



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

October 30, 2012

Mr. Mano Nazar  
Executive Vice President and Chief Nuclear Officer  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

SUBJECT: ST. LUCIE NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT  
05000335/2012004, 05000389/2012004

Dear Mr. Nazar:

On September 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your St. Lucie Nuclear Power Plants Units 1 and 2. The enclosed integrated inspection report documents the inspection results, which were discussed on October 11, 2012, with Mr. Jensen and other members of your staff.

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

Two self-revealing findings of very low safety significance (Green) were identified during this inspection.

Two of these findings were determined to involve violations of NRC requirements. Additionally, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or significance of 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 Nuclear Power Plant.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II; and the NRC Resident Inspector at the St. Lucie Nuclear Power Plant.

M. Nazar

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room)

Sincerely,

*/RA/*

Daniel W. Rich, Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

Docket Nos.: 05000335, 05000389

License Nos.: DPR-67, NPF-16

Enclosure: Inspection Report 05000335/2012004, 05000389/2012004 and  
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

M. Nazar

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**/RA/**

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M. Nazar

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Letter to Mano Nazar from Dan Rich dated October 30, 2012

SUBJECT: ST. LUCIE NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT  
05000335/2012004, 05000389/2012004

Distribution w/encl:

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos: 50-335, 50-389

License Nos: DPR-67, NPF-16

Report No: 05000335/2012004, 05000389/2012004

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

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

Location: 6351 South Ocean Drive  
Jensen Beach, FL 34957

Dates: July 1 to September 30, 2012

Inspectors: T. Hoeg, Senior Resident Inspector  
R. Reyes, Resident Inspector  
R. Carrion, Senior Reactor Inspector (4OA5.6)  
R. Patterson, Reactor Inspector (1R17)  
T. Su, Reactor Inspector (1R17)  
B. Collins, Reactor Inspector (1R08, 4OA5.3)  
S. Walker, Senior Reactor Inspector (4OA5.4)  
L. Lake, Senior Reactor Inspector (4OA5.5)  
G. Kuzo, Senior Health Physicist Inspector (2RS1, 2RS8)  
W. Pursley, Health Physicist Inspector (2RS1, 2RS8)  
J. Rivera, Health Physicist Inspector (in training)  
A. Vargas, Reactor Inspector (1R08, 4OA2.3)

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

Enclosure

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## SUMMARY OF FINDINGS

IR 05000335/2012-004, 05000389/2012-004; 07/01/2012 – 09/30/2012; St. Lucie Nuclear Plant, Units 1 & 2; Shipment of Radioactive Materials, Problem Identification and Resolution.

The report covered a three month period of inspection by resident inspectors, including extended power uprate inspections. Additionally, the report documents inspections completed by regional inspectors in the areas of flow accelerated corrosion, in-service inspection, health physics, and plant modifications. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using IMC 0609, "Significance Determination Process," dated June 2, 2011. Cross-cutting aspects are determined using IMC 310, "Components Within the Cross-Cutting Areas" dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated June 7, 2012. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

### A. NRC-Identified and Self-Revealing Findings

#### Cornerstone: Initiating Events

Green. A self-revealing, non-cited violation (NCV) of Technical Specification (TS) 6.8.1, was identified which requires written procedures be established, implemented, and maintained covering activities referenced in NRC Regulatory Guide 1.33, Revision 2, dated February 1978, including safety-related activities carried out during operation of the reactor plant. The licensee's safety-related design control procedure EN-AA-205, "Design Change Packages," was not implemented as written when a plant modification was performed on the reactor regulating system and steam bypass control system that affected a safety-related maintenance procedure that was not revised to reflect the design change. The licensee entered this violation in their corrective action program as action request 1786565.

The licensee's failure to fully implement procedure EN-AA-205, "Design Change Packages," was a performance deficiency. The finding was determined to be more than minor because if left uncorrected, the deficiency could lead to a more significant safety concern. The inspectors evaluated the risk of this finding under the initiating events cornerstone using IMC 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process." The inspectors determined that the finding was of very low safety significance because it did not require a quantitative assessment as determined in Checklist 1. The finding involved a cross-cutting aspect of complete and accurate procedures in the resources component of the human performance area [H.2.(c)]. Specifically, the licensee failed to ensure that an adequate maintenance procedure was up to date to prevent an unexpected reactor plant temperature transient. (Section 4OA2.4)

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### Cornerstone: Public Radiation Safety

Green. A self-revealing, Green non-cited violation (NCV) of 10 CFR 71.5 was identified for the licensee's failure to ship radioactive material in accordance with Department of Transportation (DOT) requirements as specified in 49 CFR Parts 171-180. Specifically, upon receipt at its destination, a radioactive shipment classified as an "excepted package for limited quantities" was found to have external surface package dose rates exceeding the limit of 0.5 millirem per hour (mrem/h) as specified in 49 CFR 173.421(a)(2). The package recipient identified a maximum dose rate of 3.95 mrem/h on the exterior surface of the package and notified the licensee of the discrepancy. The licensee entered the event into their corrective action program as Action Request (AR)-01628106.

The performance deficiency was more than minor because it was associated with the "Program & Process Procedures" attribute (DOT package limits) of the Public Radiation Safety Cornerstone. The inspectors determined the cornerstone's objective was adversely affected based on the fact that shipment of radioactive material in excess of DOT limits in the public domain is contrary to NRC and DOT regulations. Assurance that the public will not receive unnecessary dose is decreased if packages are not prepared so that dose rates in accessible areas remain below regulatory limits during transit. The finding is of very low safety significance (Green) because there was little to no risk to members of the public.

This finding involved the cross-cutting area of Human Performance with the aspect of conservative decision-making, in that the licensee assumptions failed to ensure that equipment packaged for shipment would not exceed DOT limits during transport. [H.1(b)] (Section 2RS8).

#### B. Licensee-Identified Violations

A violation of very low safety significance was identified by the licensee and reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into their 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). On July 19, 2012, the unit entered Mode 3 to complete an extended power uprate project and returned to 100 percent RTP on July 28. On August 29 the Unit power was decreased to 81 percent RTP for completing repairs to a circulating water pump. On September 11 the Unit returned to 100 percent RTP where it remained through this inspection period.

Unit 2 began this inspection period at 92 percent RTP coasting down for a scheduled refueling outage. Unit 2 entered Mode 6 on August 13, 2012, to defuel the reactor and was defueled on August 20, 2012, where it remained through this inspection period.

#### 1. REACTOR SAFETY

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

#### 1R01 Adverse Weather Protection

##### .1 Offsite and Alternate AC Power System Readiness

###### a. Inspection Scope

The inspectors evaluated the summer and hot weather readiness of both the offsite and onsite alternate AC power systems. The inspectors walked down the Unit 1 and Unit 2 safety-related emergency diesel generators, startup transformers, and the turbine driven auxiliary feed water pumps to verify they would be available during a loss of offsite power event. Open corrective action program documents and system health reports for the offsite and onsite AC power systems were reviewed to ensure degraded conditions were properly addressed. The inspectors verified that licensee and transmission system operator procedures contained communication protocols addressing electrical power grid loads or disturbances that could impact the offsite power system.

###### b. Findings

No findings were identified.

##### .2 Readiness for Impending Adverse Weather Conditions

###### a. Inspection Scope

On August 22-24, 2012, the inspectors reviewed the status of licensee actions in accordance with Administrative Procedure AP-0005753, Severe Weather Preparations, when Tropical Storm Isaac was approaching the area. The inspectors verified conditions were met for entering the procedure and the equipment status was verified as

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directed by the procedure. The inspectors performed a walk down of the following safety-related equipment on both units that are exposed to outside weather conditions to identify any potential adverse conditions:

- Unit 1 and Unit 2 Turbine Buildings
- Unit 1 Component Cooling Water (CCW) Heat Exchanger area
- Unit 1 EDG Fuel Oil Storage Tank area
- Unit 1 and Unit 2 Intake Cooling Water Systems

b. Findings

No findings were identified.

.3 Operating Experience Smart Sample (OpESS) 2012/01, "High Wind Generated Missile Hazards"

a. Inspection Scope

The inspectors used the additional guidance provided on OpESS 2012/01 in conducting a baseline inspection of the licensee's seasonal weather hurricane preparations. The inspectors walked down safety-related systems to verify the missile barriers provided protection as described in the licensee's final safety analysis report and design basis documents. The inspectors reviewed the missile barrier protection on the Unit 1 and Unit 2 component cooling water systems; intake cooling water systems; and the emergency diesel generator buildings, and the respective fuel-oil tanks and transfer pumps. Additionally, the inspectors verified that high pressure cylinders were properly secured in proximity to the safety-related equipment or piping.

b. Findings

No findings were identified

1R04 Equipment Alignment

.1 Partial Equipment Walkdowns

a. Inspection Scope

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

- 2A intake cooling water (ICW) pump and header, 2A component cooling water pump and heat exchanger, while the 2B ICW header was out of service (OOS)
- 1A Emergency Diesel Generator (EDG), while the 1B EDG was OOS
- 1A and 1B Auxiliary feed water (AFW) pumps, while 1C AFW was OOS
- 1B EDG, while the 1A EDG was OOS

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Fire Area Walkdowns

a. Inspection Scope

The inspectors toured the following five plant areas during this inspection period to evaluate conditions related to control of transient combustibles and ignition sources, the material condition and operational status of fire protection systems including fire barriers used to prevent fire damage or fire propagation. The inspectors reviewed these activities against provisions in the licensee's procedure AP-1800022, Fire Protection Plan, and 10 CFR Part 50, Appendix R. The licensee's fire impairment lists, updated on an as-needed basis, were routinely reviewed. In addition, the inspectors reviewed the action request (AR) database to verify that fire protection problems were being identified and appropriately resolved. The following areas were inspected:

- Unit 1 Spent fuel pool heat exchanger and pump rooms
- Unit 1 Control element assembly motor generator set area
- Unit 2 Component Cooling Water / Intake Cooling Water Heat Exchanger Building
- Unit 1 19-foot Switch Gear Room
- Unit 1 Air Conditioning and Component Cooling Water expansion tank rooms

b. Findings

No findings were identified.

.2 Fire Protection - Drill Observation

a. Inspection Scope

On August 1, 2012, the inspectors observed a fire drill that was simulated in the Unit 2 turbine building as a fire in the 1A turbine cooling water pump motor. The drill was observed to evaluate the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the post drill critique meeting and took appropriate corrective actions as required. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus, (2) proper use and layout of fire hoses,

(3) employment of appropriate fire fighting techniques, (4) sufficient fire-fighting equipment brought to the scene, (5) effectiveness of command and control, (6) search for victims and propagation of the fire into other plant areas, (7) smoke removal operations, (8) utilization of pre-planned strategies, (9) adherence to the pre-planned drill scenario, and (10) drill objectives.

b. Findings

No findings were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors interviewed engineering personnel responsible for 2B CCW heat exchanger monitoring and performance. The inspectors reviewed as found heat exchanger conditions on both the inlet and outlet side of the heat exchanger that used sea water. The inspectors verified that the licensee adequately completed plugging of the heat exchanger tubes as a result of the eddy current test results. The inspectors verified that periodic maintenance activities were conducted in accordance with licensee procedure 0-PMM-14.01, Component Cooling Water Heat Exchanger Clean and Repair. The inspectors reviewed the monitoring and trending of heat exchanger performance data and verified the operational readiness of the system should it be needed for accident mitigation. The inspectors walked down portions of the system for signs of degradation and to assess overall material condition, as well as to monitor system parameters for proper operation. The inspectors completed an as left final inspection of the heat exchanger prior to the licensee closing it for testing. The inspectors verified that significant heat sink issues were being identified and entered into the CAP.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08P, Unit 2)

a. Inspection Scope

NDE Activities and Welding Activities: From August 27 - 31 2012, and September 10 - 14, 2012, the inspectors conducted an on-site review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the reactor coolant system, steam generator tubes, risk-significant piping and components and containment systems. The inspectors' activities included a review of Non Destructive Examinations (NDEs) to evaluate compliance with the applicable edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC), Section, and to verify that indications and defects were appropriately evaluated and dispositioned in accordance with the requirements of the ASME Code, Section XI, acceptance standards.

The inspectors observed the following NDEs mandated by the ASME Code Section XI to evaluate compliance with the ASME Code Section XI and Section V requirements

- Ultrasonic (UT) Examination
  - Reactor Pressure Vessel (RPV) Vessel Upper Shell to Intermediate Shell Weld No. W-02
  - RPV Shell to Shell Outlet Nozzle at 0° Weld No. W-21
  - Low Pressure Safety Injection Pump 2A Discharge Header Piping Weld No. SI-112-FW-6
- Liquid Penetrant (PT) Examination
  - Low Pressure Safety Injection Pump 2A Discharge Header Piping Weld No. SI-112-FW-6
  - Safety Injection Piping to Safety Injection Tank 2A1, Weld No. SI-112-7-SW-2
- Magnetic Particle (MT) Examinations
  - Main Steam Line 2A1 Inside Containment, Weld No. MS-28-5-SW-1 and MS-28-5-SW-1-LS
- Visual (VT) Examinations
  - RPV Cold Leg Inlet Nozzle No. 2B1
  - RPV Keyway at 90°
  - RPV Surveillance Capsule Holder at 97°

During non-destructive surface and volumetric examinations performed since the previous refueling outage, the licensee did not identify any recordable indications that were accepted for continued service. Therefore, no NRC review was completed for this inspection procedure attribute.

The inspectors reviewed the following pressure boundary welds completed for risk-significant systems during the Unit 2 refueling outage to evaluate if the licensee applied the preservice NDEs and acceptance criteria required by the Construction Code. In addition, the inspectors reviewed the welding procedure specification, welder qualifications, welding material certification and supporting weld procedure qualification records, to evaluate if the weld procedures were qualified in accordance with the requirements of Construction Code and the ASME Code Section IX.

- Motor Operated Valve Low Pressure Header A to Containment Loop 2A2, Weld No. 39019239
- Motor Operated Valve for Containment Spray Header A, Weld No. 33008835

Boric Acid Corrosion Control (BACC) Inspection Activities: The inspectors reviewed the licensee's BACC program activities to ensure implementation with commitments made in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary," and applicable industry guidance documents. Specifically, the inspectors performed an on-site record review of procedures and the results of the licensee's containment walk-down inspections performed during the current spring

refueling outage. The inspectors also interviewed the BACC program owner, conducted an independent walk-down of containment to evaluate compliance with licensee's BACC program requirements, and verified that degraded or non-conforming conditions, such as boric acid leaks, were properly identified and corrected in accordance with the licensee's BACC and corrective action programs.

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

The inspectors reviewed licensee evaluations of reactor coolant system components with boric acid deposits to evaluate if degraded components were documented in the corrective action system. The inspectors also evaluated the corrective actions for any degraded reactor coolant system components against the component ASME Code Section XI, and other licensee committed documents:

Steam Generator (SG) Tube Inspection Activities: The NRC inspectors observed the following activities and/or reviewed the following documentation and evaluated them against the licensee's technical specifications, commitments made to the NRC, ASME Section XI, and Nuclear Energy Institute (NEI) 97-06 (Steam Generator Program Guidelines):

- Reviewed the licensee's in-situ SG tube pressure testing screening criteria. In particular, assessed whether assumed NDE flaw sizing accuracy was consistent with data from the EPRI examination technique specification sheets (ETSS) or other applicable performance demonstrations.
- Interviewed Eddy Current Testing (ET) data analysts and reviewed 5 samples of ET data
- Compared the numbers and sizes of SG tube flaws/degradation identified against the licensee's previous outage Operational Assessment
- Reviewed the SG tube ET examination scope and expansion criteria
- Evaluated if the licensee's SG tube ET examination scope included potential areas of tube degradation identified in prior outage SG tube inspections and/or as identified in NRC generic industry operating experience applicable to the licensee's SG tubes
- Reviewed the licensee's implementation of their extent of condition inspection scope and repairs for new SG tube degradation mechanism(s). No new degradation mechanisms were identified during the EC examinations.
- Reviewed the licensee's repair criteria and processes
- Primary-to-secondary leakage (e.g., SG tube leakage) was below three gallons per day, or the detection threshold, during the previous operating cycle
- Evaluated if the ET equipment and techniques used by the licensee to acquire data from the SG tubes were qualified or validated to detect the known/expected types of SG tube degradation in accordance with Appendix H, Performance Demonstration for Eddy Current Examination, of EPRI Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 7

- Reviewed the licensee's secondary side SG Foreign Object Search and Removal (FOSAR) activities. No secondary side activities occurred this outage, but there was a foreign object search performed by way of ET. Only one object was noted, and it was evaluated appropriately in order to leave it within the secondary side of the steam generator.
- Reviewed ET personnel qualifications

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance

.1 Resident Inspector Quarterly Review (Annual Regualification)

a. Inspection Scope

On July 31, 2012, the inspector observed and assessed two separate licensed operator crews' actions during their annual regualification exam during a simulated steam generator tube rupture, a reactor trip, and trouble restoring the 2A3 vital 4kV electrical bus. The inspectors verified that operator performance was adequate, evaluators were identifying and documenting crew performance issues and training was being conducted in accordance with station procedures. The inspectors also reviewed simulator physical fidelity and specifically evaluated the following attributes related to the operating crew's performance:

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

b. Findings

No findings were identified.



## .2 Control Room Observations

### a. Inspection Scope

Inspectors observed and assessed licensed operator performance in the plant and main control room, particularly during periods of heightened activity or risk and where the activities could affect plant safety. In particular, the inspectors observed control room activities following a planned refueling outage reactor plant shutdown as discussed in section 1R20.1 of this inspection report. The inspectors focused on the following conduct of operations attributes as appropriate:

- Operator compliance and use of procedures
- Control board manipulations
- Communication between crew members
- Use and interpretation of plant instruments, indications and alarms
- Use of human error prevention techniques
- Documentation of activities, including initials and sign-offs in procedures
- Supervision of activities, including risk and reactivity management

### b. Findings

No findings were identified.

## 1R12 Maintenance Effectiveness

### a. Inspection Scope

The inspectors reviewed the performance data and associated ARs for the two systems listed below to verify that the licensee's maintenance efforts met the requirements of 10 CFR 50.65 (Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants) and licensee Administrative Procedure ADM-17-08, Implementation of 10CFR50.65, Maintenance Rule. The inspectors' efforts focused on maintenance rule scoping, characterization of maintenance problems and failed components, risk significance, determination of a(1) and a(2) classification, corrective actions, and the appropriateness of established performance goals and monitoring criteria. The inspectors interviewed responsible engineers and observed some of the corrective maintenance activities. The inspectors attended applicable expert panel meetings and reviewed associated system health reports. The inspectors verified that equipment problems were being identified and entered into the licensee's CAP.

- Unit 1 Intake Cooling Water System
- Unit 2 Intake Cooling Water System

### b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Controla. Inspection Scope

The inspectors completed in-office reviews, plant walk downs, and control room inspections of the licensee's risk assessment of seven emergent or planned maintenance activities. The inspectors verified the licensee's risk assessment and risk management activities using the requirements of 10 CFR 50.65(a)(4), Nuclear Management and Resource Council (NUMARC) 93-01, "Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants", and licensee procedure ADM-17.16, "Implementation of the Configuration Risk Management Program". The inspectors also reviewed the effectiveness of the licensee's contingency actions to mitigate increased risk resulting from the degraded equipment. The inspectors interviewed responsible Senior Reactor Operators on-shift, verified actual system configurations, and specifically evaluated results from the online risk monitor (OLRM) for the combinations of out of service (OOS) risk significant systems, structures, and components (SSCs) listed below:

- 2B Emergency Diesel Generator (EDG), 1B EDG and PCV-8802 OOS
- MV-07-1A suction from RWT, 1A HHSI pump, 1A LHSI pump, 1C Charging pump, and 1A Start-up Transformer OOS
- 1B Start-up Transformer, PCV-8802 and 2B EDG OOS
- 2A Auxiliary Feedwater (AFW) Pump, 2A AFW Actuation System Instrumentation, and PCV-8802 OOS
- PCV-8802, 2A EDG, 1B Charging Pump, 1B1 Circulating Water Pump (CWP), and 1C Control Room Air Conditioning System OOS
- 1A high head safety injection pump, 2A EDG, 1B1 CWP and PCV-8802 OOS
- MV-07-2A recirculation from sump, 1B Boric Acid Make-up, 1A Containment Spray pump and 1A HHSI pump OOS

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionalitya. Inspection Scope

The inspectors reviewed the following seven action requests (ARs), interim dispositions, and operability determinations to ensure that operability was properly supported and the affected SSCs remained available to perform their safety function with no increase in risk. The inspectors reviewed the applicable UFSAR, and associated supporting documents and procedures, and interviewed plant personnel to assess the adequacy of the interim disposition.

- AR 01781325, 1B LPSI Pump Cubical Removal Wall Section Not Installed
- AR 01784613, 2A Auxiliary Feedwater Pump Relay AK810 Failure

- AR 00469691, ICW Safety-Related Leak on 2B Header I30"-CW-29
- AR 01796777, Unit 1 Control Room HVAC inoperable
- AR 01795296, Dislodged Safety Injection Thermal Sleeve
- AR 01793964, Reactor Cavity Seal Leakage
- AR 01804496, Unit 1 Reactor Auxiliary Building Penetration Seals

b. Findings

No findings were identified.

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed selected samples of evaluations to confirm that the licensee had appropriately considered the conditions under which changes to the facility, Updated Final Safety Analysis Report (UFSAR), or procedures may be made, and tests conducted, without prior NRC approval. The inspectors reviewed evaluations for two changes and additional information, such as drawings, calculations, supporting analyses, the UFSAR, and Technical Specifications (TS) to confirm that the licensee had appropriately concluded that the changes could be accomplished without obtaining a license amendment. The two evaluations reviewed are listed in the List of Documents Reviewed.

The inspectors evaluated engineering design change packages for six material, component, and design-based modifications to evaluate the modifications for adverse effects on system availability, reliability, and functional capability. The six modifications are as follows:

- EC 246559, RCS Hot Leg Injection Modification (IP 71004)
- EC 249981, Control Room Heating Ventilation and Air Conditioning Modification (IP 71004)
- EC 246543, Feed Water Regulator Valve Modification (IP 71004)
- EC 249980, NSSS Set Point and Scaling Modification (IP 71004)
- EC 246564, Safety Injection Tank Requalification (IP 71004)
- EC 246556, Main Steam Isolation Valve Modification (IP 71004)

Documents reviewed included procedures, engineering calculations, modification design and implementation packages, work orders, site drawings, corrective action documents, applicable sections of the living UFSAR, supporting analyses, TS, and design basis information. The inspectors additionally reviewed test documentation to ensure adequacy in scope and conclusion. The inspectors' review was also intended to verify that all appropriate details were incorporated in licensing and design basis documents and associated plant procedures.

The inspectors reviewed the following three sections of the extended power uprate safety evaluation report to evaluate the impact of modifications on safety analysis margins.

- 2.4, Instrumentation and Controls
- 2.2.2, Pressure-Retaining Components and Component Supports
- 3.26, TS 3/4.5.1, Emergency Core Cooling Systems (ECCS) – Safety Injection Tanks (SIT)

The inspectors also reviewed selected corrective action documents and the licensee's self-assessments associated with modifications and 10 CFR 50.59 screening/evaluations to confirm that problems were identified at an appropriate threshold, were entered into the corrective action process, and that appropriate corrective actions were initiated and tracked to completion. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed the documentation for the permanent modification listed below. The inspectors reviewed the 10 CFR 50.59 screening and evaluation, fire protection review, environmental review, and license renewal review, to verify that the modifications had not affected system operability and availability. The inspectors reviewed associated plant drawings and UFSAR documents impacted by this modification and discussed the changes with licensee personnel to verify that the installation was consistent with the modification documents. The inspectors walked down accessible portions of the modification to determine if it was installed in the field as described in the associated documents. Additionally, the inspectors verified that that any issues associated with the modifications were identified and entered into the licensee's CAP.

- EC 249981, Unit 2 EPU Control Room Air-conditioning Margin Increase (IP 71004)

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

For the eleven post-maintenance tests (PMTs) listed below, the inspectors reviewed the test procedures and either witnessed the testing or reviewed test records to determine

whether the scope of testing adequately verified that the work performed was correctly completed and demonstrated that the affected equipment was functional and operable. The inspectors verified that the requirements of licensee procedure ADM-78.01, Post-Maintenance Testing, were incorporated into test requirements. The inspectors reviewed the following work orders (WO):

- WO 40048843, 1A Charging Pump maintenance
- WO 40129677, Unit 2 HVAC-3B control room air conditioner maintenance
- WO 40117724, 2A high pressure safety injection pump coupling lubrication
- WO 40083063, Auxiliary feed water cross-tie 1-MV-09-14 maintenance
- WO 40095052, 2C Control Room Ventilation modification (IP71004)
- WO 40044935, 2A Emergency Diesel Generator maintenance
- WO 40145261, 1B2 Safety Injection Tank Pressure Alarm PIA-3341 (IP 71004)
- WO 40145261, 1B2 Safety Injection Tank Pressure Switch PS-3342 (IP 71004)
- WO 40145261, 1B2 Safety Injection Tank Pressure Switch PS-3343 (IP 71004)
- WO 40145261, 1B2 Safety Injection Tank Level Alarm Switch LIA-334 (IP 71004)
- WO 40145261, 1B2 Safety Injection Tank Level Transmitter LT-3341 (IP 71004)

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities

.1 Unit 1 Extended Power Uprate Planned Outage

a. Inspection Scope

Outage Planning, Control and Risk Assessment

During daily outage planning activities by the licensee, the inspectors reviewed the risk reduction methodology employed by the licensee during a planned outage in Mode 3, Hot Standby including Outage Control Center (OCC) morning meetings, Operations Daily Team Meetings, and Schedule Performance Update Meetings. The inspectors examined the licensee implementation of shutdown safety assessments in accordance with Administrative Procedure 0-AP-010526, 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 monitored outage planning and control activities in the Outage Control Center (OCC), and interviewed responsible OCC management, during the outage to ensure system, structure, and component 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 of Unit 1 beginning on July 19, 2012. The inspectors also reviewed operating logs and plant parameters to

determine that reactor plant shutdown activities were conducted in accordance with Technical Specifications and applicable operating procedures, such as: 2-GOP-123, Turbine Shutdown - Full Load to Zero Load and 2-GOP-203, Reactor Shutdown. The inspectors performed walk downs of important systems and components used for decay heat removal from the reactor core during the shutdown period including the intake cooling water system, component cooling water system, and main turbine steam bypass control system.

#### 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
- Verified electrical systems availability and alignment
- 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 spent fuel pool (SFP)
- Verified workers' fatigue was properly managed.

#### Monitoring of Reactor Startup and Power Ascension Activities

On July 24, 2012, the inspectors observed activities during the reactor restart to verify that reactor parameters were within safety limits and that the startup evolutions were performed in accordance with licensee procedure 2-GOP-302, Reactor Startup Mode 3 to Mode 2. On July 25-27, 2012, the inspectors observed reactor power ascension to the new approved operating power level in accordance with NRC inspection procedure 71004, "Power Uprate" as further discussed in section 4OA5 of this report.

#### Corrective Action Program

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

#### b. Findings

No findings were identified.

## .2 Unit 2 Refueling Outage SL2-20

### a. Inspection Scope

#### Outage Planning, Control and Risk Assessment

During daily outage planning activities by the licensee, the inspectors reviewed the risk reduction methodology employed by the licensee during various refueling outage (RFO) SL2-20 meetings including Outage Control Center OCC morning meetings, Operations Daily Team Meetings, and Schedule Performance Update Meetings. The inspectors examined the licensee implementation of shutdown safety assessments during SL2-20 in accordance with Administrative Procedure 0-AP-010526, 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 system, structure, and component 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 cool down of Unit 2 beginning on August 6, 2012. The inspectors also reviewed operating logs and plant parameters to determine that reactor plant shutdown activities were conducted in accordance with Technical Specifications 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. The inspectors performed walk downs of important systems and components used for decay heat removal from the reactor core and the spent fuel pool during the shutdown period including the intake cooling water system, component cooling water system, and spent fuel pool cooling system.

#### 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
- 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 spent fuel pool (SFP)
- Verified workers' fatigue was properly managed.

#### Defueling 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. 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, Containment Closure.

#### Correction Action Program

The inspectors reviewed ARs generated during SL2-20 to evaluate the licensee's threshold for initiating ARs. The inspectors reviewed ARs to verify priorities, mode holds, and significance levels were assigned as required. Resolution and implementation of corrective actions of several ARs were also reviewed for completeness. The inspectors routinely reviewed the results of Quality Assurance (QA) daily surveillances of outage activities.

#### b. Findings

No findings were identified.

### 1R22 Surveillance Testing

#### a. Inspection Scope

The inspectors either reviewed or witnessed the following nine surveillance tests to verify that the tests met the TS, the UFSAR, the licensee's procedural requirements, and demonstrated the systems were capable of performing their intended safety functions and their operational readiness. In addition, the inspectors evaluated the effect of the testing activities on the plant to ensure that conditions were adequately addressed by the licensee staff and that after completion of the testing activities, equipment was returned to the positions/status required for the system to perform its safety function. The tests reviewed included two in-service test (IST) surveillances. The inspectors verified that surveillance issues were documented in the CAP.

- 1-OSP-59.01B, 1B Emergency Diesel Generator Surveillance (Fast start)
- 2-OSP-21.01A, 2A Intake Cooling Water Pump Code Run
- 2-OSP-59.01A, 2A Emergency Diesel Generator Surveillance (Fast start)
- 1-OSP-25.09A, Train A ECCS Ventilation Monthly Surveillance Test
- 1-OSP-01.03, Reactor Coolant System Inventory Balance
- 1-OP-0010125A, In-service Test Stroke Test (MV-09-14)



- 2-OSP-03.16A, A Low Pressure Safety Injection Pump Comprehensive Flow Test
- 2-OSP-03.17, Stroke Testing Of The SIT Discharge and SI LOOP Check Valves
- 2-OSP-68.02, Local Leak Rate Test (2-LCV-07-11A)

b. Findings

No findings were identified.

1EP6 Drill Evaluation

Emergency Preparedness Drills

a. Inspection Scope

On July 13, 2012, the inspectors observed the technical support center staff during a drill of the site emergency response organization to verify the licensee was properly classifying emergency events, making the required notifications, and making appropriate protective action recommendations. The drill included a main turbine trip without a reactor trip followed by a loss of coolant accident and a loss of a vital AC bus. The Unit 2 plant conditions degraded to a point where the licensee declared a site area emergency. During the drill the inspectors assessed the licensee's actions to verify that emergency classifications and notifications were made in accordance with licensee emergency plan implementing procedures (EIPs) and 10 CFR 50.72 requirements. The inspectors specifically reviewed the Alert, Site Area Emergency and General Emergency classifications and notifications were in accordance with licensee procedures EPIP-01, Classification of Emergencies and EPIP-02, Duties and Responsibilities of the Emergency Coordinator. The inspectors also verified that the initial activation of the emergency response centers was timely and as specified in the licensee's emergency plan, the required TS actions for the drill scenario were reviewed to assess correct implementation, the licensee-identified critique items were discussed and reviewed to verify that drill weaknesses were identified and captured in the CAP.

b. Findings

No findings were identified.

## 2. RADIATION SAFETY (RS)

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

### 2RS1 Radiological Hazard Assessment and Exposure Controls

#### a. Inspection Scope

##### Inspection Planning

The inspectors reviewed licensee Performance Indicator (PI) data for the Occupational Exposure Cornerstone. The inspectors also evaluated the scope of the licensee's internal audit program and reviewed recent assessment results.

##### Radiological Hazard Assessment

During facility tours, the inspectors directly observed postings and physical controls for radiation area, high radiation area (HRA), and airborne radioactivity locations established within the Unit 2 (U2) containment, Unit 1 (U1) and U2 auxiliary buildings, and radioactive waste (radwaste) processing and storage locations. The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys for selected equipment and areas within Radiologically Controlled Area (RCA) locations. Established radiological controls were evaluated for selected U2 Refueling Cycle 20 Outage (2SL-20) tasks including pressurizer heater replacement, RCP Motor and Pump work, reactor head maintenance, and Upper/Lower Decontamination (Decon) and Drain Down activities. The inspectors reviewed and evaluated surveys conducted and records maintained for selected RCA areas and/or refueling outage tasks including surveys for alpha emitters, hot particles, airborne radioactivity, potential dose rate gradients, and upcoming pre-task surveys. The inspectors also discussed changes to plant operations that could contribute to changing radiological conditions since the last inspection.

##### Instructions to Workers

During facility tours, the inspectors observed and evaluated the adequacy of container labeling and area postings for the current U2 outage activities. For selected outage jobs, the inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers. Electronic Dosimeter (ED) alarm logs were reviewed and workers' responses to dose and dose rate alarms during selected work activities were evaluated. ED alarm set-points and worker stay times were evaluated against radiation survey results.

##### Contamination and Radioactive Material Control

The inspectors observed surveys of material and personnel being released from the RCA using small article monitor (SAM), personnel contamination monitor, and portal monitor instrumentation. SAM equipment sensitivity, alarm set-points, and release

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program guidance were discussed with licensee staff. The inspectors also reviewed records of leak tests on selected sealed sources, discussed nationally-tracked source transactions with licensee staff, and verified sources within select storage locations.

#### Radiological Hazards Control and Work Coverage

Licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations were reviewed and discussed. The inspectors reviewed RWPs for work within airborne radioactivity areas. For potential HRA tasks involving significant dose rate gradients, e.g., pressurizer heater replacement, the inspectors evaluated the use and placement of whole body and extremity dosimetry to monitor worker exposure. Controls and their implementation for storage of irradiated material within the U2 spent fuel pool (SFP) were reviewed and discussed with the licensee.

#### Risk-Significant High Radiation Area and Very High Radiation Area Controls

The inspectors evaluated access barrier effectiveness for selected U2 Locked High Radiation Area (LHRA) and Very High Radiation Area (VHRA) locations. Procedures for LHRA and VHRA controls were discussed with health physics (HP) supervisors.

#### Radiation Worker Performance and Radiation Protection Technician Proficiency

Occupational worker adherence to selected RWPs and Radiation Protection Technician (RPT) proficiency in providing U2 containment and auxiliary building job coverage were evaluated through direct observations and discussions with licensee staff.

#### Problem Identification and Resolution

Corrective Action Program (CAP) documents associated with radiological hazard assessment and control were reviewed and assessed. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure PI-SL-204, Condition Identification and Screening Process, Rev. 7.

Radiation protection activities were evaluated against the requirements of Updated Final Safety Analysis Report (UFSAR) Section 12; Technical Specifications (TS) Sections 6.8, 6.11 and 6.12; 10 CFR Parts 19 and 20; and approved licensee procedures. Licensee programs for monitoring materials and personnel released from the RCA were evaluated against 10 CFR Part 20 and IE Circular 81-07, Control of Radioactively Contaminated Material. Documents reviewed are listed in Section 2RS1 of the Attachment.

The inspectors completed one sample as required by inspection procedure 71124.01.

#### b. Findings

No findings were identified.

## 2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

### a. Inspection Scope

#### Waste Processing System Program Review

The inspectors reviewed and discussed the status and proposed changes to the radioactive waste processing systems relative to the current Updated Final Safety Analysis Report (UFSAR) and Process Control Program (PCP) documents. The inspectors discussed component function, processing system changes, and radioactive waste (radwaste) program implementation with licensee staff. The inspectors reviewed and discussed with licensee personnel implementation of the new Self Engaging Dewatering Systems fill head for resin sluicing and dewatering and required changes needed for relocation of the performance of resin transfers to inside the fuel handling bay.

For primary resin, filters, and dry active waste (DAW) the inspectors evaluated analyses for hard-to-detect nuclides, reviewed the use of scaling factors, and examined quality assurance (QA) comparison results between licensee waste stream characterizations and outside laboratory data. Waste stream sampling methodologies for resins, filters and dry active waste (DAW) were evaluated and discussed with responsible radwaste staff.

#### Radioactive Material Storage

During walk-downs of radioactive material and radioactive waste storage areas, the inspectors observed the physical condition and labeling of storage containers and the posting of Radioactive Material Areas. The inspectors also reviewed licensee procedural guidance for storage and monitoring of radioactive material. RCA storage areas evaluated included select Unit 1 and Unit 2 auxiliary building locations and a proposed long term storage building under construction.

#### Radioactive Waste System and Radioactive Material Storage Area Walkdowns

During inspector walk-downs, accessible sections of the liquid and solid radioactive waste (radwaste) processing systems were assessed for material condition and conformance with system design diagrams. Inspected equipment included radwaste processing and holdup tanks; radwaste system transfer piping, resin and filter components; and dewatering system equipment.

#### Transportation

During the onsite inspection, training provided to radioactive waste staff responsible for preparing shipments to meet Department of Transportation (DOT) regulations was evaluated.

Selected shipping records were reviewed for consistency with licensee procedures and compliance with NRC and DOT regulations. The inspectors reviewed emergency response information, DOT shipping package classification, waste classification, and radiation survey results. Licensee procedures for opening and closing shipping containers were compared to package manufacturer's requirements. In addition, status of training for selected individuals currently qualified to ship radioactive material was reviewed.

#### Problem Identification and Resolution

The inspectors reviewed selected CAP documentation in the areas of radwaste processing and radwaste /radioactive material shipping. The inspectors evaluated the licensee's ability to identify and resolve identified issues in accordance with procedure PI-SL-201, Condition Identification and Screening Process, Rev 7, and PI-SL-201, Condition Evaluation and Corrective Action, Rev 7. The inspectors also evaluated the scope of the licensee's internal audit program.

Radwaste processing activities and equipment configuration were reviewed for compliance with the licensee's Process Control Program (PCP), UFSAR Chapter 11; Technical Specification (TS) 6.8, Procedures, Programs and Manuals and approved procedures and TS and 6.13 Process Control Program. Waste stream characterization analyses were reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 61, and guidance provided in the Branch Technical Position on Waste Classification (1983). Transportation program implementation was reviewed against regulations detailed in 10 CFR Part 20, 10 CFR Part 71, 49 CFR Parts 172-178, as well as the guidance provided in NUREG-1608. Training activities were assessed against 49 CFR Part 172 Subpart H. Documents reviewed during the inspection are listed in Section 2RS8 of the report Attachment

The inspectors completed one sample as required by inspection procedure 71124.08.

#### b. Findings

Introduction: A Green self-revealing, non-cited violation (NCV) of 10 CFR 71.5 was identified for failure of the licensee to ship radioactive material in accordance with 49 CFR 173.421(a)(2).

Description: On March 9, 2011, the licensee was notified about a discrepancy with radiation survey measurements on Shipment Number FPL/PSL 11-67. The radioactive shipment had been transported as an "excepted package for limited quantities." Upon receipt by the package recipient the contact dose rates on the external surface of the package were found to be greater than the 0.5 millirem per hour (mrem/h) limit allowed by regulation. The recipient measured a contact radiation level of 3.95 mrem/h. The licensee's survey conducted before shipment indicated a maximum dose rate on the package was 0.07 mrem/h. The package contained underwater camera equipment utilized by the fuel vendor in the spent fuel pool during the refueling outage and was being shipped to another utility. The licensee's apparent cause investigation concluded the cause for the increased package external radiation dose rates was either a

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redistribution of the radioactive material in the container or an inadequate evaluation by personnel preparing the shipment. The licensee's corrective actions include a procedure revision to limit individual item dose rates to 80% of package limits, require Radiation Protection Manager approval for all limited quantity shipments, and require that all surveys used for shipments must be approved and performed with a GM radiation survey instrument prior to shipment. The licensee documented the issue in AR01628106.

Analysis: The failure to ship limited quantity radioactive material to ensure dose rates were maintained in accordance with federal regulations was a performance deficiency. Applying guidance provided in IMC-0612 App B, "Issue Screening," the inspectors concluded that this performance deficiency was more than minor because the failure of the licensee's programs and processes for transportation of radioactive material resulted in shipment of radioactive material exceeding DOT limits which impacted the public radiation safety cornerstone objective of ensuring adequate protection of public health and safety from exposure to radioactive materials released into the public domain.

Assurance that the public will not receive unnecessary dose is decreased if packages are not prepared so that dose rates in accessible areas remain below regulatory limits during transit. This finding was evaluated using the Public Radiation Safety Cornerstone Significance Determination Process (SDP). Although the excepted package dose rate limit of 0.5 mrem/hr for a limited quantity of radioactive material was exceeded, the dose rate limit for the surface of a non-excepted package as described in 49 CFR 173.441 (200 mrem/hr) was not exceeded. Therefore, the finding was determined to be Green.

The inspectors reviewed IMC 0612, Appendix F, "Examples of Cross-Cutting Aspects," and determined that this finding involved the cross-cutting area of Human Performance [H.1.(b)] in the component of decision-making and the aspect of conservative assumptions, in that, licensee assumptions and subsequent decisions did not ensure that refueling equipment packaged for shipment would not exceed DOT limits during transport.

Enforcement: Title 10 CFR 71.5(a) states, in part, "each licensee who transports licensed material outside the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, shall comply with the applicable requirements of the DOT regulations in 49 CFR Parts 107, 171 through 180, and 390 through 397, appropriate to the mode of transport." Part 173.421(a)(2) of Title 49 of the Code of Federal Regulations states that the radiation level at any point on the external surface of the package does not exceed 0.005 mSv/hour (0.5 mrem/hr) for excepted packages for limited quantities of Class 7 materials. Contrary to the above, the licensee failed to ensure the package shipped as an "excepted package for limited quantities of Class 7 (radioactive) materials" did not exceed the dose rate limit for such packages. Because this violation was of very low safety significance and it was entered into the licensee's CAP (AR 01628106), this self-revealing violation is being treated as an NCV, in accordance with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000335, 389/2012004-01; Failure to ship radioactive material in accordance with DOT regulations)

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#### 4. OTHER ACTIVITIES

##### 4OA1 Performance Indicator Verification

###### Mitigating Systems Cornerstone

###### a. Inspection Scope

The inspectors checked licensee submittals for the performance indicators (PIs) listed below for the period July 1, 2011, through June 30, 2012, to verify the accuracy of the PI data reported during that period. Performance indicator definitions and guidance contained in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, and licensee procedures ADM-25.02, NRC Performance Indicators, and NAP-206, NRC Performance Indicators, were used to check the reporting for each data element. The inspectors checked operator logs, plant status reports, action requests, system health reports, and PI data sheets to verify that the licensee had identified the required data, as applicable. The inspectors interviewed licensee personnel associated with performance indicator data collection, evaluation, and distribution.

- Unit 1 Safety System Functional Failures
- Unit 2 Safety System Functional Failures

###### b. Findings

No findings were identified.

##### 4OA2 Problem Identification and Resolution

###### .1 Daily Reviews

###### a. Inspection Scope

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

###### b. Findings

No findings were identified.

.2 Annual Sample Review – Operator Work Around

a. Inspection Scope

The inspectors reviewed the licensee's operator workaround (OWA) program as described in procedure OP-AA-108, "Oversight and Control of Operator Burdens," to verify the licensee was identifying workarounds at an appropriate threshold and entering them into the corrective action program. The inspectors performed an evaluation of the potential cumulative effect of all outstanding operator workarounds. Documents reviewed are listed in the attachment.

b. Findings and Observations

No findings were identified. A recent Nuclear Oversight Report (PSL-12-006) had identified that Operations did not evaluate the Unit 1 and Unit 2 feed water controller deficiencies as an OWA. Additionally, the report described that some operator burdens had not been resolved in a timely manner. Operations wrote action request 1783156 and completed an apparent cause evaluation (ACE) to address these issues. The ACE identified that a cumulative evaluation of OWA issues was not being completed by Operations as required by the OWA program procedure. Immediate corrective actions included completing an overall cumulative impact of the OWA issues. The inspectors found that the ACE investigation was comprehensive and self-critical. The inspectors determined that the licensee's planned corrective actions were appropriate to address the identified issues. The inspectors reviewed all the OWA issues for the past year and independently determined there were no cumulative effects that significantly challenged operators during execution of abnormal or emergency operating procedures.

.3 Annual Sample Review – Evaluation Associated with Unit 2 2B1 Safety Injection Dislodged Thermal Sleeve

a. Inspection Scope

The inspectors selected action request 01795296 for a more in depth review of the circumstances and the corrective actions that followed. During the Saint Lucie Unit 2-20 refueling outage (RFO) 10 year in-vessel visual inspection (IVVI), the 2B1 Cold Leg Safety Injection Nozzle Thermal Sleeve was found in the reactor vessel, intact, between the Flow Baffle Skirt and the reactor pressure vessel (RPV) wall. The inspection scope was expanded to determine any damage to the reactor vessel associated with the thermal sleeve and to verify if any other thermal sleeves were dislodged. Upon further inspection of the remaining thermal sleeves it was determined that the 2A1 thermal sleeve was found rotated. During the IVVI it was identified that the core barrel (CSB), CSB snubber blocks, surveillance coupon holders and the safety injection nozzle cladding had sustained damage due to the dislodging of the 2B1 cold leg safety injection nozzle thermal sleeve. All damage was identified as wear scar marks caused by the thermal sleeve as it moved thru the RPV.



The inspectors reviewed the licensee's evaluation of the event and the associated corrective actions taken or planned. The inspectors reviewed licensee performance attributes associated with complete and accurate information of the problem, 10 CFR 50.72 reporting requirements, identification of the contributing causes and planning and completion of assigned corrective actions. The inspectors interviewed plant personnel and evaluated the licensee's administration of this selected action request in accordance with their corrective action program as specified in the licensee procedures PI-SL-204, "Condition Identification and Screening Process," and PI-SL-205, "Condition Evaluation and Corrective Action." The inspectors also reviewed the licensee's evaluations for continued operation with a dislodged or loose thermal sleeve, and wear scar marks on the surveillance coupon holders, CSB, CSB snubbers, and 2B1 nozzle cladding.

b. Findings and Observations

No findings were identified. The licensee identified one apparent cause and two contributing causes of this event. The apparent cause described that lack of construction instruction and inspection did not provide adequate margin to keep the 2B1 SI thermal sleeve attached in the 2B1 nozzle and the 2A1 SI thermal sleeve from rotating, for the life of the plant. This lack of instruction and inspection did not ensure that the sleeve was installed flush with the top of the cold leg to minimize flow-induced vibration. The first contributing cause was identified as inadequate thermal sleeve expansion and assembly positioning of the 2B1 and 2A1 cold leg safety injection nozzle thermal sleeve. This inadequacy potentially caused increased flow-induced vibrations leading to the thermal sleeve failure. The second contributing cause described that vibration from hydraulic forces on the protruding sleeves as well as from the Reactor Coolant Pumps (RCP) and the associated vibrations from 2B1 and 2A1 Loop led to the dislodging of the 2B1 cold leg safety injection nozzle thermal sleeve and the rotating of the 2A1 thermal sleeve.

The licensee's immediate corrective actions included additional inspections of the remaining thermal sleeves. These inspections included radiography of the 2A1 SI nozzle, ultrasonic testing of the 2B1 nozzle without the thermal sleeve and 2A1 SI nozzle with a rotated thermal sleeve. Thermal sleeve troubleshooting for the 2A1 SI nozzle was also performed which included a test that mimics that of a Safety Injection Tank (SIT) dump test. Long term corrective actions include a monitoring plan to help identify if a sleeve becomes dislodged. This monitoring plan includes evaluation of RCP start-up sequence to assure that if a thermal sleeve were to become dislodged it would not backflow to an idle RCP during start-up, reactor coolant system (RCS) temperature monitoring for the RCPs which will provide indications of abrupt temperature changes that may indicate a thermal sleeve has impacted and damaged a cold leg RTD, and additional monitoring of the loose parts monitoring equipment, in the event that a thermal sleeve were to dislodge again.

The licensee's evaluations document that continued operation with a dislodged or loose SI thermal sleeve is acceptable based on Operation Experience (OE) that have shown no significant damage to the RCS systems from migration of a dislodged SI thermal sleeve. Stresses affecting the nozzle with the missing SI thermal sleeves have also been evaluated by the licensee based on OE which states the SI nozzles with or without

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a thermal sleeve are acceptable for continued service. The licensee has also evaluated the effects of the wear scar marks on the surveillance coupon holders, CSB, CSB snubbers, and 2B1 nozzle cladding. The evaluation shows that all components are acceptable for continued service. The cladding on the 2B1 Cold Leg Safety Injection Nozzle has not been breached; the damage on the surveillance coupon holder should not propagate since the failure mechanism (dislodged sleeve) has been removed, and damage to the CBS and the CSB snubbers do not have a significant structural or functional impact.

#### .4 Semi-Annual Trend Review

##### a. Inspection Scope

As required by Inspection Procedure 71152, Problem Identification and Resolution, the inspectors reviewed the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors selected an adverse trend in equipment mispositioning events that have occurred since January 2012 and the associated action requests. The inspectors' review was focused on the repetitive nature of several valve, breaker, and switch mispositions and the associated action requests, causal analyses, and corrective actions. The inspectors also considered the results of daily inspector AR item screening discussed in Section 4OA2.1 above, plant status reviews, plant tours, document reviews, and licensee trending efforts. The inspectors reviewed the licensee's trend action request 01765446 which documented an apparent cause evaluation for recent equipment mispositions. The inspectors evaluated the effectiveness of the licensee's corrective actions and the significance of the problem including attributes such as accurate documentation, reportability, and problem resolution.

##### b. Findings and Observations

No findings were identified. The licensee apparent cause report determined that the most common cause of the events was related to human performance and failure to use human error prevention techniques in the field by operators when operating equipment. In particular, the licensee determined that inadequate self-checking and inadequate situational awareness contributed to the events. In some cases the wrong equipment was operated and in other cases equipment was inadvertently bumped. In some cases, earlier corrective actions to prevent future events was narrowly focused on reinforcing the use of human error prevention techniques during pre-job briefs and did not effectively implement a process where peer checking and management field oversight was required. The inspector determined that corrective actions were initiated in the field requiring more supervisory oversight and periodic written field observation reports to be reviewed and discussed with each operations department shift manager and his crew to prevent repeat events.

.5 Unit 1 and Unit 2 Extended Power Uprate (EPU) Identification and Resolution of Problems (IP 71004)

a. Inspection Scope

The inspector reviewed selected corrective action program (CAP) action requests (AR) generated by the licensee during an extended power uprate power ascension on Unit 1 following issuance of a licensee amendment to operate at a higher reactor power level. In addition, the inspectors verified that problems were being properly identified, appropriately characterized, and entered into the CAP. The inspectors reviewed corrective action program documents that were issued during the power ascension associated with secondary plant equipment. The inspectors conducted plant walk downs of plant equipment associated with the EPU to assess material condition and operation in order determine if any deficiencies existed that had not been previously entered into the CAP. Control room walk downs were performed to assess new EPU control equipment and instruments were functioning properly and deficiencies were documented in the control room deficiency logs.

b. Findings and Observations

The inspectors determined that the licensee was effective in identifying problems and entering them into the CAP and there was a low threshold for entering issues into the CAP associated with the EPU power ascension. This conclusion was based on a review of the requirements for initiating ARs as described in licensee procedure PI-SL-204, "Condition Identification and Screening Process," and PI-AA-205, "Condition Evaluation and Corrective Action," and that no new deficiencies were identified by inspectors during plant walk downs not already entered into the CAP.

Introduction: A Green, self-revealing, non-cited violation (NCV) of Technical Specification (TS) 6.8.1, was identified which requires that written procedures be established, implemented, and maintained covering activities referenced in NRC Regulatory Guide 1.33, Revision 2, dated February 1978, including safety-related maintenance activities. The licensee's safety-related design control procedure EN-AA-205, "Design Change Packages," was not implemented as written when an extended power uprate plant modification was performed on the reactor regulating system and steam bypass control system but a related maintenance procedure was not revised to reflect the change. As a result, when the procedure was utilized, it resulted in an unexpected opening of a turbine Steam Bypass Control System (SBCS) valve and cooling of the RCS system while in Mode 3.

Description: On July 21, 2012, Unit 1 was operating in hot standby Mode 3 operation while an instrumentation and control maintenance technician was performing a reactor regulating system calibration in the control room following installation of an extended power uprate modification to the reactor regulating system circuit and steam bypass control system circuit per Engineering Change (EC) 246560. The modification created redundant average coolant temperature (Tavg) inputs from T1111 (RCS Loop A) and T1121 (RCS Loop B) to the steam bypass control system input logic. Previously, a single Tavg input signal to the SBCS was selected by a two position switch by selecting

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either channel 1 or channel 2 during the calibration maintenance. The EC modification changed the circuit to include both inputs to each channel which created a condition where one of the signals would have to be bypassed from SBCS during the maintenance to prevent inadvertent operation of the SBCS valves. The Tavg inputs are used to provide a quick open signal to the SBCS when Tavg reaches 555 degrees Fahrenheit to mitigate a steam pressure transient following a plant trip.

On July 21, 2012, the maintenance technician was performing a calibration of the T1121 element which created a 555 degree signal to the SBCS that generated a quick open signal to the SBCS valves. PCV-8801 momentarily opened to approximately 70 percent open dumping steam to the main condenser and cooling the RCS from 528 degrees to about 526 degrees Fahrenheit. The licensee determined the cause of the event was the result of an inadequate maintenance procedure 1-PMI-62.03, "Unit 1 Reactor Regulating System Calibration." The inspectors determined that the licensee failed to revise maintenance procedure 2-OSP-63.01 to account for changes made to the SBCS quick open control logic that should have required the Tavg channel under maintenance to be bypassed prior to performing the calibration maintenance. Immediate corrective actions for this event included briefing control room operators of the changes to the SBCS Tavg logic changes and revised associated maintenance procedures 1-PMI-62.03 and 1-OSP62.01. The licensee entered this violation into their corrective action program as action request 1786565.

Analysis: The licensee's failure to comply with procedure EN-AA-205, "Design Change Packages," was a performance deficiency. The performance deficiency was determined to be more than minor because if left uncorrected, the deficiency could lead to a more significant safety concern. The inspectors evaluated the risk of this finding under the initiating events cornerstone using IMC 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process." The inspectors determined that the finding was of very low safety significance because it did not require a quantitative assessment as determined in Checklist 1. The finding involved a cross-cutting aspect of complete and accurate procedures in the resources component of the human performance area (H.2.c). Specifically, the licensee failed to ensure that an adequate maintenance procedure was up to date to prevent an unexpected reactor plant temperature transient.

Enforcement: Unit 2 Technical Specification 6.8.1, "Procedures and Programs," requires, in part, that written procedures be implemented covering activities referenced in Regulatory Guide 1.33, Revision 2, dated February 1978, including safety-related activities carried out during operation of the reactor plant. The licensee's safety-related design control procedure EN-AA-205, "Design Change Packages," Attachment 4 requires the licensee's design review process to ensure the modification can be constructed, tested, operated, and maintained as expected. Contrary to this, the review process for Engineering Change 246560 failed to ensure that maintenance procedure 1-PMI-62.03 was revised to reflect the new design of the plant in order to perform testing and maintenance as expected and without resulting in the unexpected operation of the SBCS and RCS cool down. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy because it was of very low safety significance and was entered into the licensee's corrective action program as action request 1786565

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to address recurrence. (NCV 05000335/2012004-02, Failure to Implement Procedure EN-AA-205, "Design Change Packages")

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.2 Independent Spent Fuel Storage Facility (ISFSI) Walk down (IP 60855.1)

a. Inspection Scope

On August 23, the inspectors conducted a walk down of the ISFSI controlled access fenced-in cask area per inspection procedure 60855.1, "Operation of an ISFSI at Operating Plants." The inspectors observed each cask building temperature indicator and passive ventilation system to be free of any obstruction allowing natural draft convection decay heat removal through the air inlet and air outlet openings. The inspectors observed associated cask building structures to be structurally intact and radiation protection access controls to the ISFSI area to be functional.

b. Findings

No findings were identified.

.3 Power Uprate, Inspection Procedure 71004

Unit 1 and Unit 2 Extended Power Uprate (EPU)

a. Inspection Scope

The inspectors previously observed and reviewed plant changes made by the licensee during the Unit 1 refueling outage performed from November, 26, 2011, through March, 15, 2012, documented in inspection report 2012-02 sections 1R19.2 and 4OA2.4. On July 1, 2012, the Unit 1 EPU license amendment was approved increasing the maximum

allowed reactor thermal power output from 2700 megawatts to 3020 megawatts. The inspectors reviewed the license amendment safety evaluation report to determine if changes to the facility associated with the EPU were adequately evaluated, regulatory commitments were in place, and to determine if any additional inspection activities were necessary. The licensee performed a Unit 1 EPU outage from July 19, 2012, through July 27, 2012, to finish the EPU modifications needed to reach the new licensed power level consisting of system parameter set point changes to accommodate the new power level. The inspectors reviewed procedure changes, plant design changes, and other inspection activities under the normal baseline inspection to ensure an adequate sampling of risk significant attributes of the power uprate inspection procedure were evaluated. The inspectors observed or reviewed test data for selected plant testing such as main steam isolation valve closure testing and power ascension activities during and following the Unit 1 EPU outage including power ascension from 30 percent reactor power to 100 percent reactor power. Specific inspection and associated documents reviewed can be found in the Attachment to this report.

On July 25-27, 2012, the inspectors observed reactor power ascension to the new approved operating power level in accordance with NRC inspection procedure 71004, "Power Uprate." The inspectors performed walk downs of the primary and secondary plant, attended pre-job meetings, observed control room operations, and reviewed power ascension plateau test data at 30, 50, 70, 89, 92, 95, 98, and 100 percent reactor power levels to ensure reactor power nuclear instrumentation and secondary plant calorimetric data was as expected. The inspectors reviewed the neutron and gamma survey results performed at 89 and 100 percent reactor power levels to ensure radiation levels were as expected.

The inspectors reviewed the licensee's corrective action program associated with the EPU and power ascension test programs for Unit 1 and Unit 2 to determine if the licensee was initiating action requests, evaluating deficient conditions, and taking adequate corrective actions during power ascension. A number of inspection samples were previously documented in inspection report 2012-002 Section 4OA2.4 for Unit 1. This sample is also discussed in section 4OA2 of this report.

The inspectors evaluated engineering design change packages for seven material, component, and design based modifications to evaluate the modifications for adverse effects on system availability, reliability, and functional capability as documented in sections 1R17 and 1R18 of this report.

The inspectors selected seven post-maintenance tests associated with the containment spray system and safety injection tank systems. The tests were witnessed or test records reviewed to determine if the scope of testing verified that the work performed was correctly completed and demonstrated that the affected equipment was functional and operable. The inspectors verified that the requirements of licensee procedure ADM-78.01, Post-Maintenance Testing, were incorporated into test requirements. Two containment spray system post-maintenance test inspection samples were previously documented in inspection report 2012-02 section 1R19.2. During this inspection period the inspectors reviewed an additional five post-maintenance tests associated with work order (WO) 40145261, "Safety Injection Tank Instrumentation Modifications," and one

post-maintenance test associated with WO 40095052, "2C Control Room Ventilation Modification." These six post-maintenance tests are listed in section 1R19 of this report.

b. Findings

No findings were identified

Erosion-Corrosion/Flow-Accelerated Corrosion (EC/FAC) Monitoring Programs

a. Inspection Scope

The inspectors reviewed the EC/FAC program to determine whether the licensee had taken required actions to detect adverse effects (wall thinning) on systems and components as a result of operational changes related to the EPU, such as increased flow in primary or secondary systems, including their interfacing systems. The inspectors reviewed the licensee's implementation of a long term EC/FAC monitoring program to determine whether it was consistent with GL 89-08, Erosion/Corrosion-Induced Pipe Wall Thinning, the guidelines in Electric Power Research Institute Report NSAC-202L-R2, Recommendations for an Effective Flow-Accelerated Corrosion Program, and that responsibility for proper execution of the EC/FAC program was appropriately designated. Additionally, the inspectors reviewed procedures and administrative controls to determine whether these procedures and controls would ensure the structural integrity of high energy (single-phase and two-phase) carbon steel systems. The inspectors reviewed the established EC/FAC program to determine whether the degradation of piping and components was described in the procedures, and that the examination activities were managed, maintained, and documented.

The inspectors reviewed implementing procedures and program administrative documents to determine whether the licensee's EC/FAC program included systematic methods for predicting which systems were susceptible to EC/FAC, the means to inspect those systems identified, and methods to analyze and trend those inspection results. Additionally, the inspectors reviewed program documentation to determine whether systematic methods to determine EC/FAC wear rates were included and that future inspections were planned based upon past inspection results.

The inspectors reviewed program documentation to determine whether examination activities were performed in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requirements. The inspectors reviewed the EC/FAC program to determine whether it contained specific guidance for actions, such as additional inspection (extent of condition), engineering evaluation and repair or replacement of components when wall thinning was detected. The inspectors reviewed the examination procedures to determine whether repair or replacement of components determined to or predicted to wear below minimum wall thickness requirements was to be performed in accordance with the ASME Boiler and Pressure Vessel Code, Section XI program or the original design code requirements. The inspectors reviewed the specified acceptance criteria for required wall thickness to determine that sufficient margin above the applicable code limits was provided to permit an evaluation and determination of appropriate corrective actions.

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The inspectors reviewed a portion of the inspection data and analysis of the most susceptible piping components for Units 1 and 2 to determine whether the results were clearly documented. Additionally, the inspectors reviewed how the inspection data was trended to determine EC/FAC wear rates and identify the future inspection locations. The inspectors reviewed action requests which identified wall thinning in piping during the current and previous outages which was replaced based on predictive analysis of remaining life.

The inspectors reviewed the licensee EC/FAC activity to determine status and effective utilization of the industry sponsored predictive program (CHECWORKS) to verify the selection of the most susceptible locations for inspection, additional locations based on unique operating conditions, and industry experience. The inspectors reviewed the program input data to determine whether the information was accurately entered and was properly used to conduct the analysis. Additionally, the inspectors reviewed changes made to the CHECWORKS model to determine whether steps were taken to identify specific locations that were most likely to be adversely affected by a change in operating variables (temperature, flow) as a result of increased power levels from the EPU.

The inspectors selected portions of the Units 1 and 2 high pressure extraction steam system and feedwater heater drains system for a detailed review of the licensee's EC/FAC monitoring activities and effectiveness. The sample selection was based on the risk priority of those components and systems where accelerated wear rates were predicted to cause wall thinning. The inspectors performed a walkdown of portions of the selected systems (piping and components) to verify the as-built configuration matched the plant specific EC/FAC program isometric drawings. The inspectors reviewed EC/FAC program component isometrics and specific locations within the selected systems, which had been predicted to be susceptible to wear during the initial EC/FAC program evaluations using the CHECWORKS predictive model. The inspectors also reviewed selected locations in these systems that had been identified as susceptible to a projected increase in EC/FAC wear rates using the higher EPU operational variables with the CHECWORKS model. The inspectors also noted that significant portions of the systems were in the process of being replaced with FAC-resistant materials.

b. Findings

No findings were identified.

.4 (Closed) NRC Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter (GL) 2008-01)"

a. Inspection Scope

The inspectors reviewed the implementation of the licensee's actions in response to GL 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems." The subject systems included the high

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head safety injection system, low head safety injection system, shutdown cooling, chemical volume and control, and containment spray systems. The inspectors previously discussed the status of TI 2515/177 inspection activities in NRC integrated inspection report 05000335, 389/2010005 (reference ML110280009).

The following areas were reviewed during the inspection:

- The licensing basis of the facility to verify that actions to address gas accumulation were consistent with the operability requirements of the subject systems.
- The design of the subject systems to verify that actions taken to address gas accumulation were appropriate given the specifics of the functions, configurations, and capabilities of these systems.
- The design and operation of the decay heat removal system to determine if flashing in decay heat removal suction lines would challenge system operability.
- Selected analyses performed by the licensee to verify that methodologies for predicting gas void accumulation, movement, and impact were appropriate.
- Performed walk downs of selected subject systems to verify that the reviews and design verifications conducted by the licensee had drawn appropriate conclusions with respect to piping configurations and pipe slope which could result in gas accumulation susceptibility.
- Testing implemented by the licensee to address gas accumulation in subject systems. A selection of test procedures and completed test results were reviewed to verify that test procedures were appropriate to detect gas accumulations that could challenge subject systems.
- The specified testing frequencies to verify that the testing intervals had appropriately taken historical gas accumulation events as well as susceptibility to gas accumulation into account.
- The test programs and processes to verify that they were sensitive to pre-cursors to gas accumulation.
- The corrective actions associated with gas accumulation in subject systems to verify that identified issues were being appropriately identified and corrected. This review included modifications made to the plant including the installation of additional vent valves.
- The locations of selected vent valve installations to verify that the locations selected were appropriate based on piping configuration and pipe slopes.

b. Findings and Observations

No findings were identified.

The licensee relied, in part; on GOTHIC computer models to evaluate the potential for accumulated gas void transport in systems subject to Generic Letter 2008-01 evaluation. These computer models and associated engineering analyses were used to establish the bases for void size acceptance criteria. Use of computer modeling was supported, in part, by empirical test data referenced in WCAP-16631-NP, "Testing and Evaluation of Gas Transport to the Suction of ECCS Pumps." The inspectors noted that the subject of computer models used to predict void transport behavior had been addressed generically with the industry in NRC Information Notice 2011-17, "Calculation Methodologies for Operability Determinations of Gas Voids in Nuclear Power Plant Piping" which was issued on July 26, 2011 (ML11161A111). The inspectors verified that the licensee had entered Information Notice 2011-17 into their corrective action program (as action request 1674887) for evaluation as applicable gas management program operating experience.

.5 (Discussed) Temporary Instruction (TI) -2515/182 - Review of the Implementation of the Industry Initiative to Control Degradation of Underground Piping and Tanks, Phase 1

a. Inspection Scope

Leakage from buried and underground pipes has resulted in ground water contamination incidents with associated heightened NRC and public interest. The industry issued a guidance document, Nuclear Energy Institute (NEI) 09-14, "Guideline for the Management of Buried Piping Integrity," (ADAMS Accession No. ML1030901420), to describe the goals and required actions (commitments made by the licensee) resulting from this underground piping and tank initiative. On December 31, 2010, NEI issued Revision 1 to NEI 09-14, "Guidance for the Management of Underground Piping and Tank Integrity," (ADAMS Accession No. ML110700122), with an expanded scope of components which included underground piping that was not in direct contact with the soil and underground tanks. On November 17, 2011, the NRC issued TI-2515/182 "Review of the Industry Initiative to Control Degradation of Underground Piping and Tanks," to gather information related to the industry's implementation of this initiative.

The inspectors reviewed the licensee's programs for buried pipe and underground piping and tanks in accordance with TI-2515/182 to determine if the program attributes and completion dates identified in Sections 3.3 A and 3.3 B of NEI 09-14, Revision 1 were contained in the licensee's program and implementing procedures. For the buried pipe and underground piping program attributes, with completion dates that had passed, the inspectors reviewed records to determine if the attribute was in fact complete and to determine if the attribute was accomplished in a manner which reflected good or poor practices in program management.

b. Findings and Observations

No findings were identified. The licensee's buried piping and underground piping and tanks program was inspected in accordance with paragraphs 03.01.a through 03.01.c of TI-2515/182 and was found to meet all applicable aspects of NEI 09-14 Revision 1, as set forth in Table 1 of the TI. Based upon the scope of the review described above, Phase I of TI-2515/182 was completed.

.6 (Discussed) NRC Temporary Instruction (TI) 2515/187, Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns, and NRC TI 2515/188, Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

a. Inspection Scope

Inspectors accompanied the licensee on a sampling basis, during their flooding and seismic walkdowns, to verify that the licensee's walkdown activities were conducted using the methodology endorsed by the NRC. These walkdowns are being performed at all sites in response to a letter from the NRC to licensees, entitled "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated March 12, 2012 (ADAMS Accession No. ML12053A340).

Enclosure 3 of the March 12, 2012, letter requested licensees to perform seismic walkdowns using an NRC-endorsed walkdown methodology. Electric Power Research Institute (EPRI) document 1025286 titled, "Seismic Walkdown Guidance," (ADAMS Accession No. ML12188A031) provided the NRC-endorsed methodology for performing seismic walkdowns to verify that plant features, credited in the current licensing basis (CLB) for seismic events, are available, functional, and properly maintained.

Enclosure 4 of the letter requested licensees to perform external flooding walkdowns using an NRC-endorsed walkdown methodology (ADAMS Accession No. ML12056A050). Nuclear Energy Industry (NEI) document 12-07 titled, "Guidelines for Performing Verification Walkdowns of Plant Protection Features," (ADAMS Accession No. ML12173A215) provided the NRC-endorsed methodology for assessing external flood protection and mitigation capabilities to verify that plant features, credited in the CLB for protection and mitigation from external flood events, are available, functional, and properly maintained.

b. Findings

Findings or violations associated with the flooding and seismic walkdowns, if any, will be documented in future reports.

#### 4OA6 Meetings

##### Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. Jensen and other members of licensee management on October 11, 2012. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary information. The licensee did not identify any proprietary information.

#### 4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy, for being dispositioned as a Non-Cited Violation.

10 CFR 20.1501(a)(2) requires licensees to make or cause to be made surveys that are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, concentrations or quantities of radioactive material, and the potential radiological hazards. Furthermore, 10 CFR 20.1003 defines a survey as an evaluation of the radiological conditions and potential hazards incident to the presence of radioactive material. Contrary to the above, on August 12, 2012, the licensee performed Tri-Nuc filter (vacuum) maintenance activities in the Unit 2 containment lower cavity without an adequate evaluation of the potential for the contamination to disperse and impact workers performing maintenance activities in the upper cavity area and containment. Specifically, the workers within the lower cavity who were supplied with bubble hood respiratory protective equipment disturbed elevated levels of alpha contamination within the lower cavity while moving their tangled respirator lines. Dispersion of these contaminants to the upper cavity area and containment was exacerbated by operation of the containment coolers and purge exhaust. The dispersed contamination resulted in unanticipated elevated airborne concentrations of radionuclides in the upper cavity and containment with subsequent intakes by workers involved with polar crane operation and upper cavity reactor head maintenance activities. The elevated airborne levels were discovered approximately one hour after the start of the lower cavity work through the evaluation of routine air samples collected for the work in the upper cavity. Immediate corrective actions taken upon discovery included evacuation of the Unit 2 containment and whole-body counting of all potentially impacted workers. The whole-body count evaluations identified eight workers with potential intakes of radioactive materials. Detailed analyses of whole-body count data and air sample results to identify hard-to-detect radionuclides (alpha-emitters) for the affected workers resulted in a maximum assigned committed effective dose equivalent (CEDE) of 24.4 millirem (mrem) to one individual. For the other seven individuals identified with positive intakes, licensee estimates of dose (CEDE) were less than 10 mrem. An apparent cause evaluation performed by the licensee determined the causes to be inadequate work practices and planning. The corrective actions were documented under AR 01793148. The violation was evaluated using the Occupational Radiation Safety Significance Determination

Process and was determined to be of very low safety significance (Green) because this finding was not an over-exposure, did not have a substantial potential for over-exposure because of continuous air monitors (CAMs) that would have alarmed with increasing airborne levels, and the ability of the licensee to assess dose was not compromised.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## KEY POINTS OF CONTACT

### Licensee personnel:

C. Bach, Chemistry Manager  
M. Baughman, Training Manager  
E. Belizar, Projects Manager  
C. Bible, Engineering Manager  
D. Calabrese, Emergency Preparedness Manager  
D. Cecchett, Licensing Engineer  
D. Deboer, Operations Manager  
K. Frehafer, Licensing Engineer  
R. Filipek, Design Engineering Manager  
J. Hamm, Maintenance Manager  
T. Horton, Assistant Operations Manager  
D. Howard, Design Engineering Supervisor  
B. Hughes, Plant General Manager  
J. Jensen, Site Vice President  
E. Katzman, Licensing Manager  
W. Klein, FPL Corporate FAC Engineer  
R. McDaniel, Fire Protection Supervisor  
C. Martin, Radiation Protection Manager  
J. Owens, Performance Improvement Manager  
P. Rasmus, Assistant Operations Manager  
K. Rydman, Licensing  
M. Snyder, Site Quality Assurance Manager  
D. Tanis, Site Safety Manager  
T. Young, Security Manager

### Stevenson Associates:

S. Baker, Seismic Walkdown Engineer  
H. Young, Seismic Walkdown Engineer

### NRC personnel:

D. Rich, Chief, Branch 3, Division of Reactor Projects  
T. Hoeg, Senior Resident Inspector, St. Lucie  
R. Reyes, Resident Inspector, St. Lucie  
J. Tsao, Senior Materials Engineer, Piping and NDE Branch, Division of Engineering  
L. Lake, Senior Reactor Inspector, Engineering Branch 3, Division of Reactor Safety

## LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

### Opened and Closed

05000335, 389/2012004-01	NCV	Failure to Ship Radioactive Material in Accordance with DOT Regulations (Section 2RS8)
05000335/2012004-02	NCV	Failure to Implement Procedure EN-AA-205, Design Change Packages (Section 4OA2.5)

### Closed

05000335, 389/2515/177	TI	Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter (GL) 2008-01) (Section 4OA5.4)
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### Discussed

05000335, 389/2515/182	TI	Temporary Instruction (TI) -2515/182 - Review of the Implementation of the Industry Initiative to Control Degradation of Underground Piping and Tanks, Phase 1 (Section 4OA5.5)
05000335, 389/2515/187	TI	NRC Temporary Instruction (TI) 2515/187, Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns (Section 4OA5.6)
05000335, 389/2515/188	TI	NRC Temporary Instruction (TI) 2515/188, Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns (Section 4OA5.6)

## LIST OF DOCUMENTS REVIEWED

### Action Requests

01792048	01655982	00469264	01798779	01802454
01792066	01681053	01798024	01798814	01804419
01793151	01718110	01798033	01799939	01801803
01794521	01755306	01798424	01796059	01761378
01783156	01767255	01798430	01802031	01807641
01800509	01804773	01804809	01804812	

### **Section 1R01: Adverse Weather Protection**

OP-AA-102-1002, Seasonal Readiness  
0005753, Severe Weather Preparations  
ADM 4.01, Hurricane Season Preparations  
0006128, Hurricane Staffing

### **Section 1R04: Equipment Alignment**

Piping and Instrument Drawing, 8770-G-096, 1B Emergency Diesel Generator System  
Piping and Instrument Drawing, 2998-G-096, 2B Emergency Diesel Generator System

### **Section 1R05: Fire Protection**

ADM-0005728, Fire Protection Training, Qualification and Requalification  
ADM-1800022, Fire Protection Plan  
AP-1-1800023, Unit 1 Fire Fighting Strategies  
AP-2-1800023, Unit 2 Fire Fighting Strategies

### **Section 1R08: Inservice Inspection Activities**

#### Action Requests

01802000	443081	00478067	01611219
01619548	01604722	01654449	01791260
01791403	01792254	01793136	01793964
01796685	94015027	94054793	01638129
01639565	01653097	01653097	01681341
01798148	01798162	2006-36039	2007-19223
2009-6509	2009-9509	2010-449	

#### Procedures

NSD 400, Nuclear General Welding Program, Rev. 007  
ADM-29.03, Boric Acid Corrosion Control Program, Rev. 6C  
NDE 3.3, Liquid Penetrant Examination Solvent Removable Visible Dye Technique, Rev. 13  
NDE 2.2, Magnetic Particle Examination, Rev. 14  
NDE 5.4, Ultrasonic Examination of Austenitic Piping Welds, Rev. 19



Other Documents

Anatech Eye Examination Certification (Davison)  
Anatech Eye Examination Certification (Maben)  
Anatech Eye Examination Certification (Raper)  
Anatech Eye Examination Certification (Wettengel)  
Anatech Personnel Certification Summary Record (Davison)  
Anatech Personnel Certification Summary Record (Maben)  
Anatech Personnel Certification Summary Record (Raper)  
Anatech Personnel Certification Summary Record (Wettengel)  
AREVA Certificate of Calibration, AREVA Cert. No. 36036  
AREVA Certificate of Calibration, AREVA Cert. No. 36806  
AREVA Certificate of Calibration, AREVA Cert. No. 36808  
AREVA Certificate of Calibration, AREVA Cert. No. 36810  
AREVA Certificate of Personnel Qualification (Black, DM)  
AREVA Certificate of Personnel Qualification (Black, LM)  
AREVA Certificate of Personnel Qualification (Blakinship)  
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 AREVA Certificate of Vision Examination (Washburn)  
 AREVA Certificate of Vision Examination (Wells)  
 AREVA Certificate of Vision Examination (Wheeler)  
 AREVA Certificate of Vision Examination (Yi)  
 Curtis Wright Certificate of Visual Examination (Block)  
 Curtis Wright Certificate of Visual Examination (Cochran)  
 Curtis Wright Certificate of Visual Examination (Gatica)  
 Curtis Wright Certificate of Visual Examination (Stevermer)  
 Curtis Wright Certificate of Visual Examination (Thomas)  
 Curtis Wright Personnel Certification (Block)  
 Curtis Wright Personnel Certification (Cochran)  
 Curtis Wright Personnel Certification (Gatica)  
 Curtis Wright Personnel Certification (Stevermer)  
 Curtis Wright Personnel Certification (Thomas)  
 EC-272468, Condition Monitoring and Operational Assessment for the St. Lucie Unit 2 Steam  
 Generators based on Eddy Current Examination End of Cycle 18, January 2011  
 GE Ultrasonic Testing Probe Certification, Serial No.SB0723  
 INETECH Certificate of Personnel Qualification (Barilar)  
 INETECH Certificate of Personnel Qualification (Hohnjec)  
 INETECH Certificate of Personnel Qualification (Krizanac)  
 INETECH Certificate of Personnel Qualification (Kunaj)  
 INETECH Certificate of Vision Examination (Barilar)  
 INETECH Certificate of Vision Examination (Hohnjec)  
 INETECH Certificate of Vision Examination (Krizanac)  
 INETECH Certificate of Vision Examination (Kunaj)  
 Krautkramer Ultrasonic Testing Scope Certification, Serial No. USN-60-SW  
 Krautkramer Ultrasonic Testing Transducer Certification, Serial No. 00W1K1  
 Magnaflux Certification Record, Spot Check Cleaner/Remover Batch No. 07J09K  
 Magnaflux Certification Record, Spot Check Developer Batch No. 08F02K  
 Magnaflux Certification Record, Spot Check Developer Batch No. 08F03K  
 Magnaflux Certification Record, Spot Check Penetrant Batch No. 08K19K  
 Magnetic Weight Lift Test bar Certification, Serial No. 2324  
 MoreTech Certificate of Personnel Qualification (Funanich)  
 MoreTech Certificate of Vision Examination (Funanich)  
 NDE Technologies Personnel Certification Summary (Looper)  
 NDE Technologies Personnel Vision Certification (Looper)  
 RTD Ultrasonic Testing Probe Certification, Serial No. RTD-03-892  
 Sonotech Ultragel Certification, Serial No. 07125  
 Thermometer Calibration Record, Serial No. 070704768  
 Ultrasonic Testing Calibration Block Certification, Serial No. UT-37  
 ZETEC Certificate of Personnel Qualification (Crumpacker)  
 ZETEC Eye Examination Certification (Crumpacker)

**Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance**

St. Lucie Plant Simulator Evaluation Guide 0815001, Revision 25

**Section 1R12: Maintenance Effectiveness**

NAP-415, Maintenance Rule Program Administration  
 ADM-17.08, Implementation of 10 CFR 50.65, Maintenance Rule  
 SCEG-004, Guideline for Maintenance Rule Scoping, Risk Significant Determination, and Expert Panel Activities  
 Unit 1 System Health Report for the Intake Cooling Water  
 Unit 2 System Health Report for the Intake Cooling Water

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

OP-AA-104-1007, Online Aggregate Risk  
 WCG-016, Online Work Management  
 ADM-17.16, Implementation of The Configuration Risk Management Program

**Section 1R15: Operability Determinations and Functionality**

EN-AA-203-1001, Operability Determinations / Functionality Assessments

**Section 1R17: Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications**

EC 246559, RCS Hot Leg Injection Modification  
 EC 249981, Control Room Heating Ventilation and Air Conditioning Modification  
 EC 246543, Feed Water Regulator Valve Modification  
 EC 249980, NSSS Set Point and Scaling Modification  
 EC 246564, Safety Injection Tank Requalification  
 EC 246556, Main Steam Isolation Valve Modification  
 EC 246559, RCS Hot Leg Injection Modification  
 EC 249981, Control Room Heating Ventilation and Air Conditioning Modification  
 ENG-10047-1047, CWD RCP Seal Injection Valve, Rev. 0-1  
 ENG-10047-1048, Regenerative Heat Exchanger Bypass Isolation Valve, Rev. 0-1  
 ENG-10047-1049, CWD RCP Seal Injection Valve, Rev. 0  
 ENG-10047-1050, CWD RCP Seal Injection Valve, Rev. 0  
 ENG-10047-1051, CWD 125V DC & 120V AC Distribution, Rev. 0  
 ENG-10047-1052, CWD 125V DC & 120V AC Distribution, Rev. 0  
 ENG-10031-0001, MFW Control Valve FCV-9011, Rev. 8  
 ENG-10047-0003, Safety Injection (Small Bore Isometric), Rev. 1  
 ENG-10047-0011, Flow Diagram Chemical & Volume Control System, Rev. 2  
 ENG-10047-0015, Chemical & Volume Control (Small Bore Isometric), Rev. 4  
 ENG-10047-0016, Chemical & Volume Control (Small Bore Piping Isometric), Rev. 7  
 ENG-10047-0017, Chemical & Volume Control (Small Bore Isometric), Rev. 3  
 ENG-10047-0022, Chemical & Volume Control (Small Bore Isometric), Rev. 3  
 ENG-10047-0025, Chemical & Volume Control (Small Bore Isometric), Rev. 2  
 ENG-10047-0026, Chemical & Volume Control (Small Bore Isometric), Rev. 1  
 ENG-10047-0028, Chemical & Volume Control (Small Bore Isometric), Rev. 1  
 ENG-10047-0020, Reactor Containment Bldg and RCP Seal Injection System, Rev. 0  
 8770-12326, I/M – Target Rock 3 way Solenoid Valve, Rev. 1  
 8770-A-451-1000, Equipment Document Package for Equipment Qualification Report & Guidebook, Rev. 12  
 8770-A-451-2.1, Equipment Documentation Package for Main Steam Isolation Valve, Rev. 0  
 8770-A-450, Mark-up For Equipment Qualification List For 10CFR50.49, Rev. 0

8770-A-451-2.0 Mark-up for Equipment Qualification Document Package, Boxes Main Steam Trestle, Rev. 0

8770-A-451-21.1, Mark-up For Equipment Qualification Document Package, Target Rock Solenoid Valve, Rev. 0

8770-8950, Modification Parts for MSIV, Rev. 4

8770-B-231 SH. 29-21, Instrument Installation Detail, MSIV-HCV-08-1A & HCV-08-1B, Rev. 0

8770-B-231 SH. 29-28, Instrument Installation Detail, MSIV-HCV-08-1A N2 Backup System Valve Station Support, Rev. 3

8770-9673, MSIV Assembly, SH. 1, Rev. 11

8770-B-124, SH. MS-60, St. Lucie Plant – Unit 1 Main Steam, Rev. 0

8770-B-124, SH. MS-62, St. Lucie Plant – Unit 1 Main Steam, Rev. 0

8770-G-085 SH 3, St. Lucie Plant, Flow Diagram, Instrument Air Diagram, Rev. 23

8770-G-079, SH. 7, St. Lucie Plant – Unit 1 Main Steam, Rev. 4

ENG-EC246556-0109, St. Lucie Plant Unit 1, Flow Diagram, Main Steam System, Rev. 14

ENG-EC246556-1001, St. Lucie Plant Unit 1, Schematics Diagram, Main Steam Isolation Valves, HCV-08-1A Opening, Closing & Testing, Rev. 2

ENG-EC246556-1003, St. Lucie Plant Unit 1, Schematics Diagram, Main Steam Isolation Valves, HCV-08-1B Opening, Closing & Testing, Rev. 2

8770-B-326, SH. 312, St. Lucie Plant, Unit 1 Schematic Diagram, Main Steam Isolation Valves, HCV-08-1A Opening, Closing & Testing, Rev. 8

8770-B-326, SH. 315, St. Lucie Plant, Unit 1 Schematic Diagram, Main Steam Isolation Valves, HCV-08-1B Opening, Closing & Testing, Rev. 8

ENG-EC246556, St. Lucie Unit 1, Appendix R Safe Shutdown Analysis, Rev. 2

1-AOP-08.02, Abnormal Operating Procedure – Steam Generator Tub Leak, Rev. 4

1-ONP-100.01, Off-Normal Operating Procedure, Response to Fire, Rev. 35

1-ONP-100.01, Off-Normal Operating Procedure, Response to Fire, Rev. 34

1-EOP-99, Emergency Operating Procedure, Appendices/Figures/Tables/Data Sheets, Rev. 48

Report No. 1101242.414, Whitlock Regen Heat Exchanger – STL U1-FIV, Rev. 0

PC/M No. 10047, Seismic Interaction Evaluation, Rev. 0

PSL-1FSE-03-009 CCN-13, Unit 1 Electrical System Computer Model Documentation, Rev. 2

PSL-1FJE-90-002 CCN-04, GL. 89-10 MOV Cable Voltage Drop, St. Lucie 1, Rev 11

PSL-1FSE-05-002 CCN-16, Unit 1 125 VDC System ETAP Model & Analysis, Rev. 001

PSL-1FSC-02-002 CCN-001, Evaluation of Unit 1 Pipe Support SIH-232 for the Safety Injection System in the Reactor Building, Rev. 0

PSL-1FSC-02-010 CCN-001, Evaluation of Unit 1 Pipe Supports form piping analyzed in SIA Stress Calculation SI-972 for increased loads, Rev. 0

PSL-BFSM-06-019, Required Thrust for Category 2 AOVs, Rev. 5

EC249980 Attachment 1, PSL Unit 2 Main Steam & Feed water Flow calculation, Rev. 0

DOC PAC No. 8770-A-451-2.1, St Lucie Plant Unit 1, Equipment Documentation Package for Main Steam Isolation Valve, Rev. 0

DOC PAC No. 8770-A-451-2.1, St Lucie Plant Unit 1, Equipment Documentation Package for Main Steam Isolation Valve, Rev. 1

NFPA 13, Section 3-14.1.2, 1973 Edition

NFPA 13, Section 3-14.5, 1973 Edition

FPL STD-C-010, Appendix A, Table A. 4-1, Rev. 1

FPL STD-C-008, Section 3.11, Rev. 2

Bechtel Lift Plan Number, Main Steam Valve Isolation Actuator, 25486-124-UAD-0000-00036, Rev. 0

Vendor Technical Manual Change Package Cover Sheet, 8770-4820, 8770-12326, Rev. 3  
 AR 01785554, Inability to Retrieve Seismic Documentation for FP-40  
 AR 01785553, Typographical Error in Pending Revision to EQ Calc 8770-A-451-2.1  
 AR 01785833, Initial Review of EQ Doc Pac 8770-A-451-2.1 Inadequate

**Section 1R18: Plant Modifications**

ADM-17.18, Temporary System Alterations  
 ADM-17.11, 10 CFR 50.59 Screening  
 QI-3-PSL-1, Design Control

**Section 1R19: Post-Maintenance Testing**

ADM-78.01, Post-Maintenance Testing

**Section 1R22: Surveillance Testing**

ADM-29.02, ASME Code Testing of Pumps and Valves

**Section 2RS01: Radiological Hazard Assessment and Exposure Controls**

Procedures and Guidance Documents

HPP-3, High Radiation Areas, Rev. 34  
 HPP-42, Identification, Survey, and Release of Material, Rev. 7  
 HP-43, Control Inventory and Leak Testing of Radioactive Sources, Rev. 21  
 HPP-70, Personnel Contamination Monitoring, Rev. 25D  
 RP-SL-102-1000, Alpha Monitoring, Rev. 0  
 RP-SL-102-1001, Area Radiation and Contamination Surveys, Rev. 2  
 RP-SL-103-2005, RP Controls of Spent Fuel Pool Non-SNM, Rev. 1  
 WM-AA-1000, Work Activity Risk Management, Rev. 12

Records and Data Reviewed

Air Sample 122-0174, 62' N side cavity edge, 8/12/12  
 Air Sample 122-0175, Upper Rx Cavity, 8/12/12  
 Air Sample 122-0186, U-2 RCB 62' El Lower Rx Cavity, 8/12/12  
 Air Sample Log U2 RCB, 8/29/12 – 8/30/12  
 ALARA Package 3324-1, Pre-job ALARA Review, Lower Cavity decon after drain down, Rev. 0, 6/19/12  
 ALARA Package 3410-1, Pre-job ALARA Review, '2B1' RCP Rotating Assembly: Setup / demob equipment, Rev. 0, 8/25/12  
 ALARA Package 3410-2, Pre-job ALARA Review, '2B1' RCP Rotating Assembly: Remove/Replace, Rev. 0, 8/25/12  
 ALARA Package 3425-1, Pressurizer Old Heater Element Weld Cut, Removal and Transport for Storage, Rev. 0, 8/3/12  
 NSTS Confirmation Form 2012 Annual Inventory Reconciliation, 1/16/12  
 Radiation Protection Plan, SL2-20, 2B1 RCP Motor and Pump Project, Rev. 1, 8/28/12  
 Radiation Protection Plan, SL2-20, Pressurizer Heater Replacement, Rev. 0, 8/3/12  
 Radiation Protection Plan, SL2-20, Upper/Lower Cavity Decon & Drain Down, Rev. 0, 8/5/12  
 RWP 12-3006, Rx Head Studs, Rev. 0  
 RWP 12-3324, Lower Cavity Decon Activities, Rev. 1  
 RWP 12-3402, S/G Secondary Side Activities, Rev. 0  
 RWP 12-3410, '2B1' RCP Rotating Assembly: Remove / Replace, Rev. 0

RWP 12-3425, PZR Heater Elements: Cut welds / Remove / Dispose / De-Burr / Swab, Rev. 0  
 Sentinel Electronic Dosimeter Alarms, 1/1/12 – 8/29/12  
 Source Leak Test and Inventory Form, 2/1/12  
 Surveys regarding AR 01625160, PSL-M-20110131-01, U2 RAB V-07001 (Low Pressure Injection Pump Rooms, 1/31/11), PSL-M-20110131-24 (V-07001 Large Check Valve, 1/31/2011), PSL-M-20110219-39 (U2 RAB Low Pressure Safety Injection Pump Rooms, 2/19/11), and PSL-M-20110301-42 (U2 RAB Low Pressure Safety Injection Pump Rooms, 3/1/11)  
 Surveys regarding AR 01793148, PSL-M-20120808-14 (Initial Survey of Lower Cavity, 8/8/12), PSL-M-20120812-11 (Upper Cavity Survey following event, 8/12/12), and PSL-M-20120816-56 (Survey of Lower Cavity during Tri-Nuc hose connections, 8/12/12)  
 Survey PSL-M-20120425-17, HPS-25B U1 RAB 'B' HPSI & CS Pump Room – 0.5 foot (')  
 Surveys, U2 RCB 2B1 Reactor Coolant Pump & Motor PSL-M-20120807-19 (8/7/12) and PSL-M-20120808-05, U2 RCB 2B1 Reactor Coolant Pump & Motor, (8/8/12)  
 Surveys, Pressurizer, PSL-M-20120810-04 (8/10/12), PSL-M-20120810-49 (8/10/12), PSL-M-20120811-05 (8/11/12), PSL-M-20120811-27 (8/11/12), PSL-M-20120813-37 (8/13/12), and PSL-M-20120828-12 (8/28/12)  
 Survey PSL-M-20120813-03, U2 RCB 2B1 Reactor Coolant Pump & Motor, 8/13/12  
 Surveys, 2B1 RCP Platform, PSL-M-20120823-20 (8/23/12), PSL-M-20120823-48 (8/23/12), and PSL-M-20120828-11 (8/28/12)  
 Survey PSL-M-20120826-04, HPS-25B U1 RAB 'B' HPSI & CS Pump Room – 0.5'  
 Surveys HPS 264 U2 Equipment Hatch, PSL-M-20120826-05 (8/26/12) and PSL-M-120827- 19 (8/27/12)  
 Surveys HPS-213 U2 RAB 19.5' RCB Personnel Hatch, PSL-M-20120826-26 (8/26/12) and PSL-M-20120827-23 (8/27/12)  
 Survey PSL-M-20120805-26, Cavity Drain Valves, 8/5/12  
 U2 SFP Non-SNM Item Inventory Log Sheet, Map, and Information Sheets, 7/19/12  
 Survey PSL-M-20120425-17, HPS-25B U1 RAB 'B' HPSI & CS Pump Room – 0.5 foot (')  
 Survey PSL-M-20120724-13, HPS-U1 Drumming Room Quarterly Survey  
 Survey PSL-M-20120826-03, HPS-25A 'A' HPSI CS Quarterly Routine Survey  
 Survey PSL-M-20120826-04, HPS-25B U1 RAB 'B' HPSI & CS Pump Room – 0.5'  
 Survey PSL-M-20120829-37, HPS-271 Unit 2 Cask Handling Facility

#### Corrective Action Program (CAP) Documents

Action Request (AR) 01606013, Individual working in RCA not logged into Sentinel  
 AR 01607198, AREVA FME monitor received cumulative dose alarm  
 AR 01625160, Identified unposted high radiation area in the U-2 'B' LPSI  
 AR 01727385, EPD dose rate alarm  
 AR 01793148, Elevated airborne activity in the U2 refueling cavity  
 Radiation Protection High Radiation Area Control Effectiveness Self-Assessment, 2/29/12-3/12/12  
 Saint Lucie Nuclear Oversight Report, 3/23/12  
 SOER 2001-01 Self Assessment Report

**Section 2RS08: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation**

Procedures and Guidance Documents

RP-AA-108-1002, Shipment of Radioactive Material, Rev. 1  
 HP-47, Classification of Radioactive Waste Material for Land Disposal, Rev. 28C  
 HP-49, Dewatering Radioactive Bead Resins, Rev. 15  
 HP-49A, Transfer of Radioactive Bead Resins, Rev. 26  
 HP-48, Activity Determinations for Radioactive Material Shipments, Rev 6D  
 RP-AA-108-1003, Radioactive Materials Surveys For Shipment, Rev 1  
 RP-AA-108-1004, Packaging Radioactive Materials For Shipment, Rev 0  
 CS-OP-PR-008-161049, Setup, Operation and Dewatering Using Energy Solutions Self-Engaging Dewatering System Fill-head at St. Lucie, Rev 0  
 Administrative Procedure No. 0520025, Process Control Program, Rev. 13C

Records and Data Reviewed

10CFR50.59 Applicability Determination/Screening for Temporary Reactor Cavity Seal Leakage Demineralizer System, Dated 08/20/2012  
 Flow Diagrams Waste Management System, drawing #8770-G-078, Rev 12, pgs. 10,11,14,15,16 and 22.  
 FPL-PSL Shipment # 12-21, Radioactive Material Shipment Record, 01/19/2012  
 FPL-PSL Shipment # 12-24, Radioactive Material Shipment Record, 01/22/2012  
 FPL-PSL Shipment # 12-27, Radioactive Material Shipment Record, 01/25/2012  
 FPL-PSL Shipment # 12-144, Radioactive Material Shipment Record, 08/29/2012  
 FPL-PSL Shipment # 11-144, Radioactive Material Shipment Record, 07/27/2011  
 FPL-PSL Shipment # 11-124, Radioactive Material Shipment Record, 08/31/2011  
 FPL-PSL Shipment # 11-173, Radioactive Material Shipment Record, 08/29/2012  
 Work Order (WO) 38004427, V06225;Repair or Remove Misc Fittings on "A" Waste Monitor Tank 1A.  
 Surveys PSL-M-20120617-6, dated 06/17/2012, PSL-M-20120708-4, dated 07/08/2012, PSL-M-20120819-27, dated 08/19/2012, 20120826-20, dated 08/26/2012; Weekly Routine Survey of U1/U2 & WMT Valves  
 GEL Laboratories 10 CFR Part 50/61 Certificate of Analysis, dated, 07/31/2012

Corrective Action Program (CAP) Documents

PSL Nuclear Oversight Report, PSL-12-002. "Radiation Protection and Radwaste," 03/23/2012.  
 Action Request Report (AR) 01798338, Procedure Enhancement Identified During NRC Inspection  
 AR 01673747, RP Dry Storage Warehouse needs inventory cleanout and repackaging  
 AR 01628106, Radioactive shipment exceeds regulatory limits  
 AR 01634142, Untagged boxes in RCA Yard  
 AR 01634167, Radiation area boundary in excess of procedural limits  
 AR 01650532, Improperly loaded containers for shipment of Radwaste  
 AR 01676169, Degradation of radioactive material storage boxes in the RCA

**Section 4OA1: Performance Indicator Verification**

ADM-25.02, NRC Performance Indicators, Rev. 25  
 NAP-206, NRC Performance Indicators, Rev. 6  
 NEI 99-06, Regulatory Assessment Performance Indicator Guideline, Rev. 6



**Section 40A2: Problem Identification and Resolution**

Workaround Review Board Meetings Minutes, dated June 27, July 11, and July 18, 2012  
 Operations Policy OPS-529, Operations Deficiency and Control Room Tagging Policy  
 Nuclear Oversight Report PSL-12-006, Identification and Resolution of Operator Burdens

**Corrective Action**

AR 01795296-01, Debris found between the flow baffle skirt and vessel wall (determined to be 2B1 Thermal Sleeve)  
 AR 01795649-01, U2 RV, Degraded surveillance holders require evaluation  
 AR 01796008-01, U2 Core Support Barrel degraded condition requires evaluation  
 AR 01796227-01, CSB Snubber Blocks require evaluation  
 AR 01797638-01, 2A1 SI Thermal Sleeve  
 AR 01798633-01, 2B1 SI Nozzle Cladding Degradation  
 CR 00-1031, Loose Parts Monitor Sensor #3 appears to be a real impact

**Drawings**

71472-771-001, General Arrangement Piping, Rev. 05  
 71472-713-001, Thermal Sleeves, Rev. 00  
 71472-771-007, Primary Pipe Final Assembly and Machining, Rev. 04  
 71472-728-008, Nozzle Cladding and Machining, Rev. 02  
 71472-728-009, Nozzle Cladding and Machining, Rev. 02  
 9417-C088-168, Primary Pipe Final Assembly and Machining, Rev. 2  
 2998-G-078, Flow Diagram Reactor Coolant System, Rev. 11  
 71172-161-001, Vessel as Built Dimensions, Rev. 0  
 71172-171-004, General Arrangement Plan Reactor Vessel, Rev. 02

**Other Documents**

PSL Unit 2 Thermal Sleeve/ Reactor Vessel Team Turnover Package, 8/27/12 Dayshift  
 PSL2-20 RV & Internals Inspection Report, 8/27/12  
 Support Refute Matrix for Failure of Dislodged PSL-2 Safety Injection Nozzle Thermal Sleeve  
 Unit 2 Dislodged SI Thermal Sleeve NRC Questions from 9-20-12  
 Unit 2 Dislodged SI Thermal Sleeve NRC Questions from 9-27-12  
 Report No. 1201087.40R, Evaluation of Safety Injection Nozzle Thermal Sleeve Impact on RTD Thermowell, Rev. 0  
 NEDO-21000-1, Investigation of Cause of Cracking in Austenitic Stainless Steel Piping, July 1975  
 C-00 – 109, Report on Loose Parts Monitoring Data Evaluation  
 FPL Purchase Order 00045856, July 24, 2000  
 Apparent Cause Evaluation Unit 2 281 Cold Leg Safety Injection Nozzle Thermal Sleeve Dislodged, Action Request 01795296, 10/11/12

**Section 40A5.3: Extended Power Uprate (IP 71004 Power Uprate)**

AR 01788839, Turbine Inlet Pressure Low  
 AR 01788838, Condensate Temperature High  
 AR 01788836, Heater Drain Temperature Low  
 AR 01788842, 5B High Pressure Heater Level Low  
 AR 01788841, Generator Exciter Temperature High  
 AR 01788852, Main Feed Water Pump Suction Pressure Low

- EPUG-01, Startup testing Program Procedure
- 1-PTP-79, Main Steam Isolation Valve Replacement Functional Testing
- 1-PTP-80, Power Ascension to EPU Conditions, Unit 1
- 0-OSP-64.01, Reactor Engineering Periodic Tests, Rev. 47
- 1-OSP-69.01, Nuclear and Delta T Power Calibration, Rev. 10
- 1-OSP-08.01, Main Steam Isolation Valves Periodic Test, Rev. 2
- ENG-FAC-2.3-1, Identification of Susceptible Systems and Components, Rev. 8
- ENG-FAC-2.3-2, Performing Flow-Accelerated Corrosion Analysis, Rev. 10
- ENG-FAC-2.3-3, Selection of Locations for Examinations, Rev. 12
- ENG-FAC-2.3-4, Evaluation of Examination Data, Rev. 15
- ENG-FAC-2.3-5, Evaluation of Worn Components, Rev. 9
- ENG-FAC-2.3-6, Marking and Gridding for Flow-Accelerated Corrosion, Rev. 13
- ENG-FAC-2.3-7, Validation of Flow-Accelerated Corrosion Program Software, Rev. 9
- ENG-FAC-2.3-8, Application of Computed Radiography in the Long-Term FAC Monitoring Program, Rev. 5
- ENG-FAC-2.3-9, Inspecting Feedwater Heater Shells for Flow-Accelerated Corrosion Damage, Rev. 1
- ENG-FAC-2.3-10, Alloy Testing of Metals using the INNOV-X α-200AS Alloy Analyzer, Rev. 0
- 1Q12 PSL FAC Program Health Report
- ENG-CSI-FAC-100, Florida Power & Light Company Corporate Long-Term Flow-Accelerated Corrosion Monitoring Program, Rev. 16
- 07-0867-TR-001, Altran Technical Report – Flow Accelerated Corrosion Program Line Level System Susceptibility Screening, Rev. 0
- ADM-17.07, Flow-Accelerated Corrosion Inspection Implementation Program, Rev. 10B
- CSI-FAC-PSL-2-19D, Winter 2011 Outage Cycle 19 Flow-Accelerated Corrosion Final Report

<u>Inspection Procedure</u>	<u>Inspection Report</u>	<u>Description and IP 71004 Section</u>
71004, Power Uprate	12-04, 4OA5.3	SL1 and SL2 SER Review, 2.02.a
	12-04, 1R17	SL1 and SL2 Evaluation of Changes, Tests, or Experiments and Permanent Plant Modifications, 2.01.b
	12-04, 1R18	SL1 and SL2 Review Plant Changes, 2.02.b
	12-02, 1R19	SL1 Post-Maintenance Tests, 2.02.c
	12-04, 1R19	SL1 Post-Maintenance Tests, 2.02.c
	12-04, 4OA5.3	SL1 Major Tests, 2.02.d
	12-04, 4OA5.3	SL1 Power Ascension, 2.02.e
	12-04, 4OA5.3	SL1 and SL2 Flow Accelerated Corrosion, 2.01.f
	12-04, 4OA5.3	SL1and SL2 SER Review for NRC Commitments, 2.01.g
	12-02, 4OA2	SL1 Problem Identification and Resolution, 2.01h
	12-04, 4OA2	SL1 and SL2 Problem Identification and Resolution, 2.01h

**Section 4OA5.4: TI-177**

AR 1674887, Engineering review of IN 2011-007, Calculation Methodologies for Operability Determinations of Gas Voids in Nuclear Power Plant Piping

**Section 4OA5.5: TI-182**

ER-AA-102-1000, Buried Piping Examination Procedure, Rev. 1

ER-AA-102, Buried Piping Program, Rev. 3

AR 01740921, 1A and 1B ICW Discharge Header Root Cause Determination

AR 01787655, Notification that an opportunity for buried piping exists for direct inspection is based on tribal knowledge. This requirement needs to be proceduralized.

Saint Lucie Unit 1 Intake Cooling Water Discharge Pipe failure analysis, March, 3, 2012

Saint Lucie Unit 2 UFSAR, Section 18.2.9, Intake Cooling Water System Inspection Program

St. Lucie Nuclear Station Underground Piping and Tanks Inspection program, Rev. 0

St. Lucie Risk Ranking Table

Quick Hit Self Assessment 1674259, 2011 Fleet Buried Piping Program, dated 10/3/11

St. Lucie Storm Drain Inspection, dated February, 2012

Coating Inspection Report of CW 29 Piping, 2/11/12

**Section 4OA5.6: TI-187,188**

AR 01804496, Unit 1 Reactor Auxiliary Building Degraded Conduit Seals

AR 01800509, Unit 2 Reactor Auxiliary Building Degraded Conduit Seals

EN-AA-212-F02, Engineering Product Risk Assessment Procedure

Unit 1 Reactor Auxiliary Building Wall-North Walkdown Report, dated 9/14/12

Unit 2 Reactor Auxiliary Building Wall-East Walkdown Report, dated 9/14/12

Saint Lucie Seismic Walkdown Equipment List (SWEL)

Seismic Evaluation Training Course Certifications for a number of licensee staff

Area Walk-By Checklist and Seismic Walkdown Checklists for the referenced SWEL items

2998-G-667, Sheet 3, Diesel Generator Building Hatch Cover & Misc Details – M&R, Revision 6

2998-G-795, Sheet 1, Reactor Building Platforms, Revision 6

2998-G-864, Sheet 1, HVAC – Reactor Building, Revision 11

2998-G-865, Sheet 2, HVAC – Reactor Building, Revision 11

EPRI 1025286 "Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task

Force Recommendation 2.3

## LIST OF ACRONYMS

ADM	Administrative
AR	Action Request
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CRDM	Control Rod Drive Mechanism
ECCS	Emergency Core Cooling System
EOP	Emergency Operating Procedure
EPIP	Emergency plan Implementing Procedure
FCV	Flow Control Valve
GOP	General Operating Procedure
IP	Inspection Procedure
IST	In-service Testing
NAP	Nuclear Administrative Procedure
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
OSP	Operations Surveillance Procedure
RCS	Reactor Coolant System
RPS	Reactor Protection System
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
WO	Work Order