



August 18, 2011

L-2011-323
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 Fire Protection 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 RAIs – Fire Protection (AFPB)," July 26, 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 from the NRC Project Manager dated July 26, 2011 [Reference 2], additional information related to fire protection was requested by the NRC staff in the Fire Protection Branch (AFPB) to support their review of the EPU LAR. The request for additional information (RAI) identified two 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.

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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 *Aug. 18, 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 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 July 26, 2011 from NRC (Tracy Orf) to FPL (Chris Wasik), Subject: St. Lucie 2 EPU Draft RAIs Fire Protection (AFPB), the NRC requested additional information regarding FPL's request to implement the EPU. The draft RAIs consisted of two questions from the NRC's Fire Protection Branch (AFPB). These two RAI questions and the FPL responses are documented below.

AFPB-1

Attachment 1 to Matrix 5 ("Supplemental Fire Protection Review Criteria, Plant Systems"), of NRR RS-001, Revision 0, *Review Standard for Extended Power Uprates*, states that "power uprates typically result in increases in decay heat generation following plant trips. These increases in decay heat usually do not affect the elements of a fire protection program related to (1) administrative controls, (2) fire suppression and detection systems, (3) fire barriers, (4) fire protection responsibilities of plant personnel, and (5) procedures and resources necessary for the repair of systems required to achieve and maintain cold shutdown. In addition, an increase in decay heat will usually not result in an increase in the potential for a radiological release resulting from a fire. However, the licensee's LAR should confirm that these elements are not impacted by the extended power uprate."

The NRC staff notes that license amendment request (LAR), Attachment 5, to L-2011-021, "Licensing Report," Section 2.5.1.4.2.3, on page 2.5.1.4-8, specifically addresses only items (1) through (4) above. The staff requests that the licensee provide statements to address item (5).

Response

To ensure the completeness of submitted information, FPL is providing information related to both items (4) and (5).

Item (4): Fire Protection Responsibilities of Plant Personnel:

As addressed in Section 2.5.1.4.1 of LAR Attachment 5, the Fire Protection Plan establishes the procedures, equipment, and personnel required to implement the Fire Protection Program. The Fire Protection Plan also describes the fire protection responsibilities of plant management personnel, the Shift Manager, the Fire Protection Supervisor, the Fire Protection Coordinator, the Fire Inspector, the Fire Brigade Leader, and the Fire Brigade. Procedures are provided in the emergency plans to define responsibilities of other plant personnel during a fire. The fire protection responsibilities of the above-identified plant personnel are not affected by the EPU.

Item (5): Procedures and Resources Necessary for the Repair of Systems Required to Achieve and Maintain Cold Shutdown:

LAR Attachment 5, Section 2.5.1.4.2.3, "Safe Shutdown Analysis," Topic 3, "Cold Shutdown Repairs" (page 2.5.1.4-9), states the following:

FPL takes credit for limited repairs (i.e., inserting fuses) to cold shutdown equipment. The EPU does not impact plant procedures or resources required for the above limited repairs to achieve and maintain cold shutdown.

Additionally, the proposed EPU does not create the need for any new repairs of systems required to achieve and maintain cold shutdown.

AFPB-2

Some plants credit aspects of their fire protection system for other than fire protection activities (e.g., utilizing the fire water pumps and water supply as backup cooling or inventory for non-primary reactor systems). If St. Lucie Unit 2 credits its fire protection system in this way, the LAR should identify the specific situations and discuss to what extent, if any, the extended power and measurement uncertainty recapture uprates affect these "non-fire protection" aspects of the plant fire protection system. If St. Lucie Unit 2 does not take such credit, the staff requests that the licensee verify this as well.

In your response discuss how any non-fire suppression use of fire protection water will impact the need to meet the fire protection system design demands.

Response

FPL does not credit the fire water pumps or the dedicated fire water supply for non-fire protection functions during normal plant operations. The Fire Protection System (FPS) is utilized to support the following two non-fire protection activities:

1. The FPS is capable of providing alternative makeup water service to the component cooling water surge tank if the demineralized water system (DWS) is not available; and
2. Plant procedures address use of fire protection water as an alternate source of makeup water to the spent fuel pool.

Two separate storage tanks are provided for the plant fire suppression systems. Each storage tank contains an administratively controlled minimum volume of 300,000 gallons of water. Vertical standpipes are provided within the tanks for non-fire related connections which assure a minimum quantity of water (200,000 gallons) sufficient for a two hour supply. This is the maximum water demand required for protecting areas containing safe shutdown equipment.

There is no impact to the FPS due to implementation of the EPU. The available volume of fire protection water remains the same as prior to implementation of EPU.

With respect to preventing significant loss of fuel storage coolant inventory following a single failure or accident condition, UFSAR Section 9.1.3.1 states that the fuel pool cooling system is

designed to remove decay heat from a full core placed in the spent fuel pool 120 hours after reactor shutdown, in addition to the decay heat load from twenty one batches previously discharged following 18 month fuel cycles, and maintain pool water temperature less than 150°F. Per UFSAR Section 9.1.3.3.1, there are several sources of fresh water on the site that are available to the fuel handling building; namely, refueling water tank, condensate storage tank, city water storage tanks and the primary water tank. The concurrent loss of these sources and the fuel pool cooling system is unlikely. Due to the fuel pool's relatively low coolant inventory boil-off rate, there is sufficient time to establish makeup. A seismic Category I backup salt water supply is available from the ICW intertie. A standpipe on the fuel handling building is provided from grade to the operating deck elevation and hose connections are provided at both ends of the standpipe. Thus, via fire hose, the fuel pool makeup can be readily supplied by the ICW pumps. The ICW system via the hose connections can provide the necessary makeup.

As presented in LAR Attachment 5, Section 2.5.4.1.2.2, the time to boil analysis results demonstrate that sufficient time exists to provide an alternate means of cooling prior to the onset of boiling in the racks. Following the onset of boiling, makeup requirements remain well below the currently available 150 gpm makeup capability.

During off-normal or emergency conditions, FPL will employ features of the fire protection system as necessary to ensure the safe operation of the plant. Procedural guidance is provided to ensure the fire system remains capable of responding to a fire if applicable. Provisions for using fire water for off-normal or emergency evolutions are not changed as a result of EPU.