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

August 15, 2017

Mano Nazar, President and
Chief Nuclear Officer Nuclear Division
Florida Power & Light Co.
Mail Stop: EX/JB
700 Universe Blvd
Juno Beach, FL 33408

SUBJECT: ST. LUCIE PLANT – NRC TEAM INSPECTION REPORT 05000335/2017010 AND 05000389/2017010

Dear Mr. Nazar:

On July 20, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your St. Lucie Plant Units 1 and 2. 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.

The inspection examined activities conducted under your license as they relate to the implementation of mitigation strategies and spent fuel pool instrumentation orders (EA-12-049 and EA-12-051) and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans, your compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and records, observation of activities, and interviews with station personnel.

The NRC inspectors did not identify any finding or violation of more than minor significance.

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

Sincerely,

/RA/

Reinaldo Rodriguez, Acting Chief
Reactor Projects Branch 7
Division of Reactor Projects

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

Enclosure:
IR 05000335/2017010, 05000389/2017010
w/Attachment: Supplemental Information

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REGION II

Docket No.:	50-335, 50-389
License No.:	DPR-67, NPF-16
Report No.:	05000335/2017010, 05000389/2017010
Licensee:	Florida Power & Light Company (FP&L)
Facility:	St. Lucie Plant, Units 1 and 2
Location:	6501 South Ocean Drive Jenson Beach, FL 34957
Dates:	July 17 – 20, 2017
Inspectors:	S. Freeman, Senior Reactor Analyst, RII (Team Leader) J. Hickey, Senior Technical Advisor, Reactor Systems, NRR R. Taylor, Senior Project Inspector, RII W. Deschaine, Resident Inspector, Sequoyah
Approved by:	Reinaldo Rodriguez, Acting Chief Reactor Projects Branch 7 Division of Reactor Projects

Enclosure

SUMMARY

IR 05000335/2017010, 05000389/2017010; 07/17/2017 – 07/20/2017; St. Lucie Plant, Units 1 and 2; Temporary Instruction 2515/191, Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans.

The inspection covered a one-week inspection by one senior reactor analysts, one senior technical advisor, one senior project inspector, and one resident inspector. No NRC-identified or self-revealing findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

No findings were identified.

REPORT DETAILS

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

4OA5 Other Activities (TI 2515/191)

The objectives of Temporary Instruction (TI) 2015/191, "Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans," were to verify that the licensee has adequately implemented the mitigation strategies as described in the licensee's Final Integrated Plan, which was described in letters dated December 10, 2015, (ADAMS Accession No. ML 15351A009) and March 21, 2016, (ADAMS Accession No. ML 16096A338) and the NRC's plant safety evaluation (ADAMS Accession No. ML 16167A473), to verify that the licensee installed reliable water-level measurement instrumentation in the spent fuel pools. The purpose of this TI is also to verify the licensee has implemented Emergency Preparedness (EP) enhancements as described in the site-specific submittals and the NRC's safety assessments, including multi-unit dose assessment capability and enhancements to ensure that staffing was sufficient and communications can be maintained during such an event.

The inspection verified that plans for complying with NRC Orders EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (ADAMS Accession No. ML12054A736) and EA-12-051, Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation (ADAMS Accession No. ML12054A679) were in place and were being implemented by the licensee. Additionally, the inspection verified implementation of staffing and communications information provided in response to the March 12, 2012, request for information letter and multiunit dose assessment information provided per COMSECY-13-0010, Schedule and Plans for Tier 2 Order on Emergency Preparedness for Japan Lessons Learned, dated March 27, 2013, (ADAMS Accession No. ML12339A262).

The team discussed the plans and strategies with plant staff, reviewed documentation and, where appropriate, performed plant walk downs to verify that the strategies could be implemented as stated in the licensee's submittals and the NRC staff prepared safety evaluation. For most strategies, this included verification that the strategy was feasible, procedures and/or guidance had been developed, training had been provided to plant staff, and required equipment had been identified and staged. Specific details of the team's inspection activities are described in the following sections.

1. Mitigation Strategies for Beyond-Design Basis External Events

a. Inspection Scope

The team examined the licensee's established guidelines and implementing procedures for the beyond-design basis mitigation strategies. The team assessed how the licensee coordinated and documented the interface/transition between existing off-normal and emergency operating procedures with the newly developed mitigation strategies. The team selected a number of mitigation strategies and conducted plant

walk downs with licensed operators and responsible plant staff to assess: 1) the adequacy and completeness of the procedures; 2) familiarity of operators with the procedure objectives and specific guidance; 3) staging and compatibility of equipment; and 4) the practicality of the operator actions prescribed by the procedures, consistent with the postulated scenarios. The team verified that a preventive maintenance program had been established for the Diverse and Flexible Coping Strategies (FLEX) portable equipment and that periodic equipment inventories were in place and being conducted. Additionally, the team examined the introductory and planned periodic/refresher training provided to the Operations and Security staff most likely to be tasked with implementation of the FLEX mitigation strategies. The team also reviewed the introductory and planned periodic training provided to the Emergency Response Organization personnel. Documents reviewed are listed in the attachment.

b. Assessment

Based on samples selected for review, the inspectors verified that the licensee satisfactorily implemented appropriate elements of the FLEX strategy as described in the plant specific submittals and the associated safety evaluation and determined that the licensee was generally in compliance with NRC Order EA-12-049. The inspectors verified that the licensee satisfactorily:

- Developed and issued FLEX Support Guidelines (FSG) to implement the FLEX strategies for postulated external events.
- Integrated the FSGs into existing plant procedures such that entry into and departure from the FSGs were clear when using existing plant procedures.
- Protected FLEX equipment from site-specific hazards.
- Developed and implemented adequate testing and maintenance of FLEX equipment to ensure its availability and capability.
- Trained the staff to assure personnel proficiency in the mitigation of beyond-design-basis events.
- Developed means to ensure that the necessary off-site FLEX equipment would be available from off-site locations.

The inspectors verified that noncompliances with the current licensing requirements, and other issues identified during the inspection, were entered into the licensee's corrective action program.

c. Findings

No findings identified.

2. Spent Fuel Pool Instrumentation

a. Inspection Scope

The team examined the licensee's newly installed spent fuel pool instrumentation. Specifically, the inspectors verified the sensors were installed as described in the plant-specific submittals and the associated safety evaluation and that the cabling for the power supplies and the indications for each channel were physically and electrically separated. Additionally, environmental conditions and accessibility of the instruments were evaluated. Documents reviewed are listed in the attachment.

b. Assessment

Based on samples selected for review, the inspectors determined that the licensee satisfactorily installed and established control of the spent fuel pool (SFP) instrumentation as described in the plant specific submittals and the associated safety evaluation and determined that the licensee is generally in compliance with NRC Order EA-12-051. The inspectors verified that the licensee satisfactorily:

- Installed the SFP instrumentation sensors, cabling and power supplies to provide physical and electrical separation as described in the plant specific submittals and safety evaluation.
- Installed the SFP instrumentation display in the location, environmental conditions and accessibility as described in the plant specific submittals.
- Trained their staff to assure personnel proficiency with the maintenance, testing, and use of the SFP instrumentation.
- Developed and issued procedures for maintenance, testing, and use of the reliable SFP instrumentation.

The inspectors verified that noncompliances with the current licensing requirements, and other issues identified during the inspection, were entered into the licensee's corrective action program.

c. Findings

No findings were identified.

3. Staffing and Communication Request for Information

a. Inspection Scope

Through discussions with plant staff, review of documentation and plant walkdowns, the team verified that the licensee had implemented required changes to staffing, communications equipment, and facilities to support a multi-unit extended loss of offsite power scenario as described in the licensee's staffing assessment and the NRC safety assessment. The team also verified that the licensee had implemented dose assessment (including releases from spent fuel pools) capability using the licensee's site-specific dose assessment software and approach as described in the licensee's multi-unit dose assessment submittal. Documents reviewed are listed in the attachment.

b. Assessment

The inspectors reviewed information provided in the licensee's multi-unit dose submittal and in response to the NRC'S March 12, 2012, request for information letter and verified that the licensee satisfactorily implemented enhancements pertaining to Near-Term Task Force Recommendation 9.3 response to a large scale natural emergency event that resulted in an extended loss of all alternating current power (ELAP) to the site and impedes access to the site. The inspectors verified the following:

- Licensee satisfactorily implemented required staffing change(s) to support an ELAP scenario.
- EP communications equipment and facilities were sufficient for dealing with an ELAP scenario.

- Implemented dose assessment capabilities (including releases from spent fuel pools) using the licensee's site-specific dose assessment software and approach.

The inspectors verified that noncompliances with the current licensing requirements, and other issues identified during the inspection, were entered into the licensee's corrective action program.

c. Findings

No findings identified.

4OA6 Exit

Exit Meeting Summary

On July 20, 2017, the inspectors presented the inspection results to Mr. D. DeBoer and other members of the site staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:
D. DeBoer, Site Director
B. Parks, Operations Site Director
M. Jones, Engineering Site Director
M. Wolaver, Engineering Site Manager – Projects
J. Francis, Radiation Protection Manager
B. Francis, On-Line Manager
G. Bowen, Emergency Planning Manager
T. Rohe, Lead Project Manager – Fukushima Response
M. Snyder, Site Licensing Manager
P. Atkinson, FLEX Program Owner
D. Cecchet, Licensing Engineer
B. Forrest, Operations
K. Frehafer, Licensing Engineer
P. Hileman, Business Operations
A. Terezakis, Operations Supervisor
D. West, Contractor

NRC personnel:
T. Morrissey, Senior Resident Inspector

LIST OF REPORT ITEMS

Opened and Closed

None

Discussed

None

Complete

TI-2515/191, Appendix A, Mitigating Strategies for Beyond Design Basis Events
TI-2515/191, Appendix B, Spent Fuel Pool Instrumentation
TI-2515/191, Appendix C, Staffing and Communications Request for Information

LIST OF DOCUMENTS REVIEWED

Procedures

1-EOP-01, Standard Post Trip Actions SPTA, Revision 33
1-FSG-02, Alternate AFW Suction Source, Revision 2
1-FSG-03, Alternate Low Pressure Feedwater, Revision 2
1-FSG-04, ELAP DC Bus Load Shed and Management, Revision 3
1-FSG-05, Flex Implementation, Revision 3
1-FSG-06, Alternate CST Makeup, Revision 3
1-FSG-10, Safety Injection Tank Isolation, Revision
1-FSG-12, Containment Temperature and Pressure Control, Revision 2
2-EOP-10, Station Blackout SBO, Revision 26
2-AOP-99.02, Station Blackout While Shutdown, Revision 0
2-FSG-01, Long Term Inventory Control, Revision 0
2-FSG-02, Alternate AFW Suction Source, Revision 1
2-FSG-04, ELAP DC Bus Load Shed and Management, Revision 2
OP-1-0010125A, Surveillance Data Sheets, Revision 177
OP-2-0010125A, Surveillance Data Sheets, Revision 185
ADM-17.34, Diverse and Flexible Coping Strategies (Flex) Program, Revision 10
ADM-09.23, Outage Risk Assessment and Control, Revision 19
ADM-09-22 Equipment Out of Service Rev. 24
EPG-02, Emergency Response Facility and Equipment Surveillance, Revision 26
0-OSP-10.21, Portable Diesel Fire Pump Operability Test, Revision 25
0-OSP-83.03A, Periodic Testing of the Flex Spent Fuel Pump A, Revision 4
0-OSP-83.03B, Periodic Testing of the Flex Spent Fuel Pump B, Revision 4
0-OSP-83.05, FLEX Equipment Inventory, Revision 8
1-OSP-83.05, FLEX Equipment Inventory, Revision 4
2-OSP-83.05, FLEX Equipment Inventory, Revision 4

Drawings and Calculations

8770-G-080, Flow Diagram, Feedwater & Condensate Systems, Revision 45
2998-G-080, Flow Diagram, Feedwater & Condensate Systems, Revision 39
FPL064-CALC-001, St. Lucie Nuclear Plant Steam Generator Injection FLEX Pump Sizing Calculation, Revision 2

Condition Reports Reviewed

02074901	02057915	02067858	02132516

Condition Reports Generated as part of the Inspection

02216054, St Lucie Emergency Response Directory Phone Numbers
02216020, FLEX Debris Removal
02215791, Marking Equipment Laydown Area vs. Signage
02215797, A1A Bridge Assessment for Secondary Travel Path
02215732, Outage Qualification of FLEX Vehicle Operation
02215862, Local Steam Dump Operation Noise Levels
02215902 - 2017 NRC Flex Inspection DC Load Shedding
02215903, Fuel Transfer Pump Battery Capacity While in Use
02215898, FME Caps Missing from N2 Supply Hoses at Unit-1 Atmospheric Steam Dump Valves
02216017, FLEX Diesel Fuel Oil Transfer Pump Capacity Disrepancy

Letters

Martin County, FL Sheriff to E.S. Katzman, dated September 25, 2014
St. Lucie County, FL Sheriff to Gail Bowen, dated November 3, 2016
US Coast Guard to FP&L Emergency Preparedness Managers, dated November 10, 2016
L-2012-069, Florida Power & Light to NRC, Response to Follow-up Technical Issues on NRC Request for Information Regarding Near-Term Task Force Recommendation 9.3, Emergency Preparedness, dated February 21, 2013
L-2012-377, Florida Power & Light to NRC, Response to NRC Request for Information Regarding Near-Term Task Force Recommendation 9.3, Emergency Preparedness, dated October 21, 2012
L-2013-147, Florida Power & Light to NRC, Phase 1 Staffing Assessment, dated April 30, 2013
L-2013-196, Florida Power & Light to NRC, Multi-Dose Assessment Capability, dated June 27, 2013
L-2013-302, Florida Power & Light to NRC, Multi-Dose Assessment Capability, dated October 16, 2013
L-2014-345, Florida Power & Light to NRC, Phase 2 Staffing Assessment, dated November 20, 2014
L-2014-089, Florida Power & Light to NRC, Seismic Hazard and Screening Report, dated March 31, 201

Other

Safety Evaluation Report - Surry Power Station Units 1 and 2 – Safety Evaluation Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Pool Instrumentation Related to Orders EA-12-049 and EA-12-051 CAC nos. MF1002, MF1003, MF1004, and MF1005 dated August 4, 2016ETE-CPR-2012-0011, Beyond Design Basis – FLEX Strategy Basis Document and Final Integrated Plan, Revision 7
PSL-ENG-SEMS-13-004, St. Lucie Plant Response to NRC Order EA-12-049 Mitigation Strategies for Beyond-Design-Basis External Events, Revision 7
PSL-ENG-SEMS-14-005, St. Lucie Plant FLEX Final Integrated Plan, Revision 3
VTM 8770-18376, PSL Fukushima FLEX Equipment Storage Building Design/Construction/Maintenance Manual, dated March 10, 2015
FPLSL138, Report of Liquefaction Potential Assessment, dated March 19, 2014
Evaluation of FLEX Equipment Deployment Locations and Haul Routes for Soil Liquefaction at the St. Lucie Nuclear Power Plant Units 1 and 2, dated March 4, 2015
U1 Flex Validation Plan - A-1-11a Prepare 480 VAC Buses for FLEX 480V DG (1A2)
U1 Flex Validation Plan - A-1-11b Prepare 480 VAC Buses for FLEX 480V DG (1B2)
U1 Flex Validation Plan - A-1-12a Deploy 480 VAC FLEX DGs (1A2 LC)
U1 Flex Validation Plan - A-1-12b Deploy 480 VAC FLEX DGs (1B2 LC)
U1 Flex Validation Plan - A-1-15 Power Batt Chrg, Fan, CR Ltg from FLEX _ 1A2 LC loads
U1 Flex Validation Plan - A-1-15 Power Batt Chrg, Fan, CR Ltg from FLEX _ 1B2 LC loads
U1 Flex Validation Plan - A-1-33 Power LPSI Pump - Establish flow from RCS through SDC HX
U1 Flex Validation Plan - A-1-6a Perform Extended DC Load Shedding (A Bus)
U1 Flex Validation Plan - A-1-6b Perform Extended DC Load Shedding (B Bus)
U2 Flex Validation Plan - A-1-10a Power Batt Chrg, Fan, CR Ltg from FLEX _ 2A2 LC loads
U2 Flex Validation Plan - A-1-10b Power Battery Chargers, Fan, CR Lighting from FLEX _ 2B2 LC loads
U2 Flex Validation Plan - A-1-21 Power LPSI Pump - Establish flow from RCS through SDC HX
U2 Flex Validation Plan - A-1-3a Perform Extended DC Load Shedding U2 (A Bus)_2
U2 Flex Validation Plan - A-1-3b Perform Extended DC Load Shedding U2 (B Bus)
U2 Flex Validation Plan - A-1-7 Prepare 480 VAC Buses for FLEX 480V DG U2
U2 Flex Validation Plan - A-1-8a Deploy 480 VAC FLEX DGs (2A2 LC)
U2 Flex Validation Plan - A-1-8b Deploy 480 VAC FLEX DGs (2B2 LC)