



September 8, 2011

L-2011-370
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 Request for Additional Information (RAI) 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 RAIs – Health Physics and Human Performance (IHPB)," August 18, 2011

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 dated August 18, 2011, the NRC Project Manager requested additional information for the NRC staff in the Health Physics and Human Performance Branch (IHPB) to support their review of the EPU LAR. The request for additional information (RAI) identified three questions. The response to these RAIs is provided in Attachment 1 to this letter.

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

A001
NRR

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

This submittal contains no new commitments and no revisions to existing commitments.

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 *08-September-2011*

Very truly yours,

A handwritten signature in black ink, appearing to read "Richard L. Anderson", with a stylized flourish at the end.

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 (FPL) in response to the U. S. Nuclear Regulatory Commission's (NRC) Request for Additional Information (RAI). This information was requested to support the Extended Power Uprate (EPU) License Amendment Request (LAR) for St. Lucie 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 August 18, 2011 from NRC (T. Orf) to FPL (C. Wasik), "St. Lucie 2 EPU draft RAIs – Health Physics and Human Performance (IHPB)," the NRC staff requested additional information regarding FPL's request to implement the EPU. The RAI consisted of three (3) questions from the NRC's Health Physics and Human Performance Branch (IHPB). These three RAI questions and the FPL responses are documented below.

IHPB-3:

In Attachment 1 of the licensee's original submittal, "Technical Justification," item 14.b, "TS 3/4.4.8, "Reactor Coolant System Specific Activity," states, "With the specific activity of the primary coolant >1.0 uCi/gram DOSE EQUIVALENT I-131, but 60 uCi/gram DOSE EQUIVALENT I-131...." Please clarify.

Response

LAR Attachment 1 Proposed Change item 14.b "TS 3/4.4.8, Reactor Coolant System – Specific Activity" contains a typographical error. There should be the symbol " \leq " in front of the 60 $\mu\text{Ci/gram}$. A similar typographical error is also found in Proposed Change item 14.a and related "Basis for the Change" description for Action b.

LAR Attachment 3 Technical Specifications Markups and Clean Pages for Technical Specification 3.4.8 Actions a and b contain the correct information with the missing symbol " \leq " inserted.

IHPB-4:

In Attachment 1 of the licensee's original submittal, "Technical Justification," item 14.b, "TS 3/4.4.8, "Reactor Coolant System Specific Activity," states "MODES IN WHICH SAMPLE AND ANALYSIS REQUIRED..." is "1#, 2#, 3#, and 4#." In the section titled, "Basis for Change," the licensee describes the Xe-133 dose equivalent analysis as follows: "The measurement is the sum of the degassed gamma activities and the gaseous gamma activities in the sample taken." Please provide additional information on how a Xe-133 gas sample might be collected in Mode 4 (when the reactor coolant system is essentially depressurized and the time in Mode 4 is typically very brief).

Response

In Mode 4 (defined by $k_{\text{eff}} < 0.99$ and reactor coolant system (RCS) temperature $325^{\circ}\text{F} > T_{\text{avg}} > 200^{\circ}\text{F}$) either one or more reactor coolant pumps are in operation or one or more low pressure safety injection (LPSI) pumps are in operation. Sampling points for degassed and gaseous samples are chosen based on what pumps are in operation. Early in Mode 4 (high temperature end of Mode 4) when the reactor coolant pump(s) are in operation, the sample point is the RCS

hot leg. At the end of Mode 4 operation (lower temperature end of Mode 4) when LPSI pumps are in operation, the sample point is the discharge of the LPSI pumps. The primary system sampling procedure governs these RCS sampling activities.

IHPB-5:

In Attachment 2 of the licensee's original submittal, "Supplemental Environmental Report," Section 8.1, "Solid Waste," "Table 8-1, Average Annual Low-Level Radioactive Waste shipped Offsite from St. Lucie Units 1 and 2, 2003-2007," states the total activity (curies) from "Spent Resins, Process Filters, etc" was 213 curies. Inspection of St. Lucie's 2007 Annual Radioactive Effluent Release Report indicates the activity from "Spent Resin and Process Filters" in 2007 alone was 408 curies (and footnote 6 in St. Lucie's 2007 Annual Radioactive Effluent Release Report indicates the total was 434 curies). Please describe how the total from 2003 to 2007 is 213 curies when St. Lucie's annual report indicates 408 curies was shipped offsite for burial or disposal in 2007. Similarly, describe the potential disparity between the values listed for dry active waste in Table 8-1 (7.48 curies) and the 2007 Annual Radioactive Effluent Release Report (13.6 curies).

Response

The activity values contained in the LAR Supplemental Environmental Report, Table 8-1, "Average Annual Low-Level Radioactive Waste Shipped Offsite" for St Lucie Units 1 and 2, 2003 - 2007 represent the average annual solid low-level radioactive waste (LLW) shipped off-site for burial or disposal for the 5 year period from 2003 to 2007. Thus, while the reported value in the St. Lucie Units 1 and 2, 2007 Annual Radioactive Effluent Release Report for "Spent Resin and Process Filters" disposed of was 408 curies, the value of 213 curies in Table 8-1 of the LAR Supplemental Environmental Report is the annual average activity disposed of over the 5 year period (2003 – 2007). Similarly, the value of 7.48 curies contained in Table 8-1 of the LAR Supplemental Environmental Report for dry active waste is the annual average of dry active waste (dry compressible waste) disposed of over the 5 year period (2003 - 2007).

RAI IHPB-5 also makes note of a difference between the value of 408 Curies reported for "Spent Resin and Process Filters" shipped for burial or disposal (Table 3.9 A.1.a. of the 2007 Annual Radioactive Effluent Release Report) versus 434 Curies referenced in footnote 6. The difference is as follows. During the calendar years 2003 - 2007, St. Lucie shipped "Spent Resins and Process Filters" either directly to a licensed LLW disposal facility or to a contracted vendor (processor) for volume reduction prior to final disposal at the licensed disposal facility. The values for volume and activity reported in Table 3.9 of the annual report represent the volume and activity disposed of at the burial facility during the calendar year whether the shipment originated directly from the St. Lucie Plant or from the processor. The footnote, however, references the volume and activity that was shipped by the St. Lucie Plant to the processor during the calendar year for volume reduction.