AUG 17 2018

L-2018-153
10 CFR 50.90

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington D C 20555-0001

RE: St. Lucie Unit 2
Docket No. 50-389
Renewed Facility Operating Licenses NPF-16
Supplemental Information for License Amendment Request to Reduce the Number of Control Element Assemblies

References:

1. FPL Letter L-2018-121, License Amendment Request to Reduce the Number of Control Element Assemblies, June 29, 2018 (Accession No. ML18180A094)

2. NRC letter to M. Nazar, St. Lucie Plant, Unit No. 2 - Supplemental Information Needed for Acceptance of Requested Licensing Action RE: License Amendment Request to Reduce the Number of Control Element Assemblies (EPID L-2018-LLA-0181), August 1, 2018 (Accession No. ML18197A411)

In Reference 1, Florida Power & Light Company (FPL) requested an amendment to Renewed Facility Operating License NPF-16 for St. Lucie Unit 2. The proposed license amendment modifies the St. Lucie Unit 2 Technical Specifications (TS) by reducing the total number of control element assemblies (CEAs) specified in the TS, from 91 to 87, to support permanent removal of four 4-element (mini-dual) CEAs from the reactor core. The proposed license amendment relatedly deletes a reference to the 4-element CEAs in an existing TS definition.

In Reference 2, the NRC staff requested supplemental information deemed necessary to complete its acceptance review of the requested license amendment.

The enclosure to this letter provides FPL's response to the supplemental information request. The supplemental information does not alter the conclusion in Reference 1 that the change does not involve a significant hazards consideration pursuant to 10 CFR 50.92, and that there are no significant environmental impacts associated with this change.

This letter contains no new or revised regulatory commitments.

If you have any questions or require additional information, please contact Mr. Michael Snyder, St. Lucie Licensing Manager, at (772) 467-7036.

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

Executed on AUG 17 2018

Sincerely,

Daniel DeBoer
Site Director - St. Lucie Nuclear Plant, Units 1 and 2
Florida Power & Light Company
Enclosure

cc: USNRC Regional Administrator, Region II
USNRC Project Manager, St. Lucie Nuclear Plant, Units 1 and 2
USNRC Senior Resident Inspector, St. Lucie Nuclear Plant, Units 1 and 2
Ms. Cindy Becker, Florida Department of Health

ENCLOSURE

Response to Supplemental Information Request Regarding
St. Lucie Nuclear Plant, Unit 2
License Amendment Request to Reduce the Number of Control Element Assemblies

NRC Supplemental Information Request 1:

Provide details of the St. Lucie Unit 2 specific core design and safety analysis or evaluation, including the evaluation of the Updated Final Safety Analysis (UFSAR) Chapter 15 events (ADAMS Accession Nos. ML 16194A073 and ML 16194A112). The Applicable Chapter 15 events may include, but are not limited to, the following:

- Section 15.1.5, "Pre-Trip Steam System Piping Failure"
- Section 15.1.6, "Post-Trip Steam System Piping Failures"
- Section 15.4.1, "Uncontrolled Control Element Assembly Bank Withdrawal from a Subcritical or Low Power Startup Condition"
- Section 15.4.2, "Uncontrolled Control Element Assembly Bank Withdrawal At Power"
- Section 15.4.3, "Control Element Assembly (CEA) Misoperation"
- Section 15.4.8, "Spectrum of Control Element Assembly Ejection Accidents"

The licensee's amendment request briefly describes an evaluation against the UFSAR; however, it lacks details about which of and how the Chapter 15 events have been evaluated for the reduction in the number of CEAs. The licensee's request provides no detailed information for the NRC staff to determine if the evaluation is complete and the method, as applied, is approved. The regulatory basis for the information includes Appendix A to Title 10 of the *Code of Federal Regulations* Part 50 "General Design Criteria for Nuclear Power Plants," General Design Criteria (GDC) 10, "Reactor design," GDC-25 "Protection system requirements for reactivity control malfunctions," and GDC-28, "Reactivity limits."

FPL Response:

The four 4-element (mini-dual) control element assemblies (CEAs) are a part of Shutdown Bank A, which remains in a fully withdrawn position during power operation. FPL plans to remove the mini-dual CEAs from the Unit 2 reactor core during the spring 2020 outage. Hence beginning with Cycle 25 in spring 2020, the core designs for the reload cycles will be generated without the presence of the four mini-dual CEAs. However, there will be no change to the configuration of the remaining 87 CEAs.

The number of CEAs is not an input to any of the UFSAR Chapter 15 events. The event analyses depend on neutronic parameter limits which remain unchanged and will continue to be verified each cycle to remain bounding for the cycle specific core designs. Since these neutronic parameter limits are not changing and the number of CEAs is not an input to any of the event analyses, the current UFSAR Chapter 15 event analyses, including the analyses of the events stated in this request, will remain unchanged. The current UFSAR Chapter 15 safety analyses are thereby applicable to the current 91 CEA configuration as well as the subsequent 87 CEA configuration once the mini-dual CEAs are removed. Consequently, no UFSAR Chapter 15 events require reanalysis.

The current core design process to support each reload ensures that all relevant neutronic inputs to the analyses supporting the UFSAR described events remain bounding for the cycle specific core design, so that all the UFSAR event analyses remain unaffected and valid

for the design cycle. The parameters verified every cycle include the trip reactivity and other parameters related to the CEAs such as the reactivity insertion rates used in the CEA withdrawal events, ejected rod parameters applicable to the rod ejection event, dropped/misaligned CEA worth applicable to the CEA misoperation event, and total rod worth/shutdown margin applicable to the steam line break events. This verification of neutronic parameters, performed every cycle, confirms the validity of the UFSAR event analyses independent of the number of CEAs. No change to any Technical Specification (TS) safety limit or Core Operating Limits Report (COLR) limits are required to support removal of the four mini-dual CEAs.

NRC Supplemental Information Request 2:

Provide details of the St. Lucie Unit 2-specific evaluation of reactor protection, control, and monitoring. The licensee's request provides no information for the NRC staff to evaluate. The regulatory basis for the information includes GDC-10, GDC-13, "Instrumentation and control," GDC-25, and GDC-28.

FPL Response:

The St. Lucie Unit 2 CEAs have no input to the analog Core Protection Calculator or the Reactor Protection System (RPS). Hence, removal of the mini-dual CEAs will not affect the RPS function. On a reactor trip signal from the RPS, the trip breaker opens and the Control Element Drive Mechanisms (CEDMs) de-energize, releasing the CEAs into the core. Upon removal of the mini-dual CEAs, the corresponding CEDMs will be abandoned in place and the coil power cable will be left disconnected. This change will have no effect on the RPS or operation of the remaining 87 CEAs.