



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

February 12, 2020

EA-18-066

Mr. Don Moul
Vice President, Nuclear Division and Chief Nuclear Officer
Florida Power & Light Company
Mail Stop: NT3/JW
15430 Endeavor Drive
Jupiter, FL 33478

SUBJECT: ST. LUCIE UNIT 1 & 2 – INTEGRATED INSPECTION REPORT
05000335/2019004 AND 05000389/2019004 AND INDEPENDENT SPENT
FUEL STORAGE INSTALLATION INSPECTION (ISFSI) REPORT
07200061/2019001

Dear Mr. Moul:

On December 31, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at St. Lucie Units 1 and 2. On January 23, 2020, the NRC inspectors discussed the results of this inspection with Mr. D. DeBoer and other members of your staff. The results of this inspection are documented in the enclosed report.

Two findings of very low safety significance (Green) are documented in this report. One of these findings involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or the significance or severity of the violation documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement; and the NRC Resident Inspector at St. Lucie Units 1 and 2.

If you disagree with a finding not associated with a regulatory requirement 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; and the NRC Resident Inspector at St. Lucie Units 1 and 2.

For administrative tracking purposes, the Additional Tracking Items table in this report contains reference to a Notice of Violation that was issued to St Lucie on September 12, 2019 (Agency Document and Management System (ADAMS) Accession Number. ML19234A332). The full details of the violation are contained in the September 12, 2019 letter and are not discussed further in this report. The Notice of Violation has been assigned a tracking number associated with this inspection report.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Randall A. Musser, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket Nos. 05000335 and 05000389
License Nos. DPR-67 and NPF-16

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

SUBJECT: ST. LUCIE UNIT 1 & 2 – INTEGRATED INSPECTION REPORT
 05000335/2019004 AND 05000389/2019004 AND INDEPENDENT SPENT
 FUEL STORAGE INSTALLATION INSPECTION (ISFSI) REPORT
 07200061/2019001 DATED FEBRUARY 12, 2020

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DATE	2/12 /2020				

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers: 05000335 and 05000389

License Numbers: DPR-67 and NPF-16

Report Numbers: 05000335/2019004, 05000389/2019004 and 07200061/2019001

Enterprise Identifier: I-2019-004-0018 and I-2019-001-0147

Licensee: Florida Power & Light Company

Facility: St. Lucie Unit 1 & 2

Location: Jensen Beach, FL 34957

Inspection Dates: October 01, 2019 to December 31, 2019

Inspectors: P. Capehart, Senior Operations Engineer
R. Kellner, Senior Health Physicist
W. Loo, Senior Health Physicist
M. Magyar, Reactor Inspector
T. Morrissey, Senior Resident Inspector
J. Orr, Senior Resident Inspector
J. Rivera, Health Physicist
S. Roberts, Resident Inspector

Approved By: Randall A. Musser, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at St. Lucie Units 1 and 2, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

List of Findings and Violations

Failure to meet the Transient Combustible Requirements Specified by NFPA 805			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green NCV 05000389/2019004-01 Open/Closed	None (NPP)	71111.05Q
The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.48(c), "National Fire Protection Standard NFPA 805," requirements. Specifically, the licensee failed to comply with transient combustible control requirements in an ordinary fire zone as required by NFPA 805 and as implemented by licensee procedure ADM-19.03, "Transient Combustible Control."			

Failure to properly follow licensee procedure ENG-QI-1.0 "Quality Instruction Nuclear Engineering Design Control," during a modification of reactor coolant pump (RCP) motor component cooling water (CCW) piping.			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000335/2019004-02 Open/Closed	None (NPP)	71153
A self-revealed green finding was identified when the licensee failed to properly follow licensee procedure ENG-QI-1.0, "Quality Instruction Nuclear Engineering Design Control," during a modification of RCP motor CCW piping during the 2010 1A1 RCP refurbishment. Specifically, the licensee used a generic motor repair specification SPEC-E-008, "FPL Fleet Motor Repair/Refurbishment/Rewind Requirements Specification" with specifications described in SPEC-E-008, appendix A, attachment 1 to accomplish the 1A1 RCP design change. SPEC-E-008 was neither intended for, nor adequate to describe the design, installation and inspection requirements of the piping code.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000335/2019-001-01	LER 2019-001-1 for St. Lucie Unit 1, Automatic Reactor Trip Caused by Main Generator Ground Resulting in Generator Lockout/Loss of Load.	71153	Closed
LER	05000335/2019-002-00	LER 2019-002-00 for St. Lucie, Unit 1, RCP Motor Ground Results in RCP Trip and Subsequent Automatic Reactor Trip	71153	Closed
NOV	NOV 05000335,05000389/2019004-03 Open EA-18-066	NOTICE OF VIOLATION (Tracking purposes only)	Inspection Results	Open

PLANT STATUS

Unit 1 began the inspection period at rated thermal power (RTP). On October 14, 2019, the unit was shutdown for a planned refueling outage. On November 18, 2019, the unit was restarted and was restored to RTP on November 20, 2019. Unit 1 operated at or near RTP for the remainder of the inspection period.

Unit 2 operated at or near RTP during the inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515, Appendix D, "Plant Status," and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Seasonal Extreme Weather Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated and completed a review of the licensee's readiness for seasonal winter weather conditions as required by licensee procedure 0-NOP-99.06, "Cold Weather Preparations," for the following systems:
 - Unit 1 and 2 emergency diesel generator (EDG) systems
 - Unit 1 and 2 auxiliary feedwater (AFW) systems

71111.04Q - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (2 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Alternate spent fuel cooling system when providing cooling to the the Unit 1 spent fuel pool with a fully off-loaded core, from October 22-23, 2019
- (2) Unit 2, 2A EDG while the 2B EDG was out of service (OOS) for planned maintenance, from December 12-16, 2019

71111.04S - Equipment Alignment

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

- (1) Unit 1, 1A low pressure safety injection (LPSI) system, on October 31, 2019

71111.05Q - Fire Protection

Quarterly Inspection (IP Section 03.01) (4 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Unit 2, cable spreading room, on October 2, 2019
- (2) Unit 1, control room, on October 8, 2019
- (3) Unit 1, reactor containment building (RCB), on November 11, 2019
- (4) Unit 2, 2A switchgear room, on December 31, 2019

71111.07A - Heat Sink Performance

Annual Review (IP Section 02.01) (1 Sample)

The inspectors evaluated readiness and performance of:

- (1) Unit 1, 1B component cooling water (CCW) heat exchanger (HX) during cleaning, inspection, and eddy current testing in accordance with work order (WO) 40608289, from October 17-30, 2019

71111.08P - Inservice Inspection Activities (PWR)

PWR Inservice Inspection Activities Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated pressurized water reactor non-destructive testing by reviewing the following examinations from October 21 – 25, 2019:
 1. Ultrasonic Testing (UT)
 - a. Core Support Barrel Lower Cylinder Girth Weld (observed)
 - b. Core Support Barrel 90 Degree Axial Weld Between Upper and Lower Cylinder Welds (observed)
 2. Radiographic Testing (RT)
 - a. Safety Injection Loop 1A2 Check Valve V3217 Valve to Pipe Butt weld (SI-149 FW 4), ASME Class 1 (reviewed)
 3. Magnetic Particle Testing (MT)
 - a. Main Steam check valve disk weld build-up repair (V08148), ASME Class 2 (reviewed)
 4. Penetrant Testing (PT)
 - a. Intake Cooling Water Flange to pipe fillet weld (02094A), ASME Class 3 (observed)
 - b. Main Steam check valve disk weld build-up repair (V08148), ASME Class 2 (reviewed)
 5. Visual Examination (VT)
 - a. Reactor vessel closure head outer surface, ASME Class 1, Bare metal visual exam (observed)
 - b. Core Shroud Assembly Core Shroud Plate-Former Plate Weld (reviewed)

The Inspectors evaluated the licensee's boric acid corrosion control program performance.

71111.11A - Licensed Operator Requalification Program and Licensed Operator Performance

Requalification Examination Results (IP Section 03.03) (1 Sample)

The licensee completed the annual requalification operating examinations required to be administered to all licensed operators in accordance with Title 10 of the *Code of Federal Regulations* 55.59(a)(2), "Requalification Requirements," of the NRC's "Operator's Licenses." During the week of November 18, 2019, the inspector performed an in-office review of the overall pass/fail results of the individual operating examinations, the crew simulator operating examinations, and the biennial written examinations in accordance with Inspection Procedure (IP) 71111.11, "Licensed Operator Requalification Program." These results were compared to the thresholds established in Section 3.02, "Requalification Examination Results," of IP 71111.11.

- (1) The inspectors reviewed and evaluated the licensed operator examination failure rates for the requalification annual operating exam administered on October 21, 2019

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (2 Samples)

- (1) The inspectors observed and evaluated operator performance during a planned power reduction and shutdown of Unit 1 to support a refueling outage on October 13-14, 2019
- (2) The inspectors observed and evaluated operator performance during a reactor startup on Unit 1 following completion of a refueling outage from November 18-20, 2019

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) On December 11, 2019, the inspectors observed a licensed operator requalification training evaluation on the control room simulator. The simulated scenario included a reactor coolant system leak, a reactor coolant pump trip, an anticipated transient without scram (ATWS), a manual reactor trip, and a loss of coolant accident (LOCA). The ATWS and the LOCA resulted in an Alert emergency event classification which required a simulated notification to the State of Florida and the NRC.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness Inspection (IP Section 02.01) (1 Sample)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Action Request (AR) 2334284, 2A LPSI pump air bound failure, on November 05, 2019

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (3 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Unit 1, yellow risk shutdown safety assessment while in a reduced inventory condition to support removal of the reactor vessel head, from October 17-18, 2019
- (2) Unit 2, elevated risk while the 2B start-up transformer was OOS due to planned maintenance, from October 22-23, 2019
- (3) Unit 2, elevated risk while the 2B EDG was OOS for planned maintenance, from December 12-16, 2019

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 02.02) (4 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 2, AR 2330760, control room ventilation damper (D-40) position does not match controller output, on October 10, 2019
- (2) Unit 1, AR 2329750, TCV-14-4A (intake cooling water (ICW) temperature control valve for 1A CCW HX) stroke time greater than allowable limit but less than limiting stroke time, on October 22, 2019
- (3) Unit 1, AR 2335491, 1B main steam isolation valve (MSIV) stroke time outside acceptance criteria, on November 22, 2019
- (4) Unit 1, AR 2335388, emergency core cooling system (ECCS) containment sump isolation valves MV-07-2A and MV-07-2B were not declared out of service after manually seating the valves, on November 26, 2019

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Unit 1, WO 40641402, replace stem/plug for 1A AFW pump discharge valve (MV-09-09) to 1A steam generator, on November 5, 2019
- (2) Unit 1, WO 40103852, replace 1B charging pump, on November 14, 2019
- (3) Unit 1, WO 40089062, replace 1B EDG voltage regulator, on December 12, 2019
- (4) Unit 2, WOs 40550518, 40550519, replace 2B EDG wrist pins and power packs, on December 18, 2019

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated the Unit 1 refueling outage SL1-29 activities from October 14, 2019 through November 19, 2019.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Surveillance Tests (other) (IP Section 03.01) (4 Samples)

- (1) Unit 2, 2-SMI-66.12, "Operational CEA Block Circuit Functional Test," on October 3, 2019
- (2) Unit 1, 1-OSP-69.13B, "ESF-Staggered 36 Month Surveillance For SIAS/CIS/CSAS-Train B," on October 14, 2019
- (3) Unit 1, 1-OSP-68.01, "Integrated Leak Rate Test," from November 5-8, 2019
- (4) Unit 1, 1-PTP-81, "Reload Startup Physics Testing," on November 18, 2019

Containment Isolation Valve Testing (IP Section 03.01) (1 Sample)

- (1) Unit 1, 1-OSP-68.02, "Local Leak Rate Test" (penetration 44, reactor coolant pump (RCP) controlled bleedoff), on October 30, 2019

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

During facility tours, the inspectors directly observed radiological postings, dosimetry placement, container labeling, and radiological surveys for areas established within the restricted area including the independent spent fuel storage installation (ISFSI).

Radiological Hazard Assessment (IP Section 02.01) (1 Sample)

The inspectors evaluated radiological hazards assessments and controls.

- (1) The inspectors reviewed the following:

Radiological Surveys

- Survey # PSL-M-20180424-4, ISFSI thermoluminescent dosimeter (TLD) Layout, 04/28/2018
- Survey # PSL-M-20190705-5, ISFSI Pad Monthly Routine, 07/05/2019
- Survey # PSL-M-20190804-1, ISFSI Pad Monthly Routine, 08/04/2019
- Survey # PSL-M-20180401-28, Tri-Nuke 100 and 260 Filter Underwater Survey, 4/1/18
- Survey # PSL-M-20180828-31, U2 Reactor Containment Building (RCB) Operating Level Hoist Box Survey, 8/28/18
- Survey # PSL-M-20191014-20, U1 RCB lower cavity upender pre-job survey, 10/14/19
- Survey # PSL-M-20191016-1, U1 RCB Lower Cavity Initial Survey, 10/16/19
- Survey # PSL-M-20191105-3, U1 RCB Reactor Cavity, 11/5/19

Air Sample Survey Records

- Air Sample Data Summary Sheet, 191-250, U1 RCB Xfer Canal, 10/16/19
- Air Sample Data Summary Sheet, 191-0570, U1 RCB 62' Upper Cavity, 11/3/19

- Air Sample Data Summary Sheet, 191-0571, U1 RCB 62' Foreign Material Exclusion (FME) Checkpoint, 11/3/19
- Air Sample Data Summary Sheet, 191-0580, U1 RCB 62'Elevation, 11/4/19

Instructions to Workers (IP Section 02.02) (1 Sample)

The inspectors evaluated instructions to workers including, labels, radiation work permits and electronic dosimeter alarm setpoints used to access high radiation areas.

- (1) The inspectors reviewed the following:

Radiation work permits (RWP), including RWPs for airborne areas if available

- RWP No. 18-3302, Radiation Protection (RP) Activities in RCB during Refueling / Maintenance Outage, Rev. 0
- RWP No. 19-1004, Reactor Disassembly Activities, Rev. 0
- RWP No. 19-1008, Reactor Head Remove / Replace, Rev. 0
- RWP No. 19-1311, Tri-Nuc Vacuums - Install, Remove, Filters – Remove / Replace / Transfer, Rev. 0
- RWP 19-1314, RCB Upender Replacement, Rev. 0

Electronic alarming dosimeter alarms

- AR 02257148, Dose Rate Alarm, 3/30/18
- AR 02276898, Dose Rate Alarm, 8/29/18
- AR 02277875, Dose Rate Alarm, 8/29/18
- AR 02319591, Dose Alarm, 6/28/19

Labeling of containers

- Noted marking and labeling of multiple rad material containers located in the dry storage warehouse, Radiation Controlled Area (RCA) yard, and the Unit 1 drumming room

Contamination and Radioactive Material Control (IP Section 02.03) (1 Sample)

The inspectors evaluated licensee processes for monitoring and controlling contamination and radioactive material. The inspectors verified transactions of nationally tracked sources had been reported.

- (1) The inspectors verified the following sealed sources are accounted for and are intact:
- JL Shepherd Cs-137 Source No. THP-136
 - Area Radiation Monitor (ARM) Calibration Source No. THP-79
 - 1B Electrical Penetration Room Source No. THP-36

Radiological Hazards Control and Work Coverage (IP Section 02.04) (1 Sample)

The inspectors evaluated in-plant radiological conditions during facility walkdowns and observation of radiological work activities.

- (1) The inspectors also reviewed and observed the following risk significant radiological work activities:
- Reactor disassembly activities

- Reactor head removal / replacement
- Tri-Nuc filter removal

High Radiation Area and Very High Radiation Area Controls (IP Section 02.05) (1 Sample)

- (1) The inspectors evaluated risk-significant high radiation area and very high radiation area controls, including postings and physical controls.

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 02.06) (1 Sample)

- (1) The inspectors evaluated radiation worker awareness and performance and radiation protection technician proficiency.

71124.02 - Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls

Inspectors evaluated licensee performance with respect to maintaining personnel exposures ALARA by evaluating the licensee's work planning activities & assumptions, and worker ALARA implementation and controls.

Radiological Work Planning (IP Section 02.01) (1 Sample)

The inspectors evaluated the licensee's radiological work planning.

- (1) The inspectors reviewed the following activities:
 - ALARA Package No.: 19-1034, Cutout/Transport/Weld in New Valve/Related Work to include Decon of Pipe Ends/Machine Preps to Pipe Ends, Rev. 0
 - ALARA Package No.: 19-1112, Excore Detectors No. 10: Remove, Install, Transfer, Rev. 0
 - ALARA Package No.: 19-1312, Upper Cavity Decon Post Drain-down (Remove Instacote), Rev. 0
 - ALARA Package No.: 19-1314, Reactor Containment Building Lower Cavity Upriser Frame Replacement, Rev. 0
 - ALARA Package No.: 19-1317 Lower Cavity Survey and Water Removal (Integrated Leak Rate Test Support), Rev. 0

Verification of Dose Estimates and Exposure Tracking Systems (IP Section 02.02) (1 Sample)

The inspectors evaluated dose estimates, exposure tracking and source term reduction effectiveness.

- (1) The inspectors reviewed the following as low as reasonably achievable planning documents:
 - ALARA Review No. 19-1034, Cut out/Transport/Weld in New Valve. Related Work to include Decon of Pipe Ends/Machining Preps to Pipe Ends

Implementation of ALARA and Radiological Work Controls (IP Section 02.03) (1 Sample)

The inspectors reviewed as low as reasonably achievable evaluations and radiological work controls.

- (1) The inspectors reviewed the following activities:
- Radiation Work Permit No. 19-1008, Reactor Head (Remove/Replace) All Associated Activities, Rev. 0
 - Radiation Work Permit No. 19-1034, V-3217: Cut out/Transport/Weld in New Valve/Related Work (to include Decon and Weld Prep), Rev. 0
 - Radiation Work Permit No. 19-1112, (Reactor Containment Building) Excore Detector No. 10: Remove, Install, Transfer, Rev. 0
 - Radiation Work Permit No. 19-1314, (Reactor Containment Building) Upender Replacement, Rev. 0

Radiation Worker Performance (IP Section 02.04) (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance and implementation of ALARA techniques and controls for work activities during outage SL1-29.

- (1) Lower cavity survey and water removal for integrated leak rate test support, Unit 1 reactor head removal, and Upender work activities in lower cavity of Unit 1 Reactor Containment Building.

71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

Engineering Controls (IP Section 02.01) (1 Sample)

The inspectors evaluated equipment used to mitigate and monitor airborne radioactivity and verified licensee has established trigger points for evaluating airborne alpha and beta emitting radionuclides.

- (1) The inspectors' review included the following:

Installed ventilation system maintenance records

- 0-OSP-25.04 Unit 1 1-HVE-10A Filter Testing, 2/28/18 and 8/19/19

Temporary ventilation system maintenance records

- High-Efficiency Particulate Air (HEPA) Serial No. PSL-HEPA-012, Filter Particle Test Results, 2/25/15 & 7/19/16

Use of Respiratory Protection Devices (IP Section 02.02) (1 Sample)

The inspectors evaluated the licensee's use and maintenance of respiratory protection equipment. This included review of respirator qualification records and grade D quality supplied air.

- (1) The inspectors' review included the following:

Total Effective Dose Equivalent (TEDE)-ALARA evaluations for the use of respiratory protection equipment

- TEDE ALARA Assessment, 19-1004-2, Reactor Head / Upper Cavity Activities, 11/6/19

- TEDE ALARA Assessment, 19-1314-1, Fuel Transfer Upender, 11/6/19

Respiratory protection used during work activities

- RWP 19-1314, RCB Upender Replacement, Rev. 0

Periodic Inspection records for staged respirators (ready-for-use)

- Monthly / Semi-Annual Respirator Inventory, 10/31/19

Self-Contained Breathing Apparatus (SCBA) for Emergency Use (IP Section 02.03) (1 Sample)

The inspectors evaluated the licensee's storage and maintenance of SCBA for emergency use. This included a review of SCBA qualification records.

- (1) Inspectors reviewed the following:

Periodic Inspection records for staged SCBAs (ready-for-use)

- Monthly SCBA / Cylinder Inspection and Inventory, 10/31/19

SCBA maintenance records (past 2 years)

- SCBA No. 33, Posi3 USB Test Results, 7/16/18
- SCBA No. 40, Posi3 USB Test Results, 7/17/18

71124.04 - Occupational Dose Assessment

Source Term Categorization (IP Section 02.01) (1 Sample)

- (1) The inspectors evaluated the licensee's characterization of the source term and use of scaling factors for the use of hard-to-detect radionuclide activity.

External Dosimetry (IP Section 02.02) (1 Sample)

- (1) The inspectors evaluated the external dosimetry program implementation.

Internal Dosimetry (IP Section 02.03) (1 Sample)

The inspectors evaluated the internal dosimetry program implementation, including review of individual intake assessments and internal dose evaluations (as available). No samples can be listed due to Personally Identifiable Information (PII) restrictions.

- (1) The inspectors reviewed the following:

Whole Body Counts

- 4/4/2018, Dosimeter of Legal Record (DLR) No. 102600
- 9/23/2018, DLR No. 66889
- 10/19/2019, DLR No. 148196

In-Vitro Internal Monitoring

- 9/30/2019, DLR Nos. 126970 and 126970

Dose Assessments Performed Using Air Sampling and Derived Air Concentration-Hour Monitoring

- None were available during this inspection.

Special Dosimetric Situations (IP Section 02.04) (1 Sample)

The inspectors evaluated licensee methods for assessment of special dosimetric situations such as declared pregnant worker, exposure in nonuniform fields, shallow dose equivalent and neutron exposure. No samples can be listed due to PII restrictions.

- (1) In addition to declared pregnant worker (DPW) records (DLR No. 158654) inspectors also reviewed the following:

EDEX exposures

- 10/16/2019 - Upender work activities in lower cavity of U1 Reactor Containment Building
- 11/05/2019 – Decon, Survey, and Water Removal activities (ILRT support activities) in lower cavity of U1 Reactor Containment Building

Shallow Dose Equivalent

- None were available during this inspection period.

Neutron Dose Assessment

- 6/19/2019, ISFSI Welder, DLR No. 156878

71124.05 - Radiation Monitoring Instrumentation

Walk Downs and Observations (IP Section 02.01) (1 Sample)

The inspectors evaluated radiation monitoring instrumentation during plant walkdowns.

- (1) The inspectors reviewed the following:

Portable Survey Instruments

- Canberra Argos-5 AB with Zeus: Serial Number (S/N) 217 2/11/2019, 7/24/2019; S/N 218 2/12/2019, 8/12/2019
- Ludlum Model 12 (alpha) Frisker: S/N 305371, 6/10/2019
- Ludlum Model 177 Count Rate Meters: S/N 47710, 7/5/2019; S/N 28306, 7/5/2019
- Ludlum Model 9-3 Ion Chamber Meter: S/N 337025, 4/19/2019; S/N 336939 4/2/2019
- Ludlum Model 2200 Scaler Meter: S/N 311411, 6/12/2019 and 9/9/2019; S/N 258270, 7/19/2019
- Eberline Model AMS-4 Continuous Air Monitor (Particulate): S/N 12903 7/3/2019; S/N 13080 7/7/2019
- Eberline Model AMS-4 Continuous Air Monitor (In-Line Gas): S/N 1626 1/7/2019, 8/15/2019; S/N 2174 3/7/2019, 9/12/2019
- Eberline SAM (small article monitor): S/N 405 7/17/18, 1/22/2019
- Mirion HFF-XL (hand and foot monitor): S/N 434 1/3/2019, 7/3/2019; S/N 442 12/28/2019, 6/25/2019; S/N 443 4/16/2019, 10/2/2019

- RAS-1 Low Volume Air Sampler: S/N 077 08/21/18, 10/10/19; S/N 8819 08/15/18, 10/10/19

Source Check Demonstration

- Eberline Model RO-20, S/N 3092
- Ludlum Model 9-3, S/N 337022
- Ludlum Model 12 (pancake), S/N 290003
- Ludlum Model 2241-4 (neutron), S/N 286236
- Ludlum Model 12 (alpha), S/N 305371
- Mirion TelePole, S/N 6611-011

Area Radiation Monitors and Continuous Air Monitors

- Eberline AMS-4 (CAM), S/N 1626, 2174, 12903, and 13080
- Mirion HFF-XL (hand and foot monitor), S/N 434, 442, and 443
- Installed ARMs: Unit 1 Channels 26-26 (Flash Tank Pump), 26-17 (Ion exchanger valve area), 26-28 (New Fuel Storage Area)

Personnel Contamination Monitors, Portal Monitors and Small Article Monitors

- Canberra Argo-5 AB with Zeus, S/N 217 and 218
- Eberline SAM (small article monitor), S/N 405

Calibration and Testing Program (IP Section 02.02) (1 Sample)

The inspectors evaluated the calibration and testing program implementation.

- (1) The inspectors reviewed the following:

Alarm Setpoint and Calibration Method Check of Personnel Contamination Monitors, Portal Monitors and Small Article Monitors

- Mirion HFF-XL (hand and foot monitor), S/N 434
- Canberra Argo-5 AB with Zeus, S/N 217

Failure to Meet Calibration or Source Check Acceptance Criteria

- There were no instrument calibration or source check failures available for review during this inspection

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS06: Emergency AC Power Systems (IP Section 02.05) (2 Samples)

- (1) Unit 1 (October 1, 2018 through September 30, 2019)
- (2) Unit 2 (October 1, 2018 through September 30, 2019)

MS07: High Pressure Injection Systems (IP Section 02.06) (2 Samples)

- (1) Unit 1 (October 1, 2018 through September 30, 2019)

- (2) Unit 2 (October 1, 2018 through September 30, 2019)

MS08: Heat Removal Systems (IP Section 02.07) (2 Samples)

- (1) Unit 1 (October 1, 2018 through September 30, 2019)
- (2) Unit 2 (October 1, 2018 through September 30, 2019)

MS09: Residual Heat Removal Systems (IP Section 02.08) (2 Samples)

- (1) Unit 1 (October 1, 2018 through September 30, 2019)
- (2) Unit 2 (October 1, 2018 through September 30, 2019)

MS10: Cooling Water Support Systems (IP Section 02.09) (2 Samples)

- (1) Unit 1 (October 1, 2018 through September 30, 2019)
- (2) Unit 2 (October 1, 2018 through September 30, 2019)

OR01: Occupational Exposure Control Effectiveness Sample (IP Section 02.15) (1 Sample)

- (1) January 1, 2018 to September 30, 2019

PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual
Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample
(IP Section 02.16) (1 Sample)

- (1) January 1, 2018 to September 30, 2019

71152 - Problem Identification and Resolution

Semiannual Trend Review (IP Section 02.02) (1 Sample)

- (1) The inspectors reviewed the licensee's corrective action program for potential adverse trends that might be indicative of a more significant safety issue.

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) AR 2321166, 1B2 EDG Radiator Fan Not Spinning, on July 16, 2019. This issue was selected due to impacting the operability of the 1B EDG.

71153 - Followup of Events and Notices of Enforcement Discretion

Event Followup (IP Section 03.01) (1 Sample)

- (1) On October 30, 2019, at 0026 hours, with Unit 1 shutdown and the core off-loaded to the spent fuel pool, a Notification of Unusual Event (NOUE) was declared when the unit met Emergency Action Level (EAL) HU3. EAL HU3 was met, in part, if a flammable gas release was deemed detrimental to normal plant operations. A worker's portable hydrogen monitor alarmed in the reactor auxiliary building pipe

penetration room and the room was evacuated. The worker was performing maintenance activities associated with the hydrogen pressure regulator isolation valve to the volume control tank. Work in the area was secured and a fan was placed in the door to dissipate the hydrogen. The peak concentration of hydrogen was measured to be 1,500 parts per million (ppm) which was below the explosive limit of 40,000 ppm. At 0455 hours, the NOUE declaration was terminated. The inspectors reviewed the event classification and notifications to the State of Florida and the NRC and concluded the notifications were made in accordance with the emergency plan implementing procedure EPIP-01, "Classification of Emergencies," and EPIP-02, "Duties and Responsibilities of the Emergency Coordinator." Inspectors determined that based upon the information available at the time, and with a limited time frame in order to complete, that the conservative decision to make a declaration was reasonable.

Event Report (IP Section 03.02) (2 Samples)

The inspectors evaluated the following licensee event reports (LERs):

- (1) LER 05000335/2019-001-01, "Automatic Reactor Trip Caused by Main Generator Ground Resulting in Generator Lockout/Loss of Load," (Adams Accession Number: ML19274B733). The inspectors reviewed the updated submittal. The previous submittal was reviewed in Inspection report 05000335/2019002 and 05000389/2019002 (ADAMS Accession Number: ML19210C251). This LER is closed.
- (2) LER 05000335/2019-002-00, "Reactor Coolant Pump Motor Ground Results in Reactor Coolant Pump Trip and Subsequent Automatic Reactor Trip," (ADAMS Accession Number: ML19309E532). This LER is closed.

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

60855.1 - Operation of an Independent Spent Fuel Storage Installation at Operating Plants

Operation of an Independent Spent Fuel Storage Installation at Operating Plants (1 Sample)

- (1) The inspectors evaluated the onsite ISFSI on December 18, 2019.

INSPECTION RESULTS

Failure to meet the Transient Combustible Requirements Specified by NFPA 805			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green NCV 05000389/2019004-01 Open/Closed	None (NPP)	71111.05Q
The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.48(c), "National Fire Protection Standard NFPA 805," requirements. Specifically, the licensee failed to comply with transient combustible control requirements in an ordinary fire zone as required by NFPA 805 and as implemented by licensee procedure ADM-19.03, "Transient Combustible Control."			
<u>Description:</u> On October 9, 2019, during an inspection associated with the Unit 2 control room ventilation system, the inspectors observed fire-retardant wood above the Unit 2 control			

room suspended ceiling. The wood consisted of plywood and lumber. The licensee's fire protection coordinator inventoried the wood and estimated the weight at 400 pounds (lbs.). A licensee extent of condition inspection found an additional 20 lb. piece of fire-retardant plywood in the overhead of the Unit 2 control room above the shift manager's office. This issue was entered in the corrective action program as AR 2330980. The licensee posted a transient combustible permit (TCP) in the Unit 2 control room and notified the operators of the presence of the transient combustibles.

The licensee's investigation determined that in 1999, a change request notice (CRN) 98117, was issued to support the use of the combustible material (i.e. fire-retardant wood) as decking to support installation of a permanent modification. The CRN stated that the use of the material was temporary, however CRN 98117 did not provide removal instructions and therefore, the transient combustibles were not removed.

Licensee procedure, ADM-19.03, "Transient Combustible Control," Attachment 1, "Power Block Structure," designated the Unit 2 control room as an ordinary risk fire zone. ADM-19.03, Section 4.0.10.D, stated that "Up to 100 lbs. of Class A combustible materials may be brought into and left unattended in Ordinary Risk fire zones without a TCP." ADM-19.03 defines "attended" as "personnel in the work area using the combustible/flammable materials to perform work or are monitoring the materials and are aware of the storage requirements." The transient combustibles found above the Unit 2 control room suspended ceiling did not meet the requirements of being an "attended" transient combustible and the weight of the combustibles exceeded the procedural 100 lb. limit for an ordinary risk fire area. In addition, the Unit 2 control room was not designated as a permanent transient combustible storage area.

Corrective Actions: The licensee's corrective actions implemented and planned included: 1) issuing a TCP, 2) performing an extent of condition for additional legacy transient combustible materials, and 3) removal of the transient combustibles.

Corrective Action References: AR 2330980.

Performance Assessment:

Performance Deficiency: The failure to implement combustible material control requirements as specified in licensee procedure ADM-19.03, "Transient Combustible Control," was a performance deficiency. Specifically, the licensee failed to comply with transient combustible control requirements in an ordinary risk fire zones as required by NFPA 805 and as implemented by licensee procedure ADM-19.03.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Protection Against External Factors attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations.

Significance: The inspectors assessed the significance of the finding using Inspection Manual Chapter (IMC) 0609, Attachment 4, "Initial Characterization of Findings," Table 2, initiating events, external event initiator for fire and then using Table 3, Section E, Fire Protection and because the fire involved implementation of fire prevention administrative controls the finding was determined to require an IMC 0609, Appendix F, "Fire Protection Significance Determination Process." IMC 0609, Appendix F, stated that degradation ratings

for findings against the combustible controls program are either low or high. A high degradation rating is assigned to those findings that could adversely impact fire frequency. After consultation with a Region II fire protection inspection expert, it was determined that, in this case the transient combustible (fire-retardant wood) would not be an ignition source for a fire. Therefore, the combustible material was determined to have a low degradation rating which screens this finding to Green (IMC 0609, App. F, Attachment 1, question 1.3.1-A).

Cross-Cutting Aspect: Not Present Performance. No cross cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement:

Violation: St. Lucie Nuclear Station, Unit 2, Renewed Facility Operating License Condition 3.E, Fire Protection, required the licensee, in part, to implement and maintain in effect all provisions of the approved fire protection plan that complied with 10 CFR 50.48(c), "National Fire Protection Association Standard NFPA 805," as specified in the NRC safety evaluation report (SER) dated March 21, 2016. NFPA 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition," Section 3.3.1.2, "Control of Combustible Materials," required, that procedures for the control of transient combustibles shall be developed and implemented. This was implemented by licensee procedure ADM-19.03, "Transient Combustible Control."

Contrary to the above, since the implementation of NFPA 805, the licensee failed to properly implement ADM-19.03, "Transient Combustible Control," Revision 10, section 4.0.10.D. Specifically, section 4.0.10.D, allows "Up to 100 pounds of Class A combustible materials may be brought into and left unattended in Ordinary Risk fire zones without a TCP." On October 9, 2019, the inspectors identified transient combustibles above the suspended ceiling of the Unit 2 control room. The storage of the transient combustibles was not evaluated under NFPA 805 for permanent placement and the licensee did not track the transient combustibles as required by ADM-19.03 utilizing a transient combustible permit.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Observation: Adverse Trends

71152

The inspectors in parallel with the licensee identified an adverse trend associated with the number of Unit 1 reactor trips over the last year of operation. The adverse trend and corrective actions were documented in the corrective action program (CAP) as AR 2330374.

The inspectors also identified an adverse trend associated with closed flood doors not having all their handles in the dogged position. Since January 2019, the inspectors found six instances of ECCS room flood doors with one and in one case two of the eight handles not dogged. In each instance, the doors were subsequently fully dogged, and each door was determined by licensee evaluation to be functional/operable when not fully dogged, and the issue was placed in the corrective action program. After discussion with the licensee regarding this noted adverse trend, the licensee documented the adverse trend in the CAP as AR 2338674.

Observation: Emergency Diesel Generator Failure	71152
<p>On July 15, 2019, during routine monthly surveillance testing of the 1B EDG, the EDG tripped due to high jacket water temperature. The licensee's investigation determined that the 1B2 EDG engine crankshaft tapered end that connects to the radiator fan sheared. The 1B2 EDG engine crankshaft was replaced and the EDG was returned to service on July 28, 2019.</p> <p>The inspectors reviewed AR 2321166 documenting this failure, the corrective actions completed and planned, as well as the extent of condition associated with the failure of the 1B EDG crankshaft. Based on review of the forensic report, the inspectors determined that the 1B EDG was likely not operable and able to perform its design function before the EDG failure on July 15, 2019. Including the 13 days needed to repair the EDG, the inspectors determined that the 1B EDG was inoperable for greater than the TS allowed outage time of 14 days.</p> <p>The forensic investigation report for the failure was finalized on August 30, 2019. Following review, the inspectors questioned the licensee why a past operability review (POR) was not needed considering the forensic report concluded the failure was due to fatigue from operation. The inspectors also discussed with the licensee the need to report this event as a LER under 10 CFR 50.73, "Licensee Event Report System," for a condition prohibited by Technical Specifications. The licensee agreed with the inspectors' observations that a POR was required and that a 10 CFR 50.73 licensee event report was needed. The licensee submitted LER 05000335/2019003-00 on October 28, 2019, meeting the reporting requirements of 10 CFR 50.73. The failure to complete a POR was placed in the corrective action program as AR 2332786. The regulatory significance of EDG crankshaft failure will be determined when the LER is reviewed during a subsequent inspection period.</p>	

Failure to properly follow licensee procedure ENG-QI-1.0 "Quality Instruction Nuclear Engineering Design Control," during a modification of reactor coolant pump (RCP) motor component cooling water (CCW) piping.			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000335/2019004-02 Open/Closed	None (NPP)	71153
<p>A self-revealed green finding was identified when the licensee failed to properly follow licensee procedure ENG-QI-1.0 "Quality Instruction Nuclear Engineering Design Control," during a modification of RCP motor CCW piping during the 2010 1A1 RCP refurbishment. Specifically, the licensee used a generic motor repair specification SPEC-E-008, "FPL Fleet Motor Repair/Refurbishment/Rewind Requirements Specification" with specifications described in SPEC-E-008 appendix A attachment 1 to accomplish the 1A1 RCP design change. SPEC-E-008 is neither intended for, nor adequate to describe the design, installation and inspection requirements of the piping code.</p> <p><u>Description:</u> On September 7, 2019, the St. Lucie Unit 1 reactor tripped automatically after an electrical fault in the 1A1 RCP motor. There are four RCPs which operate continuously during normal plant operation to circulate reactor coolant within the reactor coolant system (RCS). Loss of any single RCP results in a LOW RCS FLOW actuation in the reactor protection system resulting in a reactor trip.</p> <p>The electrical fault was initiated after a CCW pipe for the 1A1 RCP motor's upper bearing cooler failed, resulting in water entering the motor enclosure. The piping failed at a threaded</p>			

connection to the upper bearing oil cooler where a crack had propagated along the pipe thread. The failure mechanism was due to fatigue damage; the progressive weakening of material under cyclic loading.

The 1A1 RCP motor was placed in service in 2010. The refurbishment included a rerouting of the upper bearing cooler CCW piping. Per the Unit 1 Final Safety Analysis Report (FSAR), piping for the RCPs will be built in accordance with ANSI B31.1.0, which requires piping "be arranged and supported with consideration of vibration."

Licensee procedure ENG-QI-1.0 specified the appropriate design control process vehicle for design changes that cannot be demonstrated to be equivalent, or a like for like replacement. For this piping modification, the licensee used generic motor repair specification SPEC-E-008, with specifications described in SPEC-E-008 appendix A attachment 1 to accomplish the 1A1 RCP refurbishment. This specification was written generically for the various activities encountered during typical motor refurbishment and repair and is neither intended for, nor adequate, to describe the design, installation and inspection requirements of the piping code, (ANSI B31.1.0). The lack of specific vibration controls by appendix A of SPEC-E-008 resulted in insufficient CCW piping supports, as per ANSI B31.1.0 code requirements, which directly resulted in the failure of the CCW piping from fatigue.

Corrective Actions: The licensee's planned corrective actions included revising SPEC-E-008 to clarify Appendix A is not intended, and shall not be used, to contract for work or beyond the defined scope in the specification (i.e. code piping work, cabling work, engineering design services, shall not be performed). Scope beyond that defined in SPEC E-008 shall be contracted under a separate specification, scope of work, or purchase document developed by qualified individuals using the applicable governing FPL procedures.

Corrective Action References: AR 2327033

Performance Assessment:

Performance Deficiency: The inspectors determined that the failure to properly follow licensee procedure ENG-QI-1.0, during a modification of RCP motor CCW piping during the 2010 1A1 RCP refurbishment was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Design Control attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations.

Significance: The inspectors assessed the significance of the finding using Inspection Manual Chapter (IMC) 0609, Attachment 4, "Initial Characterization of Findings," Table 2, and IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," the inspectors determined the finding was a transient initiator contributor in the Initiating Events Cornerstone and using IMC 0609, App. A, Exhibit 1, Question B for transient initiators, determined that the finding was of very low safety significance (Green), because the finding did cause a reactor trip, but it did not cause a loss of mitigation equipment relied upon to transition the plant from onset of the trip to a stable shutdown condition.

Cross-Cutting Aspect: Not Present Performance. No cross cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance.

Enforcement: Inspectors did not identify a violation of regulatory requirements associated with this finding.

NOTICE OF VIOLATION - (EA-18-066)			
Cornerstone	Severity	Cross-Cutting Aspect	Report Section
Not Applicable	Severity Level II NOV 05000335,05000389/2019004-03 Open EA-18-066	Not Applicable	71153
<p>This item is being entered for Reactor Program System (RPS) tracking purposes only.</p> <p>The Official Correspondence for this item was managed via NRC Headquarters and the Office of Enforcement.</p> <p>The letters that officially documented the violations are available via the following ADAMS Accession Numbers: NOTICE OF VIOLATION LETTER - ML19234A332 NOTICE OF VIOLATION RESPONSE - ML19283C899 CIVIL PENALTY CONFIRMATION LETTER - ML19352F541</p>			

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On January 23, 2020, the inspectors presented the integrated inspection results to Mr. D. DeBoer, Site Director, and other members of the licensee staff.
- On October 24, 2019, the inspectors presented the Unit 1 ISI inspection results to Mr. D. DeBoer, Site Director, and other members of the licensee staff.
- On November 8, 2019, the inspectors presented the Radiation Protection Occupational Radiation Safety Baseline Inspection results to Mr. D. DeBoer, Site Director, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.08P	Corrective Action Documents	02331607-01, 02325127-01, 02327690-01		
	Miscellaneous	A. Fantini	Certificate of NDE Personnel Qualification: RT-III	09/01/2017
		A. Fantini	Vision Examination	06/07/2019
		D. Austin	Framatome Certificate of Personnel Qualification: VT-II	09/12/2019
		D. Austin	Framatome Certificate of Visual Examination	07/16/2019
		S. Breiholz	Framatome Certificate of Personnel Qualification	09/05/2019
		S. Breiholz	Framatome Certification of Vision Examination	01/07/2019
	NDE Reports	40541102-14	Radiographic Inspection Report	09/12/2019
		LTR-AMLR-19-87	Evaluation of Predicted Flaw Growth for St. Lucie Unit 1 Core Support Barrel Flaws in Support of the Fall 2019 Inspection	Revision 0
	Procedures	54-181-884-000	Areva Automated Phased Array Ultrasonic Examination of Core Shroud Assembly Welds	Revision 0
		ATS 120.12	Radiographic Inspection (Nuclear)	Revision 8
		NDE 4.15	Visual Examination (VE) ASME Section XI Code Case N-722-1, N-729-4, N-770-2 and Bare Metal Visuals	Revision 6
	Work Orders	40503230-08		
71124.01	Corrective Action Documents	AR 02271259	Material stored outdoors not covered	07/07/2018
		AR 02275894	Unsatisfactory conditions in hot tool room	08/14/2018
		AR 02301092	RCA Exit Controls	02/07/2019
	Corrective Action Documents Resulting from Inspection	02332422	Observation on LHRA Key Administration	10/22/2019
		02334690	Job Coverage Radiological Survey Not Documented	11/07/2019
	Procedures	ADM-05.06	Control of Radioactive Material	Rev. 3
		RP-AA-102-1001	Area Radiological Surveys	Rev. 5
		RP-AA-103-1002	High Radiation Area Controls	Rev. 11
		RP-AA-103-1002	High Radiation Area Controls	Rev. 7
		RP-SL-107-1006	Unconditional Release of Material	Rev. 0
71124.02	Procedures	HPP-1	Preparing Radiation Work Permits (RWP)	Rev. No. 41

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		RP-AA-104	ALARA Program	Rev. No. 7
		RP-AA-104-1000	ALARA Implementing Procedure	Rev. No. 16
		RP-SL-104-2008	Portable Shielding	Rev. No. 8
71124.03	Corrective Action Documents	AR 02254603	Airborne Contamination During Reactor Cavity Flood-Up	03/16/2018
		AR 2265134	Respiratory Program Review	07/13/2018
	Procedures	1-NOP-03.06	Filling and Draining the RCS and Refueling Cavity Using LPSI	Rev. 42
		RP-AA-102-1000	Alpha Monitoring	Rev. 5
71124.04	Procedures	RP-AA-101	Personnel Monitoring Program	Rev. No. 4
		RP-SL-101-1001	Whole Body Counting	Rev. No. 4
		RP-SL-101-1008	Multibadging	Rev. No. 5
		RP-SL-101-1011	Skin Dose Assessment	Rev. No. 3
71124.05	Calibration Records	Accuscan II	St. Lucie Radiation Protection Department Accuscan II Calibration	08/21/2017 and 08/24/2018
		Fastscan 1	St. Lucie Radiation Protection Department Fastscan 1 Calibration	08/22/2017 and 07/27/2018
		Fastscan 2	St. Lucie Radiation Protection Department Fastscan 2 Calibration	08/02/2017 and 07/26/2018
		S/N 017	Calibration Report, RT-11 High Range Radiation Monitor Calibrator, S/N 017	02/20/1982
		S/N 706-780	Hopewell Designs Inc. Calibration Report, Hopewell Model BX3 Box Calibrator Irradiator	07/11/2018
		S/N 8167	J.L. Shepherd Calibration Report, Model 89 Box Calibrator	05/23/2019
	Corrective Action Documents		Selected Radiation Monitoring Instrument Related Condition Reports: AR 02201915, AR 02223454, AR 02280134, AR 02289274, AR 02313459, and AR 02317016	Various
		AR 02135780	Apparent Cause Evaluation Report for AR 02135780, CDBI Green NCV for CHRRMs OE Evaluation	Revision 1
		AR 02198619, AR 02221931, AR 02304797,	Radiation Monitoring Instrument Self-Assessments	Various

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		AR 02275671, and AR 02314204		
	Corrective Action Documents Resulting from Inspection	02332419	Procedure enhancement for High Range Radiation Monitor calibration sources	10/22/2019
	Engineering Changes	EC 286673	Calculation PSL-2LHN-16-001, Post LOCA Correlation for Radiation Monitors RM 26-40/41 and RM 26-38/39	06/04/2016
	Miscellaneous		EPAID-067 Table, Rad Monitor Readings [for Emergency Classification]	April 2017
			Eckert & Ziegler Analytics Inc. Interlaboratory Cross Check Program Results	2017 and 2018
			2019 St. Lucie Dry Active Waste 10CFR61 Analysis	03/11/2019
		HP-100-121112	Technical Basis Document, HP-100-121112, Pre-Planned Alternate Monitoring Method for Unit 2 Containment High Range Radiation Monitors (RIM-26-40 and RIM-26-41)	12/11/2012
		HP-100-170724	Technical Basis Document, HP-100-170724, 2016-2017 Site Alpha Characterization Update	07/24/2017
		S/N 110143	Eckert & Ziegler Standard Reference Source Certificate of Calibration, Mixed-Gamma Source	07/01/2018
		S/N 92885	Eckert & Ziegler Standard Reference Source Certificate of Calibration, Eu-152 Source	03/20/2013
	Procedures	0-ADM-06.05	I&C Department Surveillance and Testing Schedule	Revision 10
		0-IMP-26.01	Radiation Monitoring System Database Configuration Control	Revision 10
		1-1120070	High-Range Radiation Monitor Calibration [Unit 1 Containment High Range Radiation Monitors RM-26-58 & RM-26-59]	Revision 23
		2-SMI-26-60	High Range Radiation Monitor Calibration [Unit 2 Containment High Range Radiation Monitors RIM-26-40 & RIM-26-41]	Revision 5
		2-SMI-26-67B	Calibration of Train SB Spent Fuel Pool Area Radiation Monitors	Revision 10

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		2-SMI-26.68	Calibration of Train SA and SB Post Accident Area Radiation Monitors [RIM-26-38 and RIM-26-39]	Revision 5
		ADM-09.25	Surveillance Frequency Control Program	Revision 19
		ADM-25.07	Technical Requirements Manual	Revision 13
		HP-13F	Calibration and Operation of the AMS-4 Air Monitoring System	Revision 16
		PI-AA-104-1000	Condition Reporting	Revision 22
	Work Orders	WO # 4028267901	Work Order (WO) #4028267901, Calibrate Containment High Range RAD Monitors Channels RE-26-58/59	04/08/2015
		WO # 4031964301	WO # 4031964301, Unit 2 Calibrate Containment High Range Rad Monitor Channel RIM-26-41	09/29/2015
		WO # 4034082401	WO # 4034082401, Unit 2 Calibrate Containment High Range Rad Monitor Channel RIM-26-40	09/27/2015
		WO # 4047867006	WO # 4047867006, EC 290806 UNIT 2 CHRRMS CABLE REPLACEMENT [including calibration of RIM-26-40]	09/17/2018
		WO # 4047867007	WO # 4047867007, EC 290806 UNIT 2 CHRRMS CABLE REPLACEMENT [including calibration of RIM-26-41]	09/17/2018
		WO # 4047867706	WO # 4047867706, EC 289895 UNIT 1 CHRRMS CABLE REPLACEMENT [including calibration of RE-26-58]	04/04/2018
		WO # 4047867707	WO # 4047867707, EC 289895 UNIT 1 CHRRMS CABLE REPLACEMENT [including calibration of RE-26-59]	03/30/2018