dose Rate Alarm
CR 2007-37505, RWP Violation Regarding Use of PC Gloves
CR 2007-37632, 2B CVCS Ion Exchanger Minor Spill
CR 2007-37764, Ion Exchanger Contamination Events
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Section 20S2: As Low As Reasonably Achievable

Procedures, Instructions, and Guidance Documents

Administrative Procedure (ADM)-05.01, ALARA Program, Revision (Rev.) 10B
ADM-05.04, Cobalt Reduction Program, Rev. 0
Chemistry Operating Procedure (COP)-05.03, Refueling / Shutdown / Startup Guidelines, Rev. 27
Health Physics Procedure (HPP)-001, Preparing Radiation Work Permits, Rev. 29
HPP-003, High Radiation Areas, Rev. 22
HPP-023, Health Physics Activities in the Reactor Containment Building During Shutdown, Rev. 21
HPP-038, Surveys for Chemical Crud Burst and Cleanup of Reactor Coolant System (RCS), Rev. 1A
HP-55 Portable Shielding, Rev. 17C
PSL U2 Seam Generator and Reactor Head Replacement Project, Radiation Protection Plan,

PZR Heater Removal/Replacement, Rev. 01
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WP 07-3331, U2 RCB All Areas (NRC/INPO: Inspections and Walkdowns), Rev.1
RWP 07-3419, U2 RCB 18', 23'Elev. Rx Drain Tank (Sump Mod. Work), Rev. 0
RWP 07-3520, U2 RCB / Bottom of PZR (HRA Access Permitted), Rev. 0
RWP 07-3521, U2 RCB / Bottom of PZR (LHRA Access Permitted), Rev. 1
RWP 07-3541, U2 RCB 18'Elevation (Scaffolding), Rev. 0
RWP 07-3548, U2 RCB All Areas and Elevations (Remove OSG's, Lift to 62', Weld Nozzle Covers / Including fire Watch Coverage), Rev. 1
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RWP 07-3551, U2 RCB/18' Primary Side and RCP Pipes (Severance of RCP Pipes: Install/Remove Cutters, Change Cutting Tools & Pizza Tool to include Support), Rev. 1
RWP 07-3553, U2 RCB All Elevations (Install/Removal Wooden Wedges on Rupture Restraints), Rev. 0
RWP 07-3554, U2 RCB/18' S/G Hot/Cold Leg Pipping (Install / Remove Pre/Post Pipe Heating, OD Welding, Buffing & Grinding), Rev. 0
RWP 07-3555, U2 RCB/18' S/G Hot/Cold Leg Pipping (SG Replacement)
RWP 07-3556, U2 RCB/18' S/G (De-Water S/G), Rev. 1
RWP 07-3558, U2 RCB 18'S/G's (Install/Remove/Support Primary Temp. Rupture Restraints), Rev. 0
RWP 07-3559, U2 RCB 62'Elevation (Construction Hatch Install/Removal), Rev. 0
RWP 07-3560, U2 RCB 23', 45', 62' Elevations (Mat. and Equip. Movement, Crane and Ramp Operations) Rev. 1
RWP 07-3561, U2 RCB All Elevations (ILRT), Rev. 0
RWP 07-3562, U2 18' "A&B" Hot and Cold Leg Piping (Photogrametry), Rev. 1
RWP 07-3581, U2 RCB/62' PZR/Upper Cubicle (Alloy 600 Overlays), Rev.0
RWP 07-3582, U2 PZR & Hot Legs/All Elevations (support activities for Alloy 600), Rev. 1
RWP 07-159, Unit 1 19.5 FHB, Filter Cubicle, Cask Laydown Area, RCA, Dry Waste Storage, Rev. 0
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HPS-264 U-2 RCB 18' 2A2 post shielding survey, dated 10/5/07
HPS-264 U-2 RCB 18' 2B1 cold leg penetration survey, dated 10/6/07
HPS-264 U-2 RCB 18' A hot leg pre-shielding survey, dated 10/5/07
HPS-364 U-2 RSB 18'B Hot leg post-shielding survey, dated 10/6/07
HPS-209.1U-2 RCB 10' "exploded view" pre-shielding survey, dated 10/03 (includes post shileding update)

HPS-264 U-2 RCB 18' "B" S/G Base Survey, 10/5/07
HPS-264 U-2 RCB 18' "A" S/G Base Survey (post insulation removal), 10/5/07
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Personnel Exposure Summary Report (Framatome-Press Department), dated 10/23/07
HIS-20 RWP 20050717 Budget & Alarm Set Points Report, dated 11/15/2007
HIS-20 Daily Transaction Report, RWP 20073581, (Exposures from Oct. 1, 2007 thru Nov. 23, 2007), dated 10/23/07
HIS-20 Daily Transaction Report, RWP 20073582, (Exposures from Oct. 1, 2007 thru Nov. 23, 2007), dated 10/23/07
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HIS-20 RWP 20051030 Budget & Alarm Set Points Report, dated 11/15/2007
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ALARA Review Board Meeting Agenda (10/23/07 meeting, including Alloy 600 Summary Report, Daily ALARA Report, Appendix D ALARA Job In Progress Report for RWP 07-3585, dated 10/20/07 and Appendix D ALARA Job In Progress Report for RWP 07-3580, dated 10/16/07)
ALARA Review Board Meeting Minutes, dated 11/05/07
ADM-05.01, ALARA Program (Appendix D, ALARA Job in Progress Review Forms for RWP 07-2522 dated 10/14/07, 10/17/07, 10/22/07, and 10/27/07)
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ADM-05.01, ALARA Program (Appendix D, ALARA Job in Progress Review Form for RWP 07-3584, dated 10/16/07)
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ADM-05.01, ALARA Program (Appendix B, ALARA Re-Evaluation Form for RWP 07-3585, dated 10/16/07)
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ADM-05.01, ALARA Program (Appendix D, ALARA Job in Progress Review Form for RWP 07-3588, dated 10/24/07)
ALARA Plan for the SL2-17 Containment Sump Strainer Upgrade, Rev. 1
NCAR Night Shift Turnover Report, dated 10/23/07
HP-55, Temporary Shielding Placement Forms for Packages 07-070 (dated 05/21/07), 07-081 (dated 05/22/07), 07-133 (dated 05/24/07), and 07-187 (dated 10/08/07)

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CR 2006-9889, RCVH Project Exceeding Original Target Dose Estimate
CR 2006-10670, March Radiation Exposure Budget Exceeded
CR 2006-12966, Installation of the ROGER into "A" S/G dose estimate exceeded by 200%
CR 2006-16752, Transfer Canal Job deficiencies Lead to Additional Dose
CR 2007-21661, Additional Exposure Reviewed During Transfer of High Radiation Filters Into HIC (Liner) (Includes ALARA Post Job Review for RWP 07-2011,
CR 2006-24145, ALARA Review Board Action Item (Plant to Minimize Non-Outage Exposure)
CR 2007-2510, ALARA Review Board Action Item (Department ALARA Coordinators)
CR 2007-10306, ALARA Post Job Review (NAP-403 for NI Detector 8)
CR 2007-12467, Target exposure for RWP 07-1402 Exceeded
CR 2007-13963, Picked Up Dose Not Needed
CR 2007-17171, RP Staff Target Dose Exceeded for 06/1-3/07
CR 2007-19062, ALARA Post Job Review (ECCS Sump Mod. Work in RX Drain Tank Area Dose Estimate Exceeded)
CR 2007-19063, ALARA Post Job Review (RWP 07-1119 Additional Dose Received)
CR 2007-34673, Cobalt based valve installed without PGM approval

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

Procedures, Instructions, and Guidance Documents

FPL Nuclear Fleet, Guidance for Site Specific Assessments in Accordance With the Industry Initiative on Managing Situations Involving Inadvertent Releases into Groundwater, Rev. 0
Administrative Procedure (AP)-0010721, NRC Required Non-Routine Notifications and Reports, Rev. 58
Chemistry Operating Procedure (C)-200, Offsite Dose Calculation Manual (ODCM), Rev. 29
HPP-101, Identification and Reporting of Radiological Events, Rev. 13 and 13A

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Ground Water Tritium Monitoring Results: June 6, 2006 through July 7, 2007 for Monitoring

Wells and Electrical Vaults

St Lucie Nuclear Plant Chemistry Department East and West Basin Isotopic and Tritium Concentration Results: November 2005-November 2007

Groundwater Assessment for FPL St. Lucie Plant, Sept 25-29, 2006

Saint Lucie Nuclear Power Station MW-6 Tritium Spike Investigation Report,
Florida Power and Light Company Plant St. Lucie Units No. 1 and 2, Combined Annual Radioactive Effluent Report for the Period January 1, 2006 through December 31, 2006
HPS ECCS Yard Sump 0.5' Elevation Surveys: 3/28/05; 04/26/05; 05/23/05; 07/01/05; 07/12/05; 08/18/05; 09/07/05; 10/04/05; 11/22/05; 12/19/05; 01/30/06; 03/27/06; 04/30/06; 05/29/06; 06/23/06; 07/29/06; 08/31/06; 08/25/06;

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CR 2006-24552, NRC Notification Due to Notification of Other Government Agencies Regarding Tritium Detected in Settling Pond

Section 2PS2: Radioactive Material Processing and Transportation

Procedures, Instructions, and Guidance Documents

Administrative Procedure 0520025, Rev. 13B, St. Lucie Plant Process Control Program

HP-40, Shipment of Radioactive Material, Rev. 55A & 56

HP-47, Classification of Radioactive Waste Material for Land Disposal, Rev. 28

HP-48, Activity Determinations for Radioactive Material Shipments, Rev 6C

HP-49, Dewatering Radioactive Bead Resins, Rev. 12A

HP-49A, Transfer of Radioactive Bead Resins, Rev. 21

Records and Data Reviewed

St. Lucie RPT-C Training and Qualification Summary Printout, printed 10/2007

2005 Annual Radioactive Effluent Release Report, St. Lucie Units 1 and 2, January 1, 2004 - December 31, 2005, dated February 28, 2006

2006 Annual Radioactive Effluent Release Report, St. Lucie Units 1 and 2, January 1, 2005 - December 31, 2006, dated February 27, 2007

Framatome ANP Environmental Laboratory 10 CFR Part 50/61 Analysis Report for U2 CVCS Filters, February 13, 2006

Framatome ANP Environmental Laboratory 10 CFR Part 50/61 Analysis Report for U2 Tri-Nuc Filters, February 13, 2006

Framatome ANP Environmental Laboratory 10 CFR Part 50/61 Analysis Report for U2 Spent Resin Tank Resin, April 13, 2006

Framatome ANP Environmental Laboratory 10 CFR Part 50/61 Analysis Report for DAW, July 21, 2006

Areva NP Inc. Environmental Laboratory 10 CFR Part 50/61 Analysis Report for S/G Blowdown Resin, December 21, 2006

Areva NP Inc. Environmental Laboratory 10 CFR Part 50/61 Analysis Report for U1 Spent

Resin Tank Resin, March 15, 2007
Areva NP Inc. Environmental Laboratory 10 CFR Part 50/61 Analysis Report for U1 CVCS Resin, April 16, 2007
Areva NP Inc. Environmental Laboratory 10 CFR Part 50/61 Analysis Report for U1 Boric Acid Precon Resin, April 16, 2007
Areva NP Inc. Environmental Laboratory 10 CFR Part 50/61 Analysis Report for U1 Spent Fuel Pool Resin, April 16, 2007
Radioactive Material / Waste Shipping Logs, October 2005 – October 7, 2007
Certificate of Compliance 9168, Rev. 15, Model CNS 8-120 B
Certificate of Compliance 9208/B, Rev. 14, Model 10-142
Shipment No. 05-90, Filters, 10/05/2005
Shipment No. 05-129, Filters, 12/14/2005
Shipment No. 06-27, U1 SRT resin, 04/03/2006
Shipment No. 06-28, U1 SRT resin, 04/03/2006
Shipment No. 06-32, U2 spent resin, 04/14/2006
Shipment No. 07-29, U1 SRT resin, 03/19/2007
Shipment No. 07-38, U1 CVCS resin, 04/24/2007
Shipment No. 07-68, DAW, 06/20/2007
Shipment No. 07-72, U2 SRT resin, 07/17/2007
Shipment No. 07-76, U1 SRT resin, 07/31/2007
Observation of Shipment No. 07-153, DAW, 10/23/2007
Eastern Technologies Incorporated, Radioactive Material License
Duratek, Radioactive Material License
Studsvik, Radioactive Material License
Race, Radioactive Material License
Oconee, Radioactive Material License
St. Lucie Poly HIC Status Log
51-9059656-000, FPL PSL 2 ORVCH and Steam Generator Compliance Matrix, 09/07/07
32-9033566-001, St. Lucie Head Characterization, 11/13/07
32-9030296-002, St. Lucie 2 Steam Generator Characterization, 11/29/07

CAP Documents

FPL Nuclear Division Quality Assurance Audit Report, Chemistry and Effluents Functional Area Audit, QSL-CHM-03-03, February 24 – April 18, 2003
PSL Nuclear Assurance Quality Report, Process Control Program, 07-0047, July 25, 2007
Summary of Condition Reports, October 2005 – September 2007
CR 2005-33120, Class B and C waste cannot always be re-evaluated annually, 12/01/2005
CR 2006-37578, Inadvertent delivery and receipt of special nuclear material at PSL, 12/29/2006
CR 2007-7639, Vendor provided software error notification, 03/15/2007
C R 2007-14946, Contaminated equipment released from St. Lucie has been found at Westinghouse Waltz Mill facility, 05/14/2007
CR 2007-17392, Sealant container DTK-200574 for shipping radioactive waste has a hole in the side, 06/06/2007
CR 2007-21553, Process Control Program Oversight, 07/19/2007
CR 2007-29308, Review of PSL's Radman/Ramship data base to verify that the emergency

contact phone number is current, 09/17/2007

CR 2007-30028, A container of protective clothing being delivered from Eastern Technologies contained undocumented radioactive material, 09/24/2007

CR 2007-34244, Chemistry Department samples delivered to the wrong off site analysis lab, 10/19/2007

Section 40A1: Performance Indicator Verification

Procedures, Instructions, and Guidance Documents

HPP-5, Health Physics Department Conduct of Operations, Rev. 6

ADM-25.02, Performance Indicators, Rev. 20

Records and Data Reviewed

Direct Alarming Dosimeter Alarm Data: October - December 2006 and January - September 2007

Liquid Effluent Dose Summation Data, U1 and U2, December 2006 and September 2007

Noble Gas Effluent Air Dose and Projected Dose Report Data, U1 and U2, December 2006 and September 2007

Gaseous Effluent I-131, I-133, Tritium & Particulate Dose Report Data, U1 and U2, December 2006 and September 2007

CAP Documents

Work Control Procedures:

- MMP-116.12, Rev E-2 Effective 1/11/2008. ISFSI DSC Sealing Operations
- MMP-116.13, Rev E-1 Effective 1/02/2008. ISFSI DSC Lid Removal

Welding Procedures:

- Welding Procedure Qualification Record No 1, TriVis Inc, 3/8/2006
- Welding Procedure Specification SS-8-M-TN, Rev 4
- Welding Procedure Specification SS-8-A-TN, Rev 1
- QP-9.0, TriVis Welding Program, Rev 7
- GWS-3, TriVis General Welding Standard, Revision 2
- WAP-2, TriVis Welding Administrative Procedure, Control of Welder & Welding Operator Qualification, Rev 2

Non-Destructive Testing Procedures:

- TRANSNUCLEAR-HMSLD, Specific Procedure for HMSLD Leak Testing of Transnuclear NUHOMS HD Horizontal Modular Storage System for Irradiated Nuclear

- Fuel Inner Top Cover Plate and Vent and Siphon Port Cover Plates, RRL NDT Consulting, LLC, Rev 0
- QP-9.202, Color Contrast Liquid Penetrant (PT) Examination Using the Solvent-Removable Method, Rev 1
- QP-9.200, Written Practice for the Qualification and Certification of Nondestructive Examination (NDE) Personnel, Rev 3
- QP-9.201, Visual Weld Examination of Dry Cask Assembly, Rev 2

Design Change Notices (DCN):

- TIP 3.5, Form 3.5-1, 10CFR72.48 Applicability, Applicable System: 32PTH (32PTH Type1) DSC, 7/16/07

Drawing and Design Calculations:

- TNI-18Q-301, Flaw Evaluation for Transnuclear NUHOMS Top Cover Plate Closure Weld, Structural Integrity Associates, Rev 0

Other:

- NRC Inspection Procedure 60854.1 Preoperational Testing of an Independent Spent Fuel Storage Installation
- NRC Inspection Procedure IP 55050, Nuclear Welding
- NRC Spent Fuel Project Office Interim Staff Guidance-15
- NUHOMS® HD System Final Safety Analysis Report, Rev 0
- Material Certification for PT Remover KO-19, Batch 415-H56, Dec 19, 2007
- Material Certification for PT Developer D-350, Batch 527-B71, June 10, 2005
- Material Certification for PT Penetrant KO-17, Batch 421-K54, Dec 20, 2004
- Sherwin Inc Hi-Temp Penetrant Inspection System Product Information Document
- Email from Robert Siegel, Sherwin Incorporated, to John Kelley, Operations Manager TriVis, Dated Dec 11, 2007
- Letter to File, Leak Test Specialists, Inc, May 4, 2006
- Letter to File, Leak Test Specialists, Inc, April 19, 2006
- FPL Radiation Work Permit 07-352, 11/23/2007
- FPL Radiation Work Permit 07-351, 11/23/2007
- HPP-85, St. Lucie Plant Health Physics Procedure, 11/14/2007
- Appendix A to Certificate of Compliance No. 1030, HUHOMS HD System Generic Technical Specifications
- ASME Boiler and Pressure Vessel Code, Section III, Division I, NF-5360, 1998

LIST OF ACRONYMS

ADM	Administrative Procedure (corporate)
ALARA	As Low As Reasonably Achievable
AP	Administrative Procedure (site)
BTP	Branch Technical Position
C	Chemistry Operating Procedure
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CoC	Certificate of Compliance
CR	Condition Report
CVCS	chemical volume control system
CY	calendar year
DAW	dry active waste
DOT	Department of Transportation
ECCS	emergency core cooling system
ED	electronic dosimeter
HPA	Health Physics Administrative Procedure
HPP	Health Physics Procedure
HPS	Health Physics Surveillance
HPT	Health Physics Technician
HRA	high radiation area
IP	Inspection Procedure
LHRA	locked high radiation area
MW	monitoring well
NAP	Nuclear Administrative Procedure
NCAP	Nuclear Chemistry Administrative Procedure
NCV	non-cited violation
NWE	Nuclear Watch Engineer
OA	Other Activities
ODCM	Off Site Dose Calculation Manual
ORVCH	old reactor vessel closure head
OS	Occupational Radiation Safety
OS/G	old steam generator
pCi/l	picocuries per liter
PCP	Process Control Program
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PS	Public Radiation Safety
PSL	Plant St.Lucie Nuclear
QC	quality control
RAB	reactor auxiliary building
radwaste	radioactive waste
RCA	Radiologically Controlled Area

RCB	reactor containment building
RCP	reactor coolant pump
RWP	Radiation Work Permit
RG	Regulatory Guide
RP	Radiation Protection
SDP	Significance Determination Process

St. Lucie 2 GL 2004-02 Commitments Applicable to TI 2515/166

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 St. Lucie Unit 2 to comply with GSI-191, including:</p> <ul style="list-style-type: none"> - PC/M 06139, Strainer - PC/M 07090, HPSI Pump Seals - PC/M 07091, CS Pump Seals 	<p>These three PC/Ms are scheduled to be completed during the current outage SL2-17 (Fall 2007). As of 12/4/2007 PC/M 06139 is approximately 100% field installation complete. PCMs 07090 and 07-091 are 100% field installation complete. Paper closeout is in progress on all PCMs.</p>
<p>GL 2004-02 Request 2(f) - AA 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>St. Lucie 1 and 2 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"> - ADM-27.13 "Foreign Material Exclusion" - QI-13-PSL-2 "Housekeeping and Cleanliness Control Methods" "Station Housekeeping/Material Condition Program" - 2-MSP-68.01, "Containment Recirc Sump Inspection" - ADM-09.05, "Containment Entries Modes 1-4" - AP 0010728, "Unit Restart Readiness" - Nuclear Policy NP-910 "Plant Readiness for Operations" - SPEC-C-034, Protective Coatings for Service Level 1 Applications Inside the Reactor Containment Building - Engineering QI 1.8, Design/Operability Reference Guide - SPEC-M-130, "Specification for Maintaining Containment Insulation Configuration at St. Lucie Units 1 and 2" (new, in preparation) 	<ul style="list-style-type: none"> - ADM-27.13 no additional changes - QI-13-PSL-2 no additional changes - ADM-08-08.09 no additional changes - 2-MSP-68.01 - new procedure to address replacement strainers - ADM-09.05 - no additional changes - AP 0010728 - no additional changes - NP-910 - no additional changes - SPEC-C-034 Rev. 4 - revised to ensure unqualified coatings within containment is bounded by debris generation calculation - Engineering QI 1.8 - revised to review new designs for affect on debris generation, debris transport, or recirculation functions - SPEC-M-130 - new, in preparation. Will provide guidance for maintaining the containment insulation configuration.