



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

May 3, 2016

Mr. Mano Nazar
President and Chief Nuclear Officer
Nuclear Division
NextEra Energy
P.O. Box 14000
Juno Beach, FL 33408-0420

**SUBJECT: ST. LUCIE PLANT - NRC INTEGRATED INSPECTION REPORT
05000335/2016001 AND 05000389/2016001**

Dear Mr. Nazar:

On March 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your St. Lucie Plant Units 1 and 2. The enclosed integrated inspection report documents the inspection results, which were discussed on April 11, 2016, with Mr. Coffey and other members of your staff.

This report documents three findings of very low safety significance (Green). Two of the findings involved a violation of NRC requirements. Additionally, the report documents one Licensee-identified violation that was determined to be of very low safety significance. 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 violation or significance of the NCV, 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 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 Plant.

M. Nazar

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In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, exemptions, requests for withholding," 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's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management 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/

LaDonna B. Suggs, Chief
Reactor Projects Branch 3
Division of Reactor Projects

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

Enclosure:
IR 05000335/2016001 and 05000389/2016001,
w/Attachment: Supplemental Information

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M. Nazar

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M. Nazar

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Letter to Mano Nazar from LaDonna B. Suggs dated May 3, 2016

SUBJECT: ST. LUCIE PLANT - NRC INTEGRATED INSPECTION REPORT
05000335/2016001AND 05000389/2016001

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-335, 50-389

License Nos: DPR-67, NPF-16

Report Nos: 05000335/2016001, 05000389/2016001

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

Facility: St. Lucie Plant, Units 1 & 2

Location: 6501 South Ocean Drive
Jensen Beach, FL 34957

Dates: January 1, 2016 to March 31, 2016

Inspectors: T. Morrissey, Senior Resident Inspector
J. Reyes, Resident Inspector
J. Panfel, Health Physicist (Section 2RS7 and 4OA1)
W. Pursley, Health Physicist (Section 2RS8, 4OA1 and 4OA7)
J. Rivera, Health Physicist (Section 2RS1, 2RS6, 4OA1 and 4OA7)

Approved by: LaDonna B. Suggs, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000335/2016001, 05000389/2016001; 01/01/2016 – 03/31/2016; St. Lucie Nuclear Plant, Units 1 and 2; Radiological Hazard Assessment and Exposure Controls; Identification and Resolution of Problems.

The report covered a three-month period of inspection by the resident inspectors and regional inspectors. Three findings of very low safety significance were identified by the inspectors. Two of the findings were considered Non-Cited Violations (NCVs) of NRC requirements. The significance of inspection findings are indicated by their color (i.e., Green, White, Yellow, or Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP) dated April 29, 2015. The cross-cutting aspect was determined using IMC 0310, "Components Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements were dispositioned in accordance with the NRC's Enforcement Policy dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A self-revealing finding was identified for the licensee's failure to provide adequate work instructions for the circulating water system 1B1 traveling water screen drive motor replacement. Specifically, the inadequate work instructions resulted in a plant transient in order to remove the associated circulating water pump (CWP) from service. This issue was placed in the licensee's corrective action program (CAP) as action request (AR) 2095560. The licensee completed the following corrective actions: (1) Counsel all maintenance supervisors in regard to having a questioning attitude and to seek guidance if unsure; (2) Rewire the 1B1 traveling screen drive motor for the proper rotation; (3) Install labels indicating the proper rotation for all eight traveling screen drive motors; (4) Submit document change requests to update the total equipment database; (5) Update all work orders (WO) for the remaining screen drive starter replacements to provide motor rotation direction and mark the post-maintenance test (PMT) step as a critical step, and; (6) Change clearance requests for traveling screen work to include directions to have electricians on station prior to returning the control switch to automatic.

The failure to provide adequate work instructions for replacement of the 1B1 traveling screen motor was a performance deficiency (PD). The PD was more than minor because it was associated with the procedure quality attribute of the initiating events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the inadequate WO instructions resulted in installing the 1B1 traveling screen drive motor incorrectly on December 4, 2015. After the maintenance, the system automatically started and the screen rotated backwards. The backward rotation allowed accumulated debris to be transported to the 1B1 debris filter system (DFS) filter and caused it to overload. The resulting high differential pressure (DP) on the DFS filter necessitated the need to lower unit power (plant transient) and

required removal of the 1B1 CWP from service. The finding was determined to be of very low safety significance (Green) based on Exhibit 1, "Initiating Events Screening Questions," found in IMC 0609, "Significance Determination Process," Appendix A, "Significance Determination Process (SDP) for Findings At-Power" (June 19, 2012). This was due to the fact that the finding did not cause a loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined the cause of this finding was associated with a cross-cutting aspect of ensuring risks are evaluated and managed before proceeding in the Challenge the Unknown component of the human performance area. Specifically, the licensee did not have a healthy questioning attitude and did not recognize the need to seek guidance when installing a new circulating water system traveling screen motor [H.11]. (Section 4OA2.2)

Cornerstone: Mitigating Systems

- Green. A self-revealing, NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the licensee's failure to implement corrective actions to prevent failure of the 2C intake cooling water (ICW) pump. The failure was a result of several air box baffle bolt-heads breaking off due to corrosion and impacting the motor stator winding, which caused an electrical ground on the winding. Corrosion of the bolts was attributed to not having functional motor heater elements. Corrective actions included repairing the motor heater elements on the 2A and 2C ICW pump motors. This issue was entered into the licensee's CAP as AR 02077661.

The licensee's failure to implement adequate corrective actions to prevent the Unit 2C ICW pump motor winding failure that resulted from extensive corrosion of the baffle bolts was a PD and was within the licensee's ability to prevent. The PD was more-than-minor because if left uncorrected, the PD has the potential to lead to a more significant safety concern. Specifically, not repairing a degraded or non-functioning motor winding heater in a timely manner prohibits protection against the humid salt water environment which the motor windings are exposed to during standby operational conditions and creates an environment for accelerated corrosion on the baffle bolts and motor winding leading to premature failure of the motor. Manual Chapter 0609 Appendix A, "The Significance Determination (SDP) Process for Findings At-Power," Exhibit 2 "Mitigating Systems Screening Questions," dated June 19, 2012, was used to further evaluate this finding. The finding screened as Green because the finding represented neither an actual loss of function of at least a single train for greater than its technical specification (TS) Allowed Outage Time, nor two separate safety systems out of service (OOS) for greater than its TS Allowed Outage Time. Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings," dated May 9, 2014, was used to further evaluate the shutdown safety significance of this finding. The finding screened to Green because the inspectors answered "no" to all the screening questions listed under "Exhibit 3 - Mitigation System Screening Questions." The finding involved the cross-cutting area of the evaluation component in problem identification and resolution (PI&R) because the organization did not thoroughly evaluate the function of the motor winding heater to ensure that resolutions address causes and extent of conditions commensurate with the long term operability of the ICW pump motors. Specifically, after identifying that the

motor winding heater on the 2C ICW pump motor was not functioning, the licensee entered this issue into the CAP but did not adequately evaluate the significance of having a non-functional heater on the motor winding and instead deferred the heater repairs to be completed at the next motor overhaul which was scheduled to be performed in four years [P.2]. (Section 4OA2.3)

Cornerstone: Occupational Radiation Safety

- Green. A self-revealing, NCV of TS 6.12.1.b occurred when a worker entered a high radiation area (HRA) without being made knowledgeable of dose rates in the area prior to entry. Specifically, on November 10, 2015, a worker performing a plant surveillance under radiation work permit (RWP) 15-004, "Clearance Tags, Surveillances and Inspections," climbed into overhead in the Unit 2 Pipe Penetration room and received an electronic dosimeter (ED) dose rate alarm. The licensee entered this issue into the CAP as AR 02090225 and took immediate corrective actions which included restricting the operator's access to the radiological control area (RCA), performing followup surveys and convening a human performance review board to examine causal factors for the purpose of determining corrective actions.

This PD was determined to be more than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance and adversely affects the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Workers permitted entry into HRAs with inadequate knowledge of current radiological conditions could receive unintended occupational exposures. The finding was evaluated using the Occupational Radiation Safety SDP. The finding was not related to as low as reasonably achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. Therefore, the inspectors determined the finding to be of very low safety significance (Green). The inspectors noted that the operator responded properly to the ED dose rate alarm thereby limiting his potential for unintended exposure. This finding involved the cross cutting aspect of [H8] procedure adherence because the individual understood the RWP requirements but failed to comply with them. (Section 2RS1)

Licensee-Identified Violations

One violation of very low safety significance (Green), which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's CAP. This violation and the associated corrective action tracking number is listed in section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent rated thermal power (RTP). On January 3, 2016, power was reduced to approximately 84 percent RTP in order to perform unplanned corrective maintenance on level control valves associated with the 4A and 4B feedwater heaters. The unit was returned to 100 percent RTP on January 7, 2016. On March 21, 2016, power was lowered to approximately 84 percent RTP in order to perform planned semiannual testing of moisture separator reheater (MSR) valves and main turbine governor and throttle valves. Unit power was returned to 100 percent RTP later that day. On March 22, 2016, a control element assembly (CEA) unexpectedly dropped into the core during CEA maintenance activities. Since the CEA could not be restored to its group position within one hour due to problems with its circuit breaker, power was lowered to approximately 69 percent RTP in compliance with TS. The licensee replaced the failed CEA breaker and restored the CEA to its group position within the time allowed by TS. Power was returned to 100 percent RTP on March 23, 2016. On March 24, 2016, power was lowered to approximately 83 percent in order to complete planned semiannual testing of the MSR and main turbine valves. Unit power was returned to 100 percent RTP later that day. The unit was at 100 percent RTP for the remainder of the inspection period.

Unit 2 was at 100 percent RTP during the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment (IP 71111.04)

Partial Equipment Walkdowns

a. Inspection Scope

The inspectors conducted 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, and that the issues were documented in the licensee's CAP. This inspection constitutes four samples. Documents reviewed are listed in the Attachment.

- Unit 2B emergency diesel generator (EDG) while the 2A EDG was OOS for maintenance
- Unit 2B high pressure safety injection (HPSI) pump and 2B low pressure safety injection pump (LPSI) pump while the 1A EDG and the 2A train of the emergency core cooling system (ECCS) was OOS for testing

- Unit 1A HPSI pump and 1A LPSI pump while the 1B EDG was OOS for maintenance
- Unit 2A and 2B auxiliary feedwater (AFW) pumps while the 2C AFW pump was OOS for maintenance and testing

b. Findings

No findings were identified.

1R05 Fire Protection (IP 71111.05AQ)

.1 Fire Area Walkdowns

a. Inspection Scope

The inspectors toured the following plant areas during this inspection period to evaluate conditions related to control of transient combustibles, ignition sources, and the material condition and operational status of fire protection systems, including fire barriers used to prevent fire damage or fire propagation. The inspectors reviewed these activities against provisions in the licensee's administrative procedure 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 CAP database to verify that fire protection problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment. This inspection constitutes seven samples. The following areas were inspected:

- Unit 1 AFW pump areas
- Unit 1 1A EDG room
- Unit 2 reactor auxiliary building (RAB) 43 ft elevation ventilation room
- Unit 2 A, B, and C AFW pump rooms
- Unit 1 RAB 19 ft and -0.5 ft elevation levels
- Unit 2 control room A, B and C Heating, Ventilation and Air Condition room
- Unit 1 and Unit 2 Main Feed pump areas

b. Findings

No findings were identified.

.2 Fire Protection - Drill Observation

a. Inspection Scope

The inspectors observed two fire drills. On January 20, 2016, the inspectors observed an unannounced fire drill that simulated a 1B ICW pump motor fire. A second unannounced drill was observed on March 6, 2016 that simulated a fire of the 2D instrument air compressor. These drills were 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 implemented appropriate corrective actions as required. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus (SCBA); (2) proper use and layout of fire hoses; (3) employment of appropriate firefighting 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. In addition, the inspectors reviewed the storage, training, expectations for use, and maintenance associated with the SCBA program. Documents reviewed are listed in the Attachment. This inspection constitutes one inspection sample and completes the annual inspection of fire drills.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (IP 71111.06)

.1 Underground Manhole Inspections

a. Inspection Scope

The inspectors performed inspections of manholes MH236 and MH265 containing safety-related cables associated with the Unit 2 component cooling water (CCW) system and manholes MH229 and MH230 containing safety-related cables associated with the 2A EDG. The inspectors verified cables were not submerged in water, cable support structures were not damaged, splices (if present) appeared intact, and adequate drainage was provided. The inspectors interviewed the responsible licensee personnel performing manhole inspections to determine whether they were knowledgeable of the inspection requirements contained in WO 40341493. Documents reviewed are listed in the Attachment. The inspection of the manholes completes the annual inspection of safety-related manholes.

b. Findings

No findings were identified.

.2 Internal Flooding

a. Inspection Scope

The inspectors conducted a walkdown of the Unit 1 boric acid makeup pump and charging pump areas located on the -0.5 ft elevation of the RAB. The walkdown included inspection of the floor drains to ensure they were clear of debris and that the building structures that ensure flood protection were in accordance with design specifications. The inspectors reviewed the Unit 1 Updated Final Safety Analysis Report (UFSAR), Section 3.4, "Water Level (Flood) Design," UFSAR Table 3.2-1, "Design Classification of Systems, Structures, and Components (SSC)" and Chapter 9.5A,

Section 3.0 that describes design features that mitigate an RAB internal flood from a severed fire main. The inspectors reviewed plant procedures that discussed the protection of areas containing safety-related equipment that may be affected by internal flooding. Specific plant attributes that were checked included structural integrity, sealing of penetrations, control of debris, and operability of sump pump systems. This inspection constitutes one sample.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (IP 71111.07)

a. Inspection Scope

The inspectors interviewed engineering personnel responsible for the Unit 1, 1B CCW heat exchanger's (HX) monitoring and performance to ensure that HX preventative maintenance was properly implemented. The inspectors observed and assessed the as-found 1B CCW HX conditions of the HX when it was opened for inspection on March 15, 2016. The inspectors reviewed AR 2117470 that documented the licensee's inspection observations. The inspectors verified the periodic maintenance activities documented in WO 40416814 were conducted in accordance with licensee procedure 0-PMM-14.01, "Component Cooling Water Heat Exchanger Clean/Repair". The inspectors monitored HX tube cleaning activities and verified the HX was properly cleaned and placed back in service. The inspectors walked down portions of the CCW system for signs of degradation and to assess overall material condition, as well as to monitor system parameters for proper operation. The inspectors verified that significant heat sink issues were being identified and entered into the CAP. This inspection completes one sample under the inspection procedure.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance (IP 71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification

a. Inspection Scope

On March 14, 2016, the inspectors observed and assessed a licensed operator crew during an evaluated continuing training simulator scenario on the control room simulator. The simulated scenario included a reactor coolant pump (RCP) upper oil reservoir leak that required a manual reactor trip and securing of the RCP. The reactor trip was complicated since one main steam safety valve stuck open, a main feedwater regulating valve failed to close, and an AFW injection valve failed to open.

Documents reviewed are listed in the Attachment. The inspectors also reviewed simulator physical fidelity and specifically evaluated the following attributes related to the operating crews' 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 abnormal and emergency operation procedures, and emergency plan implementing procedures (EPIPs)
- Control board operation and manipulation, including high-risk operator actions
- Oversight and direction provided by supervision, including ability to identify and implement appropriate TS actions, regulatory reporting requirements, and emergency plan classification and notification
- Crew overall performance and interactions
- Effectiveness of the post-evaluation critique

This inspection completes one sample under this inspection procedure.

b. Findings

No findings were identified.

.2 Control Room Observations

a. Inspection Scope

The 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. Documents reviewed are listed in the Attachment. Specifically, the inspectors observed activities in the control room during the following evolutions:

- March 21, 2016, Unit 1 power reduction to approximately 84 percent RTP to support planned turbine valve testing
- March 22, 2016 Unit 1 emergent rapid down-power to approximately 69 percent RTP due to a dropped CEA, replacement activities associated with replacing a failed CEA breaker, and recovery of the CEA to its full out position

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

This inspection constitutes two inspection samples.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (IP 71111.12)

a. Inspection Scope

The inspectors reviewed the performance data and associated ARs for four equipment issues as 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 10 CFR 50.65, The Maintenance Rule (MR)." The inspectors focused on MR scoping, characterization of maintenance problems and failed components, risk significance, determination of MR a(1) and a(2) classification, corrective actions, and the appropriateness of established performance goals and monitoring criteria. The inspectors also interviewed responsible engineers and observed some of the corrective maintenance activities. The inspectors 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. This inspection constitutes four samples. Documents reviewed are listed in the Attachment.

- AR 2093799, Maintenance rule functional failure (MRFF) plant level evaluation for the Unit 2 down power for removal of the 2A2 water box
- AR 2097971, 2B CCW Heat Exchanger Bio-fouling Mitigation
- AR 2077661, 2C ICW pump motor failure classified as a maintenance preventable functional failure (MPFF)
- AR 2083233, Unit 2 containment radiation monitor flow control valve miss-wired

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (IP 71111.13)

a. Inspection Scope

The inspectors completed in-office reviews, plant walkdowns, and control room inspections of the licensee's online risk assessment of the emergent or planned maintenance activities listed below. The inspectors verified the licensee's risk assessment and risk management activities using the requirements of 10 CFR 50.65(a)(4); the recommendations of Nuclear Management and Resource Council (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 OOS risk significant SSCs listed below. This inspection constitutes five samples. Documents reviewed are listed in the Attachment.

- Unit 1 and Unit 2 OLRM assessment with the 1A and 2A start-up transformers (SUTs) OOS
- Unit 1 and Unit 2 OLRM assessment with the 1B and 2B SUTs OOS
- Unit 1 OLRM assessment with the 1A EDG OOS for an extended planned outage
- Unit 1 OLRM assessment with the 1B EDG OOS for an extended planned outage
- Unit 1 OLRM assessment with 1A SUT, 1A LPSI, and 1A HPSI systems OOS for planned maintenance

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (IP 71111.15)

a. Inspection Scope

The inspectors reviewed the interim dispositions and operability determinations or functionality assessments of the following ARs to ensure that they were properly supported and the affected SSCs remained available to perform their safety function with no increase in risk. The inspectors verified the operability determinations or functionality assessments were performed in accordance with licensee procedure EN-AA-203-1001, "Operability Determinations and Functionality Assessments." The inspectors reviewed the applicable UFSAR sections, associated supporting documents and procedures, and interviewed plant personnel to assess the adequacy of the interim dispositions. This inspection constitutes six samples.

- AR 2107194, 2A Containment spray pump shaft movement observed during code run
- AR 2096546, CCW DFS high DP during 1A ICW pump code run
- AR 2101928, Equalizing piping on 1B2 EDG expansion tank appears bowed by the EDG exhaust lines
- AR 2105561, Unit 2 Refueling water tank level indication lowering due to environmental conditions
- AR 211285, Unit 2 CEA 54 quarterly TS surveillance overdue
- AR 2111467, Unit 2 containment spray header valve, FCV-07-1B, failed to open during surveillance testing

b. Findings

No findings were identified.

1R18 Plant Modifications (IP 71111.18)a. Inspection Scope

The inspectors reviewed the engineering change (EC) documentation for the permanent modifications listed below. The inspectors reviewed the modifications to verify they were implemented as described in procedure EN-AA-205-1100, "Design Change Packages." The inspectors reviewed the 10 CFR 50.59 screenings and evaluations, fire protection reviews, and environmental reviews to verify that the modifications had not affected system operability and availability. The inspectors reviewed associated plant drawings and UFSAR documents impacted by these modifications and discussed the changes with licensee personnel to verify the installations were consistent with the modification documents. The inspectors observed portions of each modification installation. Additionally, the inspectors verified that any issues associated with the modifications were identified and entered into the licensee's CAP. This inspection constitutes one sample.

- EC 285493/285495, Relocate Vent on 1A2/1B2 EDG Fuel-Oil Day Tank C

b. Findings

No findings were identified.

1R19 Post Maintenance Testing (IP 71111.19)a. Inspection Scope

For the maintenance WOs 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. This inspection constitutes six samples.

- WO 40361636, Perform 24-month preventative maintenance 1A EDG
- WO 40448988, Repair Unit 2 main feedwater isolation valve HCV-09-2A accumulator nitrogen leak
- WO 40438815, Unit 1, replace upper gripper coil power switches (CEA 42, 43, 44, 45, and 46 only)
- WO 40440116 and 40440120, Reroute 1A1 and 1A2 EDG fuel-oil day tank vent lines
- WO 40319664, Unit 2 MV-08-13, motor operator preventative maintenance
- WO 40224942, Preventative maintenance 2A LPSI pump motor

b. Findings

No findings were identified.

1R22 Surveillance Testing (IP 71111.22)a. Inspection Scope

The inspectors either reviewed or witnessed the following surveillance tests to verify that the tests met TS, UFSAR, and licensee procedural requirements. The inspectors verified the tests demonstrated operational readiness, and that systems were capable of performing their intended safety functions. In addition, the inspectors evaluated the effect of the testing activities on the plant to ensure conditions were adequately addressed by the licensee staff, and after completion of the testing activities, equipment was returned to standby alignment required for the system to perform its safety function. The inspectors verified that surveillance issues were documented in the CAP. This inspection constitutes six samples. Documents reviewed are listed in the Attachment.

In-Service Tests:

- 2-OSP-99.08A, A Train Quarterly Non-Check Valve Cycle Test; and 2-NOP-03.12, Filling ECCS supply piping (A-train).
- 2-OSP-99.08B, B Train Quarterly Non-Check Valve Cycle Test; and 2-NOP-03.12, Filling ECCS supply piping (B-train).

Surveillance Tests:

- 2-OSP-63.01, RPS Logic Matrix Test
- 1-OSP-59.01B, 1B Emergency Diesel Generator Monthly Surveillance (Fast Start)
- 2-OSP-09.01C, 2C Auxillary Feedwater Pump Code Run

Reactor Coolant System (RCS) Leakage Detection Surveillance:

- 2-OSP-01.03, RCS Inventory Balance

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness (EP)

1EP6 Drill Evaluation (IP 71114.06)Emergency Preparedness Drillsa. Inspection Scope

On January 20, 2016, the inspectors observed the simulator control room, technical support center (TSC), and emergency operations facility (EOF) staff during a drill of the site emergency response organization (ERO) to verify the licensee was properly

classifying emergency events, making the required notifications, and making appropriate protective action recommendations. The scenario included an intake cooling pump motor fire, actuation of one train of safety injection due to a component failure, a small break loss of coolant accident (LOCA) due to a CEA ejection from the core and a radioactive release due to a failed containment penetration. An Alert, a Site Area Emergency, and later, a General Emergency were declared due to degrading plant conditions. During the drill the inspectors assessed the licensee's actions to verify that emergency classifications and notifications were made in accordance with licensee EIPs and 10 CFR 50.72 requirements. The inspectors specifically verified the Alert, Site Area Emergency, and General Emergency classifications and notifications were made in accordance with licensee procedures EPIP-01, "Classification of Emergencies" and EPIP-02, "Duties and Responsibilities of the Emergency Coordinator." The inspectors observed whether the initial activation of the emergency response centers was timely and as specified in the licensee's emergency plan. The inspectors verified that the licensee identified critique items and drill weaknesses were captured in their CAP. This inspection constitutes one sample.

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

Cornerstones: Occupational Radiation Safety (OS)

2RS1 Radiological Hazard Assessment and Exposure Controls (IP 71124.01)

a. Inspection Scope

The inspectors reviewed an event that occurred in the Unit 2 Piping Penetration Room that involved an operator climbing into the overhead and receiving an ED dose rate alarm in a HRA.

b. Findings

Introduction The inspectors identified a Green, self-revealing, NCV of TS 6.12.1.b, "High Radiation Area," for a worker entering an HRA without meeting the entry requirements as specified therein.

Description: On November 10, 2015, during the performance of "Appendix E of 2-0010123 "Administrative Control of Valves, Locks and Switches, Containment and Shield Building Valve List," a worker, unable to visually verify the tagging from the floor, climbed into the overhead in the Unit 2 Pipe Penetration room to ensure the tagging was in accordance with the procedure. The worker was performing the work under RWP 15-004. This RWP allowed HRA access provided radiation protection (RP) was notified prior to climbing above 8 feet. Radiation protection was required to be notified so an assessment of the radiological conditions could be performed and the worker apprised of them prior to entering areas above 8 feet. As determined in the licensee's investigation, due to a lapse in judgement and in order to complete the task in a timely manner, the

worker climbed into the overhead, inadvertently entering an HRA without adequate knowledge of the dose rates in the area. As the operator was climbing down, after completing the tagging verification, he received an integrating radiation monitoring ED dose rate alarm indicating he was in a 126 mrem/hr dose rate field. The ED dose rate alarm setpoint was 100 mrem/hr. Dose rates in the overhead were as high as 130 mrem/hr at 30 centimeters and 800 mrem/hr on contact with piping surfaces. He exited the area immediately and contacted RP. The licensee entered this issue into the CAP as AR 02090225 and took immediate corrective actions which included restricting the operator's access to the RCA, performing followup surveys and convening a human performance review board to examine causal factors for the purpose of determining corrective actions.

Analysis: The inspectors determined that entry into a HRA without meeting the entry requirements specified in T.S. 12.1.b was a PD. This PD is more than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance and adversely affects the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Workers permitted entry into HRAs without adequate knowledge of current radiological conditions can receive unintended occupational exposures. The finding was evaluated using the Occupational Radiation SDP. The finding was not related to ALARA planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. Therefore, the inspectors determined the finding to be of very low safety significance (Green). The inspectors noted that the operator responded properly to the ED dose rate alarm thereby limiting his potential for unintended exposure. This finding involved the cross cutting aspect of [H8] procedure adherence because the individual understood but failed to follow the requirements of the RWP.

Enforcement: TS 6.12.1.b, "High Radiation Area", requires in part, that entry into HRAs by individuals utilizing an ED may only be made after dose rate levels in the area have been established and personnel are aware of them. Contrary to the above, on November 10, 2015, a worker entered a HRA in the overhead in the Unit 2 Pipe Penetration Room utilizing an integrating radiation monitoring device but without being made aware of the established dose rates in the area. Because this violation was of very low safety significance and it was entered into the licensee's CAP (AR 02090225), this violation is being treated as an NCV, consistent with the Enforcement Policy: NCV 05000335,389/2016001-01, Unauthorized Entry into a High Radiation Area.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (IP 71124.06)

a. Inspection Scope

Event and Effluent Program Reviews: The inspectors reviewed the 2013 and 2014 Annual Radiological Effluent Release Reports (ARERRs) for consistency with requirements in the Offsite Dose Calculation Manual (ODCM) and TS requirements. Routine and abnormal effluent release results and reports, as applicable, were reviewed and discussed with responsible licensee representatives. Status of the radioactive gaseous and liquid effluent processing and monitoring equipment including operability

issues, and applicable equipment changes, as described in the UFSAR and current ODCM were discussed with responsible staff.

Equipment Walk-downs: The inspectors walked-down and discussed selected components of Unit 1 and Unit 2 gaseous processing systems, and selected Unit 1 and Unit 2 liquid waste processing and discharge systems to ascertain material condition, configuration and alignment. To the extent practical, the inspectors observed and evaluated the material condition of in-place liquid waste processing equipment for indications of degradation or leakage that could constitute a possible release pathway to the environment. The walk-downs included Unit 1 and Unit 2 Fuel Handling Building (FHB) stack monitors, Unit 1 and Unit 2 plant stack monitors, Unit 1 and Unit 2 ECCS fans, filters, and monitors, Unit 1 and Unit 2 ventilation room filters, containment purge, Unit 1 A, B, and C gas decay tanks, two newly installed liquid Waste Monitor Tanks (WMTs), the liquid radwaste monitor, and the SG Blowdown Facility ventilation system and monitor.

Instrumentation and Equipment: The inspectors reviewed sample line and system flow rates for the Unit 1 and Unit 2 Plant Vent and Unit 2 FHB exhaust systems. The inspectors also observed the sampling and analysis of the Unit 2 FHB exhaust system and WMT B in preparation for a liquid release. In addition, the inspectors reviewed the most recent surveillance test results for Unit 1 and Unit 2 main stack ventilation and filtration equipment.

Effluents: The inspectors reviewed and discussed selected gaseous release permits for releases utilizing the Unit 2 FHB, and liquid release permits for releases utilizing WMT. The inspectors reviewed 10 CFR 61 analysis data for expected nuclide distributions used to quantify effluents, the treatment of hard to detect nuclides, and determination of appropriate calibration nuclides for effluent analysis instruments.

Ground Water Protection: The licensee's implementation of the Industry Ground Water Protection Initiative was reviewed for changes since the last inspection. This review included evaluation of onsite monitoring results for installed groundwater monitoring wells, vaults, manholes, and onsite ponds. The inspectors discussed and evaluated licensee actions associated with potential releases to the groundwater environs.

Problem Identification and Resolution: The inspectors reviewed selected CAP documents in the areas of gaseous and liquid effluent processing and release activities. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with licensee procedures.

Effluent process and monitoring activities were evaluated against details and requirements documented in the UFSAR Sections 11 and 12; TS Sections 6.8.1 "Procedures and Programs," 6.8.4 (f), "Radioactive Effluents Control Program," 6.8.4 (k), "Ventilation Filter Test Program," and 6.9.1, "Routine Reports;" ODCM; 10 CFR Part 20; 10 CFR, Appendix I to Part 50; and approved licensee procedures. In addition, ODCM and UFSAR changes since the last onsite inspection were reviewed against the guidance in NUREG-1301 and Regulatory Guide (RG) 1.109, RG 1.21, and RG 4.1. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (REMP) (IP 71124.07)

a. Inspection Scope

REMP Implementation: The inspectors observed routine sample collection and surveillance activities as required by the licensee's environmental monitoring program. The inspectors noted the material condition and operability of airborne particulate filter and iodine cartridge sample stations and observed collection of weekly air samples at selected monitoring locations. The inspectors also observed condition of environmental dosimeters and collection of one water sample. Licensee actions for missed environmental samples were both reviewed and discussed. In addition, the inspectors reviewed and evaluated land use census results, changes to the ODCM, and monitoring for hard-to-detect radionuclides.

The inspectors reviewed recent calibration and maintenance records for selected environmental samplers. The inspectors also reviewed the 2013 and 2014 Radiological Environmental Operating Reports and the 2014 ARERR. The inspectors reviewed recent interlaboratory comparison results for the offsite laboratory used to process environmental samples. Selected environmental measurements were reviewed for consistency with licensee effluent data, evaluated for radionuclide concentration trends, and compared with detection level sensitivity requirements.

Ground Water Protection: The inspectors reviewed the licensee's groundwater protection program and recent sampling results as part of Inspection Procedure 71124.06.

Meteorological Monitoring Program: The inspectors observed the physical condition of the tower and its instrumentation and discussed equipment operability and maintenance history with licensee staff. The inspectors evaluated transmission of locally generated meteorological data to other licensee groups such as main control room operators. For the meteorological measurements of wind speed, wind direction, and temperature, the inspectors reviewed the last two calibration records for applicable tower instrumentation. The inspectors also evaluated measurement data recovery for 2014.

Problem Identification and Resolution: The inspectors reviewed CAP documents in the areas of radiological environmental monitoring and meteorological tower maintenance. The inspectors evaluated the licensee's ability to identify and resolve the identified issues. The inspectors also reviewed recent self-assessment results.

Implementation of REMP and meteorological monitoring activities were reviewed against the guidance and requirements of 10 CFR Part 20, Appendices E and I to 10 CFR Part 50, TS Sections 6.8 and 6.9, UFSAR Chapter 2, ODCM, RG 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment," Safety Guide 23, "Onsite Meteorological Programs," Branch Technical

Position, "An Acceptable Radiological Environmental Monitoring Program" – 1979, and approved licensee procedures. Documents reviewed are listed in the report Attachment.

b. Findings

No findings were identified.

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (IP 71124.08)

a. Inspection Scope

Waste Processing and Characterization: During inspector walk-downs, accessible sections of the liquid and solid radwaste processing systems were assessed for material condition and conformance with system design diagrams. Inspected equipment included storage tanks, transfer piping, resin dewatering and packaging components, and abandoned radwaste processing equipment. The inspectors discussed component function, processing system changes, and radwaste program implementation with licensee staff.

The inspectors reviewed the 2014 ARERR and radionuclide characterizations from 2013, 2014 and 2015 for selected waste streams. For primary resin and dry active waste (DAW), the inspectors evaluated analyses for hard-to-detect nuclides, reviewed the use of scaling factors, and examined quality assurance comparison results between licensee waste stream characterizations and outside laboratory data. Waste stream mixing and concentration averaging methodology were evaluated and discussed with radwaste staff. The inspectors also reviewed the licensee's process for monitoring changes in waste stream isotopic mixtures.

Radioactive Material Storage: During walk-downs of indoor and outdoor radioactive material 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.

Transportation: The inspectors evaluated shipping records for consistency with licensee procedures and compliance with NRC and Department of Transportation (DOT) regulations. The inspectors reviewed emergency response information, DOT shipping package classification, waste classification, radiation survey results, and container handling methodology. The inspectors also observed shipment preparations for a DAW package and evaluated technician performance and knowledge of DOT requirements.

Problem Identification and Resolution: The inspectors reviewed condition reports in the areas of shipping and radwaste processing. The inspectors evaluated the licensee's ability to identify and resolve the issues.

Radwaste processing activities and equipment configuration were reviewed for compliance with the licensee's process control program, UFSAR Chapter 11; TS 6.8, Procedures, Programs and Manuals and approved procedures and TS 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 the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (IP 71151)

a. Inspection Scope

The inspectors reviewed licensee submittals for the performance indicators (PIs) listed below for the period January 1, 2015 through December 31, 2015, 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 procedure ADM-25.02, "NRC Performance Indicators," were used to check the reporting for each data element. The inspectors checked operator logs, plant status reports, condition reports, 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 PI data collection, evaluation, and distribution.

Cornerstone: Initiating Events

- Unit 1 Unplanned Scrams per 7000 Critical Hours
- Unit 2 Unplanned Scrams per 7000 Critical Hours
- Unit 1 Unplanned Scrams With Complications
- Unit 2 Unplanned Scrams With Complications
- Unit 1 Unplanned Power Changes per 7000 Critical Hours
- Unit 2 Unplanned Power Changes per 7000 Critical Hours

Cornerstone: Radiation Safety

Occupational Radiation Safety Cornerstone: The inspectors reviewed the Occupational Exposure Control Effectiveness PI results for the Occupational Radiation Safety Cornerstone between March 2015 - January 2016. For the assessment period, the inspectors reviewed ED alarm logs and selected ARs documents related to controls for exposure significant areas and events. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in the Attachment.

Public Radiation Safety Cornerstone: The inspectors reviewed recent Radiological Control Effluent Release Occurrences PI results and reviewed PI records compiled between 1st and 4th quarters 2015. For the assessment period, the inspectors reviewed cumulative and projected doses to the public contained in liquid and gaseous release permits and CAP documents related to Radiological Effluent TS/ODCM issues. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (IP 71152)

.1 Routine Review

a. Inspection Scope

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

b. Findings

No findings were identified.

.2 Annual Sample: Unit 1 Unplanned Transient

a. Inspection Scope

The inspectors selected AR 2095560, "Unit 1 Circulating Water DFS Filter High DP Condition," for a more in-depth review of the circumstances that led to the high DFS DP condition and the resulting down power of the unit. The inspectors reviewed the AR report to ensure that the licensee performed an appropriate evaluation, and specified and prioritized corrective actions in accordance with its program. The inspectors evaluated the licensee's disposition of the selected AR to verify whether the licensee's actions were in accordance with licensee procedure, PI-AA-104-1000, "Corrective Action." Documents reviewed are listed in the Attachment. This inspection constitutes one sample.

b. Findings and Observations

Introduction: A green self-revealing finding was identified for the licensee's failure to provide adequate work instructions for the circulating water system 1B1 traveling water screen drive motor replacement.

Description: On December 4, 2015, the licensee returned the 1B1 traveling screen to service and the system was placed in automatic. The traveling screen had been removed from service for planned maintenance to replace the drive motor in accordance with WO 40418240.

The control room operators received a DFS trouble alarm and dispatched a non-licensed operator (NLO) to investigate. Condenser back pressure began to rise with increasing 1B1 CWP amperage. The rising condenser backpressure resulted in turbine operation in the low pressure (LP) turbine blade resonance region where continued operation could propagate an existing turbine blade crack. The NLO found a high DP condition across the 1B1 DFS. The 1B1 DFS was placed in manual backwash in an unsuccessful attempt to lower the DP across the filter. The operators rapidly lowered unit power from 100 percent RTP to approximately 92 percent RTP, removed the 1B1 CWP from service, and exited the LP turbine blade resonance region.

The licensee's investigation determined that the 1B1 traveling screen had unintentionally started on its automatic 24-hour timer. The backwards rotation allowed approximately three days of debris that had accumulated while the screen was OOS to enter into the suction of the 1B1 CWP. The debris resulted in a high DP on the 1B1 DFS which caused its rotation pickup gear to break and disabled the system. The 1B1 DFS was repaired, the 1B1 CWP was returned to service, and the unit was returned to 100 percent RTP on December 5, 2015. 1B1 DFS was not a safety-related system required by NRC regulations.

The licensee determined that the apparent cause of this issue was that the maintenance lead for the motor replacement activity instructed the crew during the pre-job brief for the work to set the motor for counter-clockwise rotation. The counter-clockwise rotation was based on the maintenance lead's previous experience with performing maintenance on the 1A1 traveling screen and did not take into account the physical orientation differences between the 1A1 and 1B1 traveling screen motors. These motors were mounted on opposite sides of their respective traveling screen. Contributing causes included: (1) The equipment was not labeled to provide direction of rotation; (2) The total equipment database for this motor was incomplete and did not provide direction of the rotation; (3) The work instructions provided to the electricians did not provide adequate instructions to ensure first time quality, and no information was available for the electricians that they could rely on to determine the correct direction of the screen drive motor, and; (4) The equipment clearance order was released and the system returned to auto prior to allowing electricians to perform a coupled PMT.

Licensee administrative procedure MA-AA-203-1001, "Work Order Planning," revision 7, step 4.2, states that the level of detail in a task instruction should match the complexity of the activity, commensurate with the qualifications and skills of the workers. Step 4.3.1.B, states that all action steps shall provide clear and unambiguous guidance for the successful completion of the instruction.

This issue was placed in the licensee's CAP as AR 2095560. The licensee completed the following corrective actions: (1) Counsel all maintenance supervisors in regard to having a questioning attitude and to seek guidance, if unsure; (2) Rewire the 1B1 traveling screen drive motor for the proper rotation; (3) Install labels indicating the proper

rotation for all eight traveling screen drive motors; (4) Submit document change requests to update the total equipment database; (5) Update all WOs for the remaining screen drive starter replacements to provide motor rotation direction and mark the PMT step as a critical step, and; (6) Change clearance requests for traveling screen work to include directions to have electricians on station prior to returning the control switch to automatic.

Analysis: The failure to provide adequate work instructions for replacement of the 1B1 traveling screen motor was a PD. The PD was more than minor because it was associated with the procedure quality attribute of the initiating events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, the inadequate WO resulted in installing the 1B1 traveling screen drive motor incorrectly on December 4, 2015. After the maintenance, the system automatically started and the screen rotated backwards. The backward rotation allowed accumulated debris to be transported to the 1B1 DFS filter and caused it to overload. The resulting high DP on the DFS filter necessitated the need to lower unit power (plant transient) and required removal of the 1B1 CWP from service. The finding was determined to be of very low safety significance (Green) based on Exhibit 1, "Initiating Events Screening Questions," found in IMC 0609, "Significance Determination Process," Appendix A, "Significance Determination Process (SDP) for Findings At-Power" (June 19, 2012). This was due to the fact that the finding did not cause a loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition.

The inspectors determined the cause of this finding was associated with a cross-cutting aspect of ensuring risks are evaluated and managed before proceeding in the Challenge the Unknown component of the human performance area. Specifically, the licensee did not have a healthy questioning attitude and did not recognize the need to seek guidance when installing a new circulating water system traveling screen motor [H.11].

Enforcement: This finding does not involve enforcement action because no violation of a regulatory requirement was identified. Because this finding does not involve a violation and is of very low safety significance, it is identified as a Finding (FIN 05000335/2016001-02, Failure to Provide Detailed Work Instructions Resulted in a Unit Transient).

.3 Annual Sample: Failure of the Unit 2C intake cooling water pump motor

a. Inspection Scope

The inspectors performed an in-depth review of AR 2077661, that documents the apparent cause evaluation (ACE) associated with the failure of the 2C ICW pump motor. The licensee determined the apparent cause was ingestion of foreign material which grounded the motor windings. The foreign material consisted of corroded baffle bolt heads from the motor's air box. The licensee determined that the corrosion was a result of not maintaining the functionality of the pump motor heater which is used to minimize motor internal corrosion when the pump is in a standby condition. The inspectors reviewed the corrective actions generated from the ACE to verify they were completed

as prescribed and that open actions were scheduled to be completed commensurate with the safety significance of the activity. The inspectors interviewed licensed operators, maintenance and work control personnel, and the responsible system engineer for the ICW system to assess the current functionality status of all six Unit 1 and Unit 2 ICW pump motors and associated motor heaters. The inspectors walked down the Unit 1 and Unit 2 ICW pump motors to verify selected corrective actions had been completed and that the motor heater element lights were illuminated on the non-operating motors. The inspectors reviewed the ARs that had been generated during the ACE and evaluated the licensee's disposition of the selected ARs to verify whether the licensee's actions were in accordance with licensee procedure, PI-AA-104-1000, "Corrective Action." Documents reviewed are listed in the Attachment.

b. Observations

The inspectors identified two corrective actions that had not been completed as prescribed by the ACE. In 2012, AR 1804180 documented that the 2A ICW pump motor heater was degraded as determined by measuring a very low amperage (2.0 amperes) on only one phase, which equated to less than half the wattage output of the heater. The AR was subsequently closed to a WO to replace the motor heater during motor refurbishment in 2019. As part of the extent of condition review for the 2C ICW pump motor failure, additional motor heater amperage data was obtained for the 2A ICW pump motor. The motor heater was determined to have degraded further with a measured amperage of 1.2 amperes. The ACE also determined that ICW pump motor heater could be replaced online and there was no need to wait for a motor overhaul. The ACE specified a corrective action to complete the WO for replacing the 2A ICW pump motor heater "as soon as practical." The inspectors' investigation found that the motor heater had not been replaced and the WO had not been scheduled. The licensee confirmed that the intention of the corrective action was to schedule an online repair of the heater. The licensee documented this issue in the CAP as AR 02116284. The licensee determined that the code on the WO had not been changed to reflect that the work could be completed online and as a result, the heater replacement had not been scheduled. The licensee corrected the code on the WO and immediately initiated planning and scheduling of the heater repair work.

The inspectors questioned the licensee on whether there was a need to assess the condition of the 2A ICW pump motor since its motor heater had been degraded since 2012. Specifically, it appeared that the 2A ICW pump motor could be vulnerable to the same type of failure as was experienced by the 2C ICW pump motor. The licensee acknowledged the issue and initiated AR 2117803 to complete an evaluation.

The ACE specified a second corrective action to measure the 2B ICW pump motor megger values and motor heater amperage. The inspectors reviewed the quality assurance records for this corrective action and found that the motor megger data had been obtained, but could not find evidence of having obtained the motor heater amperage. The licensee reviewed this issue and confirmed that the heater amperage data had been missed and initiated AR 2116441 to address this issue and started immediate actions to obtain the amperage data.

The inspectors determined that the licensee did not understand the long term operability implications of not having functional motor heaters for the ICW pump motors. The inspectors concluded that the licensee had opportunities to implement corrective actions to prevent the 2C ICW pump motor failure. A violation of NRC requirements was identified as follows.

c. Findings

Introduction: A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the licensee's failure to implement corrective actions to prevent failure of the 2C ICW pump. The failure was a result of several air box baffle bolt-heads breaking off due to corrosion and impacting the motor stator winding causing an electrical ground on the winding. Corrosion of the bolts was attributed to not having functional motor heater elements.

Description: On September 30, 2015, during a Unit 2 refueling outage (RFO), the 2C ICW pump tripped approximately three minutes after it had been started. The pump failure caused the ICW operating header to be declared OOS causing a reduction in defense in depth cooling for the unit. The motor was sent to Tampa Armature Works (TAW) for failure analysis and repair. The apparent cause of this failure identified that foreign material had impacted and grounded the motor winding. The source of the foreign material was from the degraded (rusted off) baffle bolt-heads that were drawn into the motor and impacted the winding. The contributing cause was the degradation and subsequent failure of the motor heater coupled with the moist salt laden environment of the motor in the ICW pump room. It was determined that this was the cause of the significant corrosion of the bolt heads which led to the bolt failures. TAW completed a failure analysis and came to the same conclusion. TAW found an extensive amount of rust throughout the bottom of the motor windings. Additionally, the motor winding heater was found with significant amount of corrosion and was not functional. The heater had failed to ground and three of the heater leads had corroded off behind the heater terminals. The ICW pumps are salt water pumps that are located in a non-environmentally controlled building. Although the motors are not directly exposed to the salt air spray from the ocean, there is active leakage from the packing and miscellaneous piping leakage inside the ICW building, and the environment inside the building is very hot and humid with salt laden air. The 2C ICW pump is the swing pump and is the pump that has the least amount of operating running time. The failed motor heater was significant to this evaluation because the purpose the heater was to keep the motor winding slightly above ambient temperature to prevent moisture intrusion and to prevent or minimize corrosion on the motor internals when the pump is not running.

In December 2014, AR 2013345 was written to address the 2C ICW motor winding heater indicator light not illuminating. That AR was closed to maintenance troubleshooting WOs which identified that the heater elements were not functional. It was indeterminate how long the heater had been functioning in a degraded state prior to the failure. AR 02017481 was written in January 2015 to address the non-functioning heater issue. However, that AR was closed to a work request that provided instructions to repair the heater during the next motor refurbishment at TAW in 2019. There were no additional or interim corrective actions specified to address the non-functioning heater,

and there was no evaluation to address the impact to long term operability of the motor as a result of the degraded and failed heater.

The licensee determined that the 2C ICW motor failure could have been prevented by repair of the motor heaters in a timely manner. Specifically, during the ACE it was identified that ICW pump motors have strip heaters which are easily accessible and could have been repaired online. In addition, there was no preventative maintenance requirement to check and record heater amperage. Further, AR 01965320 written in May 2014 for low motor megger and low polarization index values was an early indication of a potential issue associated with moisture or corrosion of the pump's winding. Although it was concluded the motor was operable at that time, there was no subsequent follow-up to address the low megger or low polarization index data.

Analysis: The licensee's failure to implement adequate corrective actions to prevent the Unit 2C ICW pump motor winding failure that resulted from extensive corrosion of the baffle bolts, to the point that the bolt heads broke off and electrically shorted the winding, was a PD and was within the licensee's ability to prevent. The PD was more-than-minor because if left uncorrected, the PD has the potential to lead to a more significant safety concern. Specifically, not repairing a degraded or non-functioning motor winding heater in a timely manner prohibits protection against the humid salt water environment which the motor windings are exposed to during standby operational conditions and creates an environment for accelerated corrosion on the baffle bolts and motor winding leading to premature failure of the motor. Although the 2C ICW pump failed while the unit was shut down, the failure could have occurred while the unit was operating. Therefore, the inspectors characterized the safety significance of the issue utilizing both the at-power and shutdown SDP. Using Manual Chapter 0609.04, "Significance Determination Process Initial Characterization of Findings," Table 2, dated June 19, 2012, the finding was determined to affect the Mitigating Systems Cornerstone. Manual Chapter 0609 Appendix A, "The Significance Determination (SDP) Process for Findings At-Power," Exhibit 2 "Mitigating Systems Screening Questions," dated June 19, 2012, was used to further evaluate this finding. The finding screened as Green because the finding represented neither an actual loss of function of at least a single train for greater than its TS Allowed Outage Time, nor two separate safety systems OOS for greater than its TS Allowed Outage Time existed. Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings," dated May 9, 2014, was used to further evaluate the shutdown safety significance of this finding. The finding screened to Green because the inspectors answered "no" to all the screening questions listed under "Exhibit 3 - Mitigation System Screening Questions." The finding involved the cross-cutting area of the evaluation component in PI&R because the organization did not thoroughly evaluate the function of the motor winding heater to ensure that resolutions address causes and extent of conditions commensurate with the long term operability of the ICW pump motors. Specifically, after identifying that the motor winding heater on the 2C ICW pump motor was not functioning, the licensee entered this issue into the CAP but did not adequately evaluate the significance of having a non-functional heater on the motor winding and instead deferred the heater repairs to be completed at the next motor overhaul which was scheduled to be performed in four years [P.2].

Enforcement: 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," requires, in part, that conditions adverse to quality, such as deficiencies and non-conformances, are promptly identified and corrected. Contrary to the above, between May of 2014 and September of 2015, the licensee failed to correct a condition adverse to quality. Specifically, after the licensee identified that the 2C ICW pump motor heater was non-functional, the licensee did not implement adequate corrective actions to repair the motor heater, and instead deferred the maintenance to be completed in four years. Consequently, due to the non-functioning heater, in September 2015 the motor baffle bolt-heads corroded to the point of failure and impinged the stator winding causing a ground and shorted out the motor. Because this violation was of very low safety significance (Green), and it was entered into the licensee's CAP as AR 02077661, it is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000389/2016001-03, Inadequate Corrective Actions to Prevent Failure Of The 2C ICW Pump Motor).

4OA3 Follow-up of Events and Notice of Enforcement Discretion

.1 (Closed) Licensee Event Report (LER) 05000389/2015-003-00, Legacy Wiring Error Impacts Containment Valve Closure Time Surveillances

a. Inspection Scope

The LER documented that the B channel containment atmosphere radiation monitor inside containment penetration isolation valve (FCV-26-3) had not been properly timed during surveillance testing since December 2001. The surveillance relied on remote valve position indication (VPI) lights to measure the valve closure time. The licensee determined that the VPI limit switches for FCV-26-3 were not wired correctly. The inspectors reviewed the LER and associated ACE to verify the accuracy and completeness of the LER and the appropriateness of the licensee's corrective actions. The inspectors also reviewed the LER to identify any licensee PDs associated with the event.

b. Findings

On October 19, 2015, Unit 2 was shutdown in Mode 5 (<200°F) for a RFO. The licensee was troubleshooting the cause of a low sample flow condition for B train containment radiation monitor RM-26-26. The VPI lights on the control room board indicated that the valve, FCV-26-3, inside containment isolation valve for RM-26-26 was open. The workers found FCV-26-3's solenoid, which had been replaced during the RFO, de-energized with the valve shut. The valve solenoid lost power due to a misaligned pin in its grey boot connection. The connection was repaired. Troubleshooting of the incorrect open VPI for FCV-26-3 determined that the valve's limit switches had been incorrectly wired during limit switch replacement in 2001. FCV-26-3 was operated and tested from the control room using a single open/shut switch that also controlled the position of two other inside containment isolation valves (FCV-26-1 and FCV-26-5) also for containment atmospheric radiation monitors. The three valves shared common open/shut indication lights in the control room. When the VPI limit switches were correctly wired, both open and shut indication lights should illuminate whenever the three valves were not all open or all shut.

The licensee determined the apparent cause to be a wiring error that occurred during FCV-26-3 open/shut limit switch replacement in December 2001. Due to the age of the issue and the unavailability of the personnel involved, the licensee was unable to determine the cause of the error. The licensee determined that a contributing cause was due to testing methodology which tested all three valves together. This test methodology was also used as a PMT for the WO that installed the new limit switches in 2001.

Revision 13 of Licensee procedure ADM-78.01, "Post Maintenance Testing," was in effect in 2001. Appendix C, "Post Maintenance Testing Guide," for air operated valve actuators required a position indication verification for a replaced limit switch. The PMT involved cycling the three valves together from the control room and used the common VPI lights in the control room to provide assurance the replaced FCV-26-3 valve open/shut limit switches were wired correctly. Due to the parallel design of the limit switch circuitry for the three valves, this test did not identify the wiring discrepancy.

Unit 2 Technical Specification Surveillance Requirement (TSSR) 4.6.3.3 required the isolation time of each power-operated or automatic containment isolation valve shall be determined to be within its limit when tested pursuant to the Inservice Testing Program.

The licensee's failure to perform an adequate PMT for FCV-26-3 limit switch replacement in accordance with ADM-78.01 was a PD and resulted in a failure to comply with TSSR 4.6.3.3. Using IMC 0612, Appendix B, "Issue Screening," More-than-Minor screening questions, the inspectors determined that the PD and resulting TS violation was minor since the PD was not viewed as a precursor to a significant event; if left uncorrected, the PD did not have the potential to lead to a more significant safety concern; the PD was not related to a performance indicator; and the PD, although associated with a barrier integrity cornerstone attribute, it did not adversely affect the associated cornerstone objective. The inspectors answered these questions based on the fact that valve FCV-26-3 responded to closure signals as demonstrated by successful local leak rate test results completed every RFO and was locally observed to close with a speed compared to similar designed valves during local valve position verifications. In addition, after completing corrective actions to properly wire the open/shut limit switches, the closure time surveillance was demonstrated to meet the acceptance criteria as specified in the Inservice Testing Program.

This issue was documented in the licensee's CAP as AR 2091189 and corrective actions have been completed to restore compliance. The failure to comply with TSSR 4.6.3.3 constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. This LER is closed.

40A5 Other Activities

.1 Independent Spent Fuel Storage Installation (ISFSI) Walk down (IP 60855.1)

a. Inspection Scope

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 RP access controls to the ISFSI area to be functional. The inspectors verified that the ISFSI was inspected on a shiftly basis by operations personnel and a physical inventory has been conducted on all spent fuel stored in the ISFSI at least every 12 months. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2 Review of World Association of Nuclear Operator (WANO) Report

The inspectors reviewed the final report for the WANO plant assessment conducted in August 2015 to ensure that any issues identified were consistent with the NRC perspectives of St. Lucie plant performance.

.3 Temporary Instruction 2515/190 – Inspection of the Proposed Interim Actions Associated with Near-Term Task Force Recommendation 2.1 Flooding Hazard Evaluations

Inspectors verified that licensee's interim actions will perform their intended function for flooding mitigation.

- Visual inspection of the flood protection feature was performed if the flood protection feature was relevant. External visual inspection for indications of degradation that would prevent its credited function from being performed was performed.
- Reasonable simulation, if applicable to the site.
- Flood protection feature functionality was determined using either visual observation or by review of other documents.

The inspectors verified that issues identified were entered into the licensee's CAP.

4OA6 Meetings

Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. Coffey and other members of licensee management on April 11 2016. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary information. The licensee did not identify any proprietary information.

40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy, for disposition as a NCV.

Licensee Identified Violation (LIV) - T.S.6.8.1 requires written procedures be established, implemented, and maintained covering applicable procedures recommended in Appendix A in RG 1.33, Rev 2, 1978, section 7 c.(4) "PWR Gaseous Effluent System Ventilation Air Monitoring." Specifically, procedure, 1-NOP-25.08, "Unit 1 FHB Ventilation System Operation," step 4.5 provides instructions to stop (isolate) exhaust fan numbers HVE-15 & HVE-17 in order to discontinue gaseous effluent releases from the FHB when Unit 1 FHB gaseous effluent monitor (1RSC-26-4) is inoperable and 8-hour compensatory sampling has not been established as required by ODCM 3.3.3.10. Contrary to this, on October 7, 2014, with 1RSC-26-4 declared inoperable and without establishing 8-hour compensatory sampling as required by ODCM 3.3.3.10, the licensee failed to isolate FHB fans HVE-15 and HVE-17 as required by step 4.5 of -NOP-25.08, "Unit 1 FHB Ventilation System Operation," and effluent releases continued via the FHB pathway for 16 hours. This violation was evaluated using the guidance in IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process," and was determined to be of very low safety significance (Green) because it did not represent a substantial failure to implement the effluent release program and post-release data indicated that the release did not exceed 10 CFR 50 Appendix I dose values.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:

B. Coffey, Plant General Manager
C. Costanzo, Site Vice President
K. Frehafer, Licensing Engineer
M. Haskin, Projects Site Manager
M. Jones, Engineering Director
E. Katzman, Licensing Manager
C. Martin, Health Physics Manager
R. McDaniel, Fire Protection Supervisor
W. Parks, Operations Director
D. Pitts, Maintenance Director
R. Sciscente, Licensing Engineer
M. Snyder, Nuclear Quality Assurance Manager
C. Spenser, Chemistry Manager
C. Workman, Security Manager

NRC Personnel:

LaDonna B. Suggs, Chief, Branch 3, Division of Reactor Projects

LIST OF ITEMS OPENED AND CLOSED

Opened and Closed

05000335,389/2016001-01	NCV	Unauthorized Entry into a High Radiation Area (Section 2RS1)
05000335/2016001-02	FIN	Failure to Provide Detailed Work Instructions Resulted in a Unit Transient (Section 4OA2.2)
05000389/2016001-03	NCV	Inadequate Corrective Actions to Prevent Failure of the 2C ICW Pump Motor (Section 4OA2.3)

Closed

05000389/2015003-00	LER	Legacy Wiring Error Impacts Containment Valve Closure Time Surveillances (Section 4OA3)
2515/190	TI	Inspection of the Licensee's Proposed Interim Actions as a Result of the Near Term Task Force Recommendation 2.1 Flooding Reevaluation (Section 4OA5.3)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

2-NOP-03.11, High Pressure Safety Injection Initial Alignment
2-NOP-03.21, Low Pressure Safety Injection System initial alignment
1-NOP-59.01B, 1B Emergency Diesel Generator Standby Lineup
2-NOP-09.11, Auxiliary Feedwater System Initial Alignment

Section 1R05: Fire Protection

ADM-0005729, 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
RP-SL-106-1004, Inspection and Maintenance of Respiratory Protection Equipment
RP-SL-106-1004-F01, Monthly SCBA/Cylinder Inventory and Inspection- February 15, 2016
RP-SL-106-1004-F02, Monthly Respirator Inventory- February 16, 2016
RP-SL-106-1004-F03, Semi-Annual SCBA/Cylinder Inventory and Inspection- January 19, 2016
RP-SL-106-1004-F03, Quarterly SCBA/Cylinder Inventory and Inspection- October 23, 2015
PSL Fire Protection Training Guide
LMS Training Database for fire brigade and fire team leader positions

Section 1R06 Flood Protection Measures

2998-G-486, Electrical Manhole and Handhole Drainage System

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

2-EOP-01, Standard Post Trip Actions
2-EOP-05, Excessive Steam Demand
2-GOP-123, Turbine Shutdown – Full Load To Zero Load
1-GOP-123, Turbine Shutdown – Full Load To Zero Load
2-AOP-22.01, Rapid Downpower
2-AOP-01.09A, Reactor Coolant Pump Abnormal Operations
EPIP-01, Classification of Emergencies
EPIP-02, Duties and Responsibilities of the Emergency Coordinator
1-AOP-22.01, Rapid Downpower
1-AOP-66.01, Dropped or Misaligned CEA Abnormal Operations
WO 40438815, Unit 1: Replace Power Switches

Section 1R12: Maintenance Effectiveness

ER-AA-100-2002, Maintenance Rule Program Administration
SCEG-004, Guideline for Maintenance Rule Scoping, Risk Significant Determination, and Expert Panel Activities
MRD 40-01, Maintenance Rule scoping document for the Unit 1 and Unit 2 sodium hypochlorite system

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

OP-AA-104-1007, Online Aggregate Risk
WCG-016, Online Work Management

Section 1R22: Surveillance Testing

ADM-29.02, ASME Code Testing of Pumps and Valves

Section 2RS1: Radiological Hazard Assessment and Exposure ControlsProcedures, Guidance Documents, and Manuals

RP-AA-103-1002, High Radiation Area Controls, Rev. 2

RP-AA-100-1002, Radiation Worker Instruction and Responsibilities, Rev 2

Records and Data Reviewed

RP-AA-103-1002-F02, HRA/LHRA/VHRA Briefing Acknowledgement Form, Rev 3

Survey #: PSL-M-20151110-3

Survey #: PSL-M-20151112-5

Survey #: PSL-M-20150430-7

Survey #: PSL-M-20150509-2

RWP 15-0004, "Clearances, Tags, Surveillances and Inspections, Rev 2

RP-AA-100-1002, Radiation Worker Instruction and Responsibilities, Rev 2

Corrective Action Program (CAP) Documents

AR 02090225

Section 2RS06: Radioactive Gaseous and Liquid Effluent TreatmentProcedures and Guidance Documents

1-NOP-25.08, FHB Ventilation System, Rev. 6

1-NOP-25.08, FHB Ventilation System, Rev. 8

2-NOP-25.08, FHB Ventilation System, Rev. 6

2-NOP-25.08, FHB Ventilation System, Rev. 9

C-200, Offsite Dose Calculation Manual (ODCM), Rev. 45

CY-SL-100-0002, Chemistry Department Groundwater Protection Program, Rev. 3

CY-SL-102-0104, Processing Aerated Liquid Wastes, Rev. No. 8

CY-SL-102-0105, Processing Gaseous Waste, Rev. 4

CY-SL-104-1011, Unit 1 Gaseous Effluent Grab Sampling, Rev. No. 6

CY-SL-104-2011, Unit 2 Gaseous Effluent Grab Sampling, Rev. No. 4

Senior Nuclear Plant Operator Training Program, Gaseous Waste System, Rev. 4

Senior Nuclear Plant Operator Training Program, Liquid Waste System, Rev. 10

Records and Data Reviewed

10 CFR 50.59 Screening Form, EC 277010, Unit 1 Fuel Handling Building Stack Radiation Monitor Replacement

10 CFR 50.59 Screening Form, EC 278372, Unit 2 Fuel Handling Building Stack Radiation Monitor Replacement

10 CFR 50.59 Evaluation, EC 278372, Unit 2 Fuel Handling Building Stack Radiation Monitor Replacement

10 CFR 50.59 Screening Form, EC 277011, Unit 1 Plant Vent Radiation Monitor Replacement

2013 and 2014 Annual Radioactive Effluent Release Reports

2015 Estimated Dose Reports, 1/19/16

2015 St. Lucie Dry Active Waste 10CFR61 Analysis, August 2015
 Analytics Inc. Cross Check, 11/6/15
 CY-SL-102-0105, Processing Gaseous Waste, Attachment 5, Continuous Release Vent
 Pathway Sampling, Analyzing, and Processing, Unit 2 Fuel Handling Building Worksheet,
 1/26/16
 CY-SL-104-2011, Unit 2 Gaseous Effluent Grab Sampling, Attachment 1, Sampling Unit 2
 Particulate / Iodine / Gas (PIG) Skids, Fuel Building Vent, 1/26/16
 Gas Release Permit No. G-16-034-C, Unit 2 Fuel Handling Building, 1/26/16
 Liquid Release Permit Nos. L-15-100-B (12/15/15) and L-16-004-B (1/29/16), Waste Monitor
 Tank B
 St. Lucie Nuclear Plant's State of Florida Radioactive Release Report, October 1, 2015 –
 December 31, 2015
 Visual Inspection, Leak Test, and Velocity Traverse, Unit 1 Main Stack, 1 HVE-10, 9/17/13 and
 3/14/15
 Visual Inspection, Leak Test, and Velocity Traverse, Unit 2 Main Stack, 2 HVE-10, 2/17/14 and
 9/1/15

CAP Documents

PSL-14-015, St. Lucie Nuclear Oversight Report (Audit), Chemistry, Effluents, and
 Environmental Monitoring, 12/11/14
 AR 10967018
 AR 01943449
 AR 01964111
 AR 01996671
 AR 02023894
 AR 02025835
 AR 02037629
 AR 02039480
 AR 02044958
 AR 02054024
 AR 02071000
 AR 02105774

Section 2RS7: Radiological Environmental Monitoring Program (REMP)

Procedures and Guidance Documents

0-SMI-57.01, Meteorological Data System Semi-annual Calibration, Rev. No. 6
 C-200, Offsite Dose Calculation Manual, Rev. No. 45
 Sampling Procedure 1, Collection of Air Particulates and Radioiodines, Rev. No. 11
 Sampling Procedure 2, Collection of Fauna, Rev. No. 4
 Sampling Procedure 4, Collection of Surface Water, Rev. No. 7
 Sampling Procedure 5, Collection of Broadleaf Vegetation, Rev. No. 4
 Sampling Procedure 7, Collection of Shoreline Sediment, Silt, Soil or Beach Sand, Rev.
 No. 5
 Sampling Procedure 12, Annual Land Use Census, Rev. No. 2
 Sampling Procedure 13, Collection of Drinking Water and Ground Water, Rev. No. 6

Records and Data Reviewed

10 CFR 50.75(g) documentation, Leak of V06231, Dated 5/01/14
 Annual Radiological Environmental Operating Report for Calendar Year 2013, Dated 04/15/14
 Annual Radiological Environmental Operating Report for Calendar Year 2014, Dated 04/15/15
 2014 Annual Radioactive Effluent Release Report, Dated 2/25/15
 Air Sampler Flow Calibrations for Sample Stations H12, H30, H32 & H34 performed 12/04/15
 Air Sampler Flow Calibrations for Sample Stations H12, H30, H32 & H34 performed 05/29/15
 Air Sampler Flow Calibrations for Sample Stations H12, H30, H32 & H34 performed 11/25/14
 Collection Report SL-1, Florida Department of Health, Saint Lucie – Weekly – Sample
 Collection Data, Dated 01/26/16
 Form 1, Florida Department of Health, FPL Sub-Station Check In/Out, Environmental
 Surveillance – Air Sample Data, Dated 01/26/16
 Laboratory Results for Mixed Analyte Performance Evaluation Program (MAPEP) Series 30,
 FDHE01, Dated 06/05/2014
 Laboratory Results for MAPEP Series 31, FDHE01, Dated 11/21/2014
 Laboratory Results for MAPEP Series 32, FDHE01, Dated 06/12/2015
 SSC Risk Rankings and Work Practice Rankings, NEI 07-07 Ground Water Impact Risk Score
 WO 40347220 01, U0: FSAR/PM0 110/Met Tower Semiannual Calibrations, Dated 08/07/15
 WO 40307725 01, U0: FSAR/PM0 110/Met Tower Semiannual Calibrations, Dated 02/20/15

CAP Documents

State of Florida Department of Health Environmental Radiation Control Nuclear Power Plant
 Surveillance Program Semi-annual self-assessment: January – June 2014
 State of Florida Department of Health Environmental Radiation Control Nuclear Power Plant
 Surveillance Program Semi-annual self-assessment: January – June 2015
 AR No. 01936435
 AR No. 01980179
 AR No. 01982382
 AR No. 02006411
 AR No. 02019962
 AR No. 02026714
 AR No. 02030568
 AR No. 02063003
 AR No. 02070953

Section 2RS08: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and TransportationProcedures and Guidance Documents

Administrative Procedure No. 0520025, Process Control Program, Rev. 16
 HP-47, Classification of Radioactive Waste Material for Land Disposal, Rev. 28C
 HP-49, Dewatering Radioactive Bead Resins, Rev. 15
 RP-AA-107-1001, Radioactive Material Receipt, Rev 2
 RP-AA-108-1002, Shipment of Radioactive Material, Rev. 4
 RP-AA-108-1003, Radioactive Materials Surveys for Shipment, Rev 1
 RP-AA-108-1004, Packaging Radioactive Materials for Shipment, Rev 0

Records and Data Reviewed

2013 St. Lucie Unit 1 SRT Resin 10CFR61 Analysis, 10/07/2014

2013 St. Lucie Waste Water Ion Exchanger Resin "WIX" 10CFR61 Analysis, 04/02/14
2015 St. Lucie Dry Active Waste 10CFR61 Analysis, 09/07/2015
EC - 246471, Design Change Package for Modifications to Support Diversified Technology
Systems (DTS) Waste Ion Exchange Skid, Rev.4
FPL-PSL Shipment # 2014-064
FPL-PSL Shipment # 2014-085
FPL-PSL Shipment # 2015-007
FPL-PSL Shipment # 2015-030
FPL-PSL Shipment # 2015-101

CAP Documents

RP Quick Hitter Assessment, Radioactive Waste Program, 08/21/2015
AR 01935793
AR 01949811
AR 01954181
AR 01998624
AR 02027983
AR 02071272
AR 02074127
AR 02073851

Section 40A1: Performance Indicator Verification

Procedures, Guidance Documents and Manuals

LI-AA-100-10003, NRC Performance Indicator, Rev. 0

Records and Data Reviewed

ADM-25.02, RETS/ODCM Radiological Effluent Occurrence, Data Sheet 1, 1st through 4th
Quarters 2015
Sentinel Electronic Dosimeter Alarms, April 1, 2015 – December 31, 2015

CAP Documents

AR 02047275
AR 02073374
AR 02080627

LIST OF ACRONYMS

ADAMS	NRC's Agency-wide Documents Access and Management System
ADM	Administrative Procedure
AFW	Auxiliary Feedwater
ALARA	As Low as Reasonably Achievable
AOP	Abnormal Operating Procedure
AP	Administrative Procedure
AR	Action Request
ARERR	Annual Radiological Effluent Release Report
AC	Alternating Current
ACE	Apparent Cause Evaluation
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CCW	Component Cooling Water
CEA	Control Element Assembly
CFR	Code of Federal Regulations
DAW	Dry Active Waste
DFS	Debris Filter System
DOT	Department of Transportation
DP	Differential Pressure
CWP	Circulating Water Pump
DOT	Department of Transportation
EC	Engineering Change
ECSS	Emergency Core Cooling System
ED	Electronic Dosimeter
EDG	Emergency Diesel Generator
EOF	Emergency Operations Facility
EP	Emergency Preparedness
EPIP	Emergency Plan Implementing Procedure
ERO	Emergency Response Organization
FCV	Flow Control Valve
FHB	Fuel Handling Building
FPL	Florida Power and Light
FS	Fire System
Ft	Foot
GOP	General Operating Procedure
HP	Health Physics
HPSI	High Pressure Safety Injection
HRA	High Radiation Area
HVAC	Heating, Ventilation and Air Conditioning
HX	Heat Exchanger
IMC	Inspection Manual Chapter
ICW	Intake Cooling Water
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
LIP	Local Intense precipitation
LIV	Licensee-Identified Violation
LER	Licensee Event Report

LLRT	Local Leak Rate Test
LOCA	Loss of Coolant Accident
LP	Low Pressure
LPSI	Low Pressure Safety Injection
MH	Man Hole
MPFF	Maintenance Preventable Functional Failure
MR	Maintenance Rule (10 CFR 50.65)
mRem	Millirem
MSR	Moisture Separator Reheater
MV	Motor Valve
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NLO	Non-Licensed Operator
NOP	Normal Operating Pressure
NRC	Nuclear Regulatory Commission
NUMARC	Nuclear Management and Resource Council
ODCM	Offsite Dose Calculation Manual
OLRM	Online Risk Monitor
OOS	Out of Service
OSP	Operations Surveillance Procedure
PARS	Publically Available Record
PD	Performance Deficiency
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PMT	Post-Maintenance Test
PSL	Plant St. Lucie
PWR	Pressurized Water Reactor
RAB	Reactor Auxiliary Building
RCA	Radiological Control Area
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
Rem	Roentgen Equivalent Man (i.e. dose of radiation)
REMP	Radiological Environmental Monitoring Program
RFO	Refueling Outage
RG	Regulatory Guide
RP	Radiation Protection
RPS	Reactor Protection System
RTP	Rated Thermal Power
RWP	Radiation Work Permit
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
SSC	Systems, Structures, and Components
SUT	Start-up Transformer
TAW	Tampa Armature Works
TI	Temporary Instruction
TSS	Technical Specifications
TSC	Technical Support Center
TSSR	Technical Specifications Surveillance Requirement

VPI	Valve Position Indication
UFSAR	Updated Final Safety Analysis Report
WANO	World Association of Nuclear Operators
WMT	Waste Monitor Tank
WO	Work Order
WR	Work Request