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

November 14, 2011

L-2011-468
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 Health Physics and Human Performance Branch Request for Additional Information Regarding the 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)," October 11, 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).

In an email from the NRC Project Manager dated October 11, 2011 [Reference 2], additional information was requested by the NRC staff in the Health Physics and Human Performance Branch (IHPB) to support their review of the EPU License Amendment Request (LAR). The request for additional information (RAI) identified one question, IHPB-6. The Attachment to this letter provides FPL's response to IHPB-6.

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

ADD1
NRR

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

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

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 14-November-2011

Very truly yours,

Richard L. Anderson
Site Vice President
St. Lucie Plant

Attachment

cc: Mr. William Passetti, Florida Department of Health

Response to NRC Health Physics and Human Performance Branch

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 review of the Extended Power Uprate (EPU) License Amendment Request (LAR) for St. Lucie Unit 2 submitted to the NRC by FPL via letter L-2011-021, February 25, 2011, Accession No. ML110730116.

In an email dated October 11, 2011 from T. Orf (NRC) to C. Wasik (FPL), Subject: 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 one question from the NRC staff IHPB Branch. The response to IHPB-6 is provided below.

IHPB-6

Attachment 5 of the license amendment request states:

> ***"The Technical Support Center (TSC), which is shared by both units, is physically located within the Unit 1 control room envelope, and has been evaluated as part of Unit 1 control room habitability."***

The NRC staff has not been able to verify that the licensee has evaluated the impact of the Unit 2 source term (e.g., shine) on the TSC. The NRC is not able to locate this detail in either the Unit 1 EPU LAR or in the Unit 2 EPU LAR. Please provide clarification on where this is addressed in either the Unit 1 EPU or the Unit 2 EPU.

Response

Evaluation of the St. Lucie Unit 2 source term (e.g., shine) on the technical support center (located in the St. Lucie Unit 1 control room (CR) building) is not specifically addressed in either the Unit 1 or Unit 2 EPU LARs. The following supplemental information is provided to address the Unit 2 source term on the TSC.

For Unit 1 events, the CR shine is modeled as three components:

1. Unit 1 Containment Shine to the Unit 1 CR.

   The TSC is within the Unit 1 CR building envelope and is farther away from the Unit 1 containment than the dose point modeled in the CR MicroShield model (by at least 30 feet). The Unit 1 containment shine for the Unit 1 CR is therefore conservative for this component of TSC dose.

2. Unit 1 Loss of Coolant Accident (LOCA) Environmental Shine to the CR

   The TSC and Unit 1 CR are in the same building. The TSC and Unit 1 CR have the same roof. Therefore, the environment portion of the shine from the Unit 1 LOCA is the same for both the TSC and Unit 1 CR.

3. Unit 1 LOCA Filter Shine to the CR

   The Unit 1 CR heating, ventilation, and air conditioning (HVAC) filters are closer to the Unit 1 CR wall (almost a perpendicular direction from the filter) than they are to the TSC portion of the CR complex (line of sight requires an angle of about 30 degrees to reach the same wall in the TSC portion of the complex). By distance alone, the CR HVAC filter shine is conservatively large relative to the expected TSC shine from the same filter.

For Unit 2 events, the same three components are modeled for the Unit 2 CR, but there is no TSC in the Unit 2 building. The only TSC is in the Unit 1 CR building.

1. Unit 2 Containment Shine to the TSC.

   The Unit 2 containment is approximately 50+ feet from the nearest corner of the Unit 1 CR building. Between the inner wall of the Unit 1 CR building and the TSC, there is a computer room approximately 15+ feet wide between the Unit 2 containment and the occupied portion of the TSC. This total distance (approximately 65 feet) is longer than the Unit 1 containment distance to the Unit 1 CR dose point (total distance of approximately 30 feet) by a substantial amount. The Unit 1 containment shine to the Unit 1 CR (which bounds the TSC) is therefore conservative relative to the expected Unit 2 containment shine on the basis of distance alone.

2. Unit 2 LOCA Environmental Shine to the TSC

   Both the Unit 1 and Unit 2 LOCA events use the same core source term, and generally progress in a similar fashion. There are some differences in timing of the releases to the environment between the two units, but these are not significant given the shine dose evaluation process that maximizes the CR shine dose by increasing CR unfiltered inleakage to maximize the filter shine. Thus, the Unit 2 LOCA environment shine to the TSC is essentially the same as the Unit 1 LOCA environmental shine to the Unit 1 CR.

3. Unit 2 LOCA Filter Shine to the TSC

   As discussed above, the process used to conservatively evaluate the Unit 1 LOCA filter shine increases the Unit 1 CR HVAC inleakage to the maximum which still meets the dose acceptance criteria. Thus, the Unit 2 LOCA filter loading on the Unit 1 CR HVAC is bounded by the maximized inleakage assumption process used to evaluate the Unit 1 LOCA impact on the CR personnel.