Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

December 20, 2011

L-2011-556
10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Re: St. Lucie Plant Unit 2
Docket No. 50-389
Renewed Facility Operating License No. NPF-16

Response to NRC Vessels & Internals Integrity Branch Request for Additional Information Regarding Extended Power Uprate License Amendment Request

References:

(1) R. L. Anderson (FPL) to U.S. Nuclear Regulatory Commission (L-2011-021), "License Amendment Request for Extended Power Uprate," February 25, 2011, Accession No. ML110730116.

(2) Email from T. Orf (NRC) to C. Wasik (FPL), "St. Lucie 2 EPU draft RAI – Reactor Vessel & Internals Branch (CVIB)," December 6, 2011.

(3) U.S. Nuclear Regulatory Commission (R.A. Nelson) letter to Electric Power Research Institute (N. Wilmshurst), "Final Safety Evaluation of EPRI Report, Materials Reliability Program Report 1016596 (MRP-227), Revision 0, 'Pressurized Water Reactor (PWR) Internals Inspection and Evaluation Guidelines' (TAC No. ME0680)," June 22, 2011, Accession No. ML111600498.

(4) R. L. Anderson (FPL) to U.S. Nuclear Regulatory Commission (L-2011-255), St. Lucie Plant Unit 1, "Response to NRC Vessels & Internals Integrity Branch Request for Additional Information Regarding Extended Power Uprate License Amendment Request," July 8, 2011, Accession No. ML11194A016.

By letter L-2011-021 dated February 25, 2011 [Reference 1], Florida Power & Light Company (FPL) requested to amend Renewed Facility Operating License No. NPF-16 and revise the St. Lucie Unit 2 Technical Specifications (TS). The proposed amendment will increase the unit's licensed core thermal power level from 2700 megawatts thermal (MWt) to 3020 MWt and revise the Renewed Facility Operating License and TS to support operation at this increased core thermal power level. This represents an approximate increase of 11.85% and is therefore considered an extended power uprate (EPU).

By email from the NRC Project Manager dated December 6, 2011 [Reference 2], additional information related to the proposed EPU was requested by the NRC staff in the Vessels and Internals Integrity Branch (CVIB) to support their review of the EPU

ADD1
NRR

LAR. The request for additional information (RAI) identified two questions. The response to these RAIs is provided in the attachment to this letter.

This RAI response includes a revision to current commitments associated with the aging management of the RVI components during the period of extended operation. The Reactor Vessel Internals Inspection Program (currently listed in Section 18.1.3 of the St. Lucie Unit 2 Updated Final Safety Analysis Report) was based on industry knowledge available at the time the license for St. Lucie Unit 2 was renewed. Since that time, industry-led efforts have been in progress by the Electric Power Research Institute (EPRI) Materials Reliability Program (MRP) Reactor Internals Issues Task Group (RI-ITG) and later by the MRP Reactor Internals Focus Group (RI-FG). The EPRI MRP RI-FG developed MRP-227, "Pressurized Water Reactor (PWR) Internals Inspection and Evaluation Guidelines," (Revision 0). MRP-227, Revision 0 was approved by the NRC staff on June 22, 2011 (ML111600498) [Reference 3].

In Reference 3, the NRC requested that EPRI publish an accepted version of MRP-227 to include a "-A" (designating accepted). FPL commits to adopting MRP-227-A in place of the existing RVI Inspection program. This commitment applies to St. Lucie Unit 2 and is independent of the EPU LAR currently under staff review.

Note that a similar commitment to adopt MRP-227-A was made for St. Lucie Unit 1 in FPL letter L-2011-255 [Reference 4].

In accordance with 10 CFR 50.91(b)(1), a copy of this letter is being forwarded to the designated State of Florida official.

This submittal does not alter the significant hazards consideration or environmental assessment previously submitted by FPL letter L-2011-021 [Reference 1].

Should you have any questions regarding this submittal, please contact Mr. Christopher Wasik, St. Lucie Extended Power Uprate LAR Project Manager, at 772-467-7138.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Executed on 20 - December - 2011

Very truly yours,

Richard L. Anderson
Site Vice President
St. Lucie Plant

Attachment

cc: Mr. William Passetti, Florida Department of Health

Response to Request for Additional Information

The following information is provided by Florida Power & Light Company (FPL) in response to the U. S. Nuclear Regulatory Commission's (NRC) Request for Additional Information (RAI). This information was requested to support Extended Power Uprate (EPU) License Amendment Request (LAR) for St. Lucie Nuclear Plant Unit 2 that was submitted to the NRC by FPL via letter (L-2011-021) dated February 25, 2011, Accession Number ML110730116.

In an email dated December 6, 2011 from NRC (Tracy Orf) to FPL (Chris Wasik), Subject: "St. Lucie 2 EPU draft RAI – Reactor Vessel & Internals Branch (CVIB)," the NRC requested additional information regarding FPL's request to implement the EPU. The RAI consisted of two (2) questions from the NRC's Vessels and Internals Integrity Branch (CVIB). The RAI questions and the FPL responses are documented below.

CVIB-1

Although Florida Power & Light Company (FPL) committed to submit an RVI component inspection program for St. Lucie, Units 1 and 2 prior to the period of extended operation, FPL did not specifically commit to submit an RVI component inspection program conforming to the industry's standard program. The staff requests that the licensee discuss its plans to implement the industry's recommended inspection and evaluation guidelines for RVI components as documented in topical report MRP-227, Rev. 0 guidelines, as modified by the staff's final SE, for the implementation of all aging effects including stress relaxation for Saint Lucie, Unit 2.

Response:

Florida Power & Light Company (FPL) hereby revises its current commitments associated with the aging management of the St. Lucie Unit 2 reactor vessel internals (RVI) components during the period of extended operation to adopt MRP-227 in place of the existing Reactor Vessel Internals Inspection Program. This RAI response includes a revision to current commitments associated with the aging management of the RVI components during the period of extended operation. The Reactor Vessel Internals Inspection Program (currently listed in Section 18.1.3 of the St. Lucie Unit 2 Updated Final Safety Analysis Report) was based on industry knowledge available at the time the license for St. Lucie Unit 2 was renewed. Since that time, industry-led efforts have been in progress by the Electric Power Research Institute (EPRI) Materials Reliability Program (MRP) Reactor Internals Issues Task Group (RI-ITG) and later by the MRP Reactor Internals Focus Group (RI-FG). The EPRI MRP RI-FG developed MRP-227, "Pressurized Water Reactor (PWR) Internals Inspection and Evaluation Guidelines," (Revision 0). MRP-227, Revision 0 was approved by the NRC staff on June 22, 2011 (ML111600498) [Reference 1]. As indicated in the Reference 1 Safety Evaluation, MRP-227 includes inspection requirements for RVI components that are subject to stress relaxation.

In Reference 1, the NRC requested that EPRI publish an accepted version of MRP-227 to include a "-A" (designating accepted). FPL commits to adopting MRP-227-A in place of the existing RVI Inspection program. This commitment applies to St. Lucie Unit 2 and is independent of the EPU LAR currently under staff review.

Note that a similar commitment to adopt MRP-227-A was made for St. Lucie Unit 1 in accordance with FPL letter L-2011-255 [Reference 2]

CVIB-2

Please provide the peak reactor vessel fluence at 47 Effective Full Power Years.

Response:

The St. Lucie Unit 2 Extended Power Uprate (EPU) 47 Effective Full Power Year (EFPY) peak reactor vessel fluence at the inside diameter (ID) clad to base metal interface is 3.67E+19 n/cm^2 (E > 1 Mev).

References:

1. U.S. Nuclear Regulatory Commission (R.A. Nelson) letter to Electric Power Research Institute (N. Wilmshurst), "Final Safety Evaluation of EPRI Report, Materials Reliability Program Report 1016596 (MRP-227), Revision 0, 'Pressurized Water Reactor (PWR) Internals Inspection and Evaluation Guidelines' (TAC No. ME0680)," June 22, 2011, Accession No. ML111600498.

2. R. L. Anderson (FPL) to U.S. Nuclear Regulatory Commission (L-2011-255), St. Lucie Plant Unit 1, "Response to NRC Vessels & Internals Integrity Branch Request for Additional Information Regarding Extended Power Uprate License Amendment Request," July 8, 2011, Accession No. ML11194A016.