May 14, 2015

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U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

St. Lucie Unit 1
Docket Nos. 50-335

Florida Power & Light/St. Lucie Unit 1 Status of Required Actions for EA-12-049 Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

References:

1. NRC Order Number EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events dated March 12, 2012, Accession No. ML12054A736.
2. NRC Interim Staff Guidance JLD-ISG-2012-01, "Compliance with Order EA 12 049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0, dated August 29, 2012, Accession No. ML12229A174.
3. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August, 2012, Accession No. ML12242A378.
4. FPL Letter L-2012-385 dated October 25, 2012, FPL's Initial Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated October 25, 2012, Accession No. ML12300A421.
5. FPL Letter L-2013-084 dated February 28, 2013, Florida Power & Light (FPL)/St. Lucie's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049) , Accession No. ML13063A020.
6. FPL Letter L-2013-192 dated June 18, 2013, Florida Power & Light (FPL)/St. Lucie's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), Accession No. ML13179A184.
7. FPL Letter L-2013-254 dated August 28, 2013, Florida Power & Light (FPL)/St. Lucie's First Overall Integrated Plan Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), Accession No. ML13242A274.
8. FPL Letter L-2014-063 dated February 26, 2014, Florida Power & Light (FPL)/St. Lucie's Second Overall Integrated Plan Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation

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Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), Accession No. ML14064A192.
9. FPL Letter L-2014-274 dated August 27, 2014, Florida Power & Light (FPL)/St. Lucie's Third Overall Integrated Plan Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), Accession No. ML14253A184.
10. FPL Letter L-2015-049 dated February 23, 2015, Florida Power & Light (FPL)/St. Lucie's Fourth Overall Integrated Plan Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), Accession No. ML15071A265.
11. NRC Letter dated February 27, 2015, St. Lucie Plant, Units 1 and 2, Report for the Onsite Audit Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Instrumentation Related to Orders EA-12-049 and EA-12-051 (TAC Nos. MF0984, MF0985, MF0990, and MF0991), Accession No. ML15035A670.
12. NRC Letter dated March 12, 2012, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident, Accession No. ML12053A340.
13. FPL letter L-2014-345 dated November 20, 2014, FPL/St. Lucie Plant Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident, Emergency Preparedness – Phase 2 Staffing Assessment.
14. NRC Letter to Nuclear Energy Institute dated September 26, 2014, Staff Assessment of National SAFER Response Centers Established in Response to Order EA-12-049, Accession No. ML14265A107.

On March 12, 2012, the Nuclear Regulatory Commission ("NRC" or "Commission") issued an order (Reference 1) to Florida Power & Light (FPL). Reference 1 was immediately effective and directs FPL/St. Lucie to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of an Overall Integrated Plan by February 28, 2013. The NRC Interim Staff Guidance (ISG) (Reference 2) was issued August 29, 2012 which endorses industry guidance document NEI 12-06, Revision 0 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 3 provides direction regarding the content of this Overall Integrated Plan.

Reference 4 provided the FPL/St. Lucie initial status report regarding mitigation strategies, as required by Reference 1. Reference 5 provided the FPL/St. Lucie Overall Integrated Plan pursuant to Section IV, Condition C.1, of Reference 1. Reference 6 informed the NRC that St. Lucie was no longer pursuing reactor coolant pump (RCP) seal package modifications as part of the FLEX strategy. References 7, 8, 9 and 10 provided the FPL/St. Lucie first, second, third and fourth six-month Overall Integrated Plan status report. Condition C.3 of the Order required all

Licensees to report to the Commission when full compliance with the requirements of the order is achieved.

This letter provides notification that FPL has completed the requirements of EA-12-049 and is in full compliance with the Order for St. Lucie Unit 1. The attachments to this letter provide: 1) a summary of how the compliance requirements were met and 2) the completion status for all the FLEX Open Audit items in Reference 11.

This letter contains no new regulatory commitments.

If there are any questions regarding this submittal, please contact Eric Katzman, St. Lucie Licensing Manager, at (772) 467-7748.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 14, 2015.

Respectfully submitted,

Christopher R. Costanzo

Christopher R. Costanzo
Site Vice President
St. Lucie Plant

CRC/KWF

cc: USNRC Regional Administrator, Region II
USNRC Senior Resident Inspector, St. Lucie Units 1 and 2

Attachments
1. St. Lucie Plant, Unit 1 Order EA-12-049 Compliance Requirements Summary
2. St. Lucie Unit 1 FLEX Audit Open Item Closure Summary

# Attachment 1

## St. Lucie Plant, Unit 1 Order EA-12-049 Compliance Requirements Summary

### STRATEGIES - COMPLETE

St. Lucie Unit 1 strategies are in compliance with Order EA-12-049. There are no strategy related Open Items, Confirmatory Items, or Audit Questions/Audit Report Open Items requiring action by FPL. Attachment 2 of this correspondence provides the closure methods for all of the St. Lucie Unit 1 Audit open items discussed in the NRC Letter dated February 27, 2015, St. Lucie Plant, Units 1 and 2, Report for the Onsite Audit Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Instrumentation Related to Orders EA-12-049 and EA-12-051 (TAC Nos. MF0984, MF0985, MF0990, and MF0991), Accession No. ML15035A670.

### MODIFICATIONS - COMPLETE

The modifications required to support the FLEX strategies for St. Lucie Unit 1 have been fully implemented in accordance with the station design control process.

### EQUIPMENT – PROCURED AND MAINTENANCE & TESTING - COMPLETE

The equipment required to implement the FLEX strategies for St. Lucie Unit 1 has been procured and designed in accordance with NEI 12-06, Section 11.1 and 11.2, received at St. Lucie, initially tested/performance verified as identified in NEI 12-06, Section 11.5, and is available for use.

Subsequent maintenance and surveillance testing will be conducted through the use of the St. Lucie Preventative Maintenance program such that equipment reliability is maintained.

### PROTECTED STORAGE - COMPLETE

The storage facility required to implement the FLEX strategies for St. Lucie Unit 1 has been completed and provides protection from the applicable site hazards. All the N and N+1 equipment required to implement the FLEX strategies for St. Lucie Unit 1 are stored in this building.

### PROCEDURES - COMPLETE

FLEX Support Guidelines (FSGs), for St. Lucie Unit 1 have been developed, and integrated with existing procedures. The FSGs and affected existing procedures have been implemented in accordance with the site procedure control program.

**TRAINING - COMPLETE**

Training for St. Lucie Unit 1 has been completed. Training was developed and implemented in accordance with the systematic approach to training as recommended in NEI 12-06, Section 11.6.

**STAFFING - COMPLETE**

The staffing study for St. Lucie has been completed in accordance with 10 CFR5 0.54(f), "Request for Information Pursuant to Title 10 of the Code of Federal Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," Recommendation 9.3, dated March 12, 2012, as documented in FPL letter L-2014-345 dated November 20, 2014, "FPL/St. Lucie Plant Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident, Emergency Preparedness – Phase 2 Staffing Assessment." As stated below, the staffing study was validated and no changes to the submitted study are necessary.

**NATIONAL SAFER RESPONSE CENTERS - COMPLETE**

St. Lucie has established a contract with Pooled Equipment Inventory Company (PEICo) and has joined the Strategic Alliance for FLEX Emergency Response (SAFER) Team Equipment Committee for off-site facility coordination. It has been confirmed that PEICo is ready to support St. Lucie with Phase 3 equipment stored in the National SAFER Response Centers in accordance with the site specific SAFER Response Plan.

**VALIDATION - COMPLETE**

St. Lucie has completed performance of validation in accordance with industry developed guidance to assure required tasks, manual actions, and decisions for FLEX strategies are feasible and may be executed within the constraints identified in the Overall Integrated Plan (OIP) / Final Integrated Plan (FIP) for Order EA-12-049.

**FLEX PROGRAM DOCUMENT - ESTABLISHED**

The NextEra Fleet and St. Lucie Unit 1 FLEX Program Documents have been developed in accordance with the requirements of NEI 12-06.

## Attachment 2

## St. Lucie Unit 1 FLEX Audit Open Item Closure Summary

| Audit Item Reference | Subject | NRC Request | Required Action | FPL Response |
|---|---|---|---|---|
| ISE CI 3.2.4.2.A | Electrical Equipment Room Heat-up Analyses | The licensee indicated that the electrical equipment room and control room heat-up analyses are being revised. The staff requests that the licensee provide the revised analyses on the ePortal for review. | Complete FPL064-CALC-007, Rev 2, Electrical Equipment Room Heatup and upload to NRC ePortal. | Calculation FPL064-CALC-007, Revision 2, uploaded to ePortal for NRC review. Revision 2 incorporates the new FLEX strategy to start existing electrical equipment room (EER) fans at 8 hours following the Extended Loss of AC Power (ELAP). The calculation concludes all EER temperatures remain below 120°F for the duration of the ELAP event. |
| ISE CI 3.2.4.6.A | Control Room Heat-up Analyses | The licensee indicated that the electrical equipment room and control room heat-up analyses are being revised. The staff requests that the licensee provide the revised analyses on the ePortal for review. | Upload FPL064-CALC-008, Rev 2, Control Room Heatup During Station Blackout, to NRC ePortal. | Calculation FPL064-CALC-008, Revision 2, uploaded to ePortal for NRC review. Case 2 requires 13,500 cfm of portable ventilation to be provided at 90 minutes following the Extended Loss of AC Power (ELAP). The main control room temperature decreases, resulting in a peak temperature of 110.9°F. |
| ISE CI 3.2.4.10.A | Battery Load Shed | The revised battery load shed strategy is to initially secure one battery, load shed and operate on the other battery, and return the secured battery to service before the first battery is depleted, thereby extending the available coping time. The staff requests that the licensee provide a revised procedure that shows when they plan to swap batteries and/or how they will determine when to swap batteries (i.e., periodically monitor voltage). | Upload 1-FSG-99 – Appendix B, ELAP Extended Load Shedding, R 0 to NRC ePortal | Procedure 1-FSG-99 – Appendix B, ELAP Extended Load Shedding, uploaded to ePortal for NRC review |

| Audit Item Reference | Subject | NRC Request | Required Action | FPL Response |
|---|---|---|---|---|
| AQ 14 | SFP Ventilation | The staff requests that the license provide an evaluation justifying the required time frame to vent steam and condensate coming off the SFP or identify an alternate venting approach. | Provide response. | The FLEX Strategies for St. Lucie Unit 1 Spent Fuel Pool (SFP) cooling include opening doors and deploying hoses in Phase 1 prior to habitability in the Fuel Handling Building (FHB) being degraded. The L-Shaped door opening time without power was estimated to be excessive compared to the available time, so the opening of the personnel doors at the operating (62 ft.) and ground (19.5 ft.) elevations was selected to allow for air flow and steam venting. The two doors at the 62 ft. elevation have 3 ft. x 7 ft. openings. One is northwest of the SFP surface elevation that is also 62 ft. The other door is south of the SFP on the new fuel storage area south wall that is open to the SFP via a normally open sliding doorway that has a 5.3 ft. x 30 ft. opening. The double door at the 19.5 ft. elevation has an 18 ft. x 15 ft. opening. Steam will be vented out of the FHB via these openings if boiling occurs in the Spent Fuel Pool. The timing for the opening of the three personnel doors is provided in the timeline as occurring between 1 and 2 hours following an ELAP. The increase in Spent Fuel Pool temperature is less than 8°F during this time frame (≥30 days after shutdown). |

| Audit Item Reference | Subject | NRC Request | Required Action | FPL Response |
|---|---|---|---|---|
| AQ 42 | SG FLEX Pump Time Validation | The licensee described the portable diesel driven pump (SG FLEX pump) being deployed for injection into the SGs in the event that the TDAFW pump fails. The licensee indicted that the time and resources to make connections of the SG FLEX pump will be validated. The staff requests that the licensee provide the time and resource validation on the ePortal once it's completed. | Upload V&V of SG FLEX Pump to ePortal. | SG FLEX Pump Verification and Validation report uploaded to ePortal for NRC review which provides the time and resource validation. |
| Licensee Identified Open Item 25 | WCAP-17601-P Deviations | The licensee identified an action to include in its six-month updates the technical basis for any WCAP-17601-P deviations. The staff indicated that this item is being left as an open item, since the staff's review is ongoing and the licensee's strategy may change. | Confirm adherence without gaps. | Attachment 1B in the first St. Lucie Unit 1 FLEX six month update along with the 3 subsequent updates, confirm there were no gaps between the St. Lucie Unit 1 FLEX strategy and WCAP-17601-P. Based on current evaluations and analyses, it is confirmed there are no gaps between the St. Lucie Unit 1 FLEX strategy and WCAP-17601-P. |

| Audit Item Reference | Subject | NRC Request | Required Action | FPL Response |
|---|---|---|---|---|
| SE Review Item 1 | RCS Venting | The NRC staff requests that the licensee provide updated cooldown procedures to (a) avoid injection of nitrogen into the RCS and (b) avoid repressurization of the RCS through the use of charging pumps. The NRC staff also requests that the licensee provide updated SDM calculations that align with the updated operating procedures, to provide assurance that sufficient SDM will remain available in the cooldown to Mode 5. | Upload FPL064-CALC-009, Rev. 2, St. Lucie Unit 1 Reactivity<br>Upload 1-FSG-01, Long Term Inventory Control<br>Upload 1-FSG-05, FLEX Implementation<br>Upload 1-FSG-08, Alternate RCS Boration<br>Upload 1-FSG-99, Appendix X, Initial ELAP RCS Cooldown | Uploaded Calculation FPL064-CALC-009, Rev. 2, St. Lucie Unit 1 Reactivity which determines the RCS pressure that prevents nitrogen injection into the RCS and also calculates SDM boration requirements. Also uploaded applicable sections of FLEX implementing guidelines 1-FSG-01, 1-FSG-05, 1-FSG-08 and 1-FSG-99, Appendix X to ePortal for NRC review. These FLEX guidelines include the RCS pressure limits to observe during cooldown to prevent nitrogen injection into the RCS, steps to avoid RCS repressurization during the use of a charging pump, and provide minimum boration requirements needed to maintain a 1% SDM. |
| SE Review Item 8 | FLEX Equipment Storage Buildings | The NRC staff considers the St. Lucie FLEX storage configuration not being consistent with guidance contained in NEI 12-06. The staff requests that the licensee propose the configuration as an alternative to the guidance of NEI 12-06, accompanied with appropriate justification. | Store all N and N+1 FLEX equipment in the FLEX Equipment Storage Building. | Prior to entry into Mode 2, FPL confirms that all N and N+1 equipment for St. Lucie Unit 1 is located in a hardened structure per requirements of NEI-12-06, Rev. 0. |

| Audit Item Reference | Subject | NRC Request | Required Action | FPL Response |
|---|---|---|---|---|
| ISE CI 3.2.1.8.B | RCS Inventory | The licensee indicated that makeup needed for boration prior to Mode 5 cooldown and depressurization will be provided by repowering one of two positive displacement charging pumps, which can draw from either the boric acid makeup tank or the RWT, and can inject into either the normal charging path or the high pressure safety injection (HPSI) header. The discharge header of the HPSI pumps serves as a common point in these flow paths, though one side can be isolated from the other. At this time, the staff has no additional questions and is currently reviewing the information provided. | None Required | N/A |
| AQ 43 | Containment Analysis | The staff is currently reviewing the licensee's containment analysis FPL-CALC-003,"MAAP Containment Analysis." | None Required | N/A |