



March 22, 2012

L-2012-079  
10 CFR 50.90

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

Re: St. Lucie Plant Unit 1  
Docket No. 50-335  
Renewed Facility Operating License No. DPR-67

Supplemental Information for Extended Power Uprate License Amendment Request (LAR) Sections 2.1.7 (Protective Coating Systems) and 2.8.7.2 (Natural Circulation Cooldown)

References:

- (1) R. L. Anderson (FPL) to U.S. Nuclear Regulatory Commission (L-2010-259), "License Amendment Request for Extended Power Uprate," November 22, 2010, Accession No. ML103560419.

By letter L-2010-259 dated November 22, 2010 [Reference 1], Florida Power & Light Company (FPL) requested to amend Renewed Facility Operating License No. DPR-67 and revise the St. Lucie Unit 1 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).

This submittal provides supplemental information to update EPU LAR Attachment 5, Table 2.1.7-1 (see Attachment 1) and Table 2.8.7.2-1 (see Attachment 2). FPL has determined that the conclusions reached in the affected St. Lucie Unit 1 EPU LAR Sections 2.1.7 and 2.8.7.2 are unchanged.

This submittal does not alter the significant hazards consideration or environmental assessment previously submitted by FPL letter L-2010-259 [Reference 1].

This submittal contains no new 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.

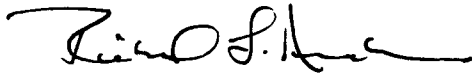
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Should you have any questions regarding this submittal, please contact Mr. Christopher Wasik, St. Lucie Extended Power Uprate LAR Project Manager, at 772-467-7138.

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

Executed on *22-March-2012*

Very truly yours,



Richard L. Anderson  
Site Vice President  
St. Lucie Plant

Attachments (2)

cc: Mr. William Passetti, Florida Department of Health

**Supplemental Information to EPU LAR Attachment 5, Table 2.1.7-1**  
**EPU Containment LOCA Parameters vs. Service Level I Coatings DBA Test Conditions**

**1. Summary of Change**

This supplement updates information contained in License Amendment Report (LAR) Section 2.1.7 for the St. Lucie Unit 1 Extended Power Uprate (EPU). Specifically, the EPU integrated radiation dose included in EPU LAR Attachment 5, Table 2.1.7-1 "EPU Containment LOCA Parameters vs. Service Level I Coatings DBA Test Conditions" inadvertently omitted the beta dose component. As such, the current value specified in Table 2.1.7-1 for the EPU-DBLOCA integrated radiation dose of  $2.25 \times 10^7$  Rads is corrected to a value of  $1.48 \times 10^8$  Rads. This corrected integrated radiation dose value includes the contributions of both gamma and beta dose. The revised integrated dose value remains bounded by the DBA Test Condition value of  $3 \times 10^8$  Rads specified in Table 2.1.7-1. This updated integrated radiation dose value does not change the conclusions provided in EPU LAR Attachment 5, Section 2.1.7.3. FPL further concludes that the Service Level 1 coating system inside containment will continue to meet its current licensing basis with respect to the requirements of 10 CFR 50 Appendix B.

**2. Input Consideration**

As stated above, the integrated radiation dose value for EPU specified in LAR Table 2.1.7-1 inadvertently omitted the beta dose component.

**3. Summary of Results**

The omission of the beta radiation dose component in the integrated radiation dose value is non-conservative. Accordingly, EPU LAR Attachment 5, Table 2.1.7-1 has been revised. The table below supersedes the table included in EPU LAR Attachment 5.

**Table 2.1.7-1**  
**EPU Containment LOCA Parameters vs.**  
**Service Level I Coatings DBA Test Conditions**

<b>Condition</b>	<b>DBA Test Conditions</b>	<b>EPU LOCA</b>
<b>Maximum Temperature at LOCA Conditions</b>		
<b>0 to 2.8 Hrs</b>	286°F	265.57°F
<b>2.8 – 23.9 Hrs</b>	219°F	~215°F
<b>Maximum Pressure at LOCA Conditions</b>		
<b>Pressure</b>	54 psig	42.77 psig
<b>Integrated Radiation Dose at LOCA Conditions</b>		
<b>Radiation Dose</b>	$3 \times 10^8$ Rads	$1.48 \times 10^8$ Rads

**Supplemental Information to EPU LAR Attachment 5, Table 2.8.7.2-1**  
**Calculated Loop  $\Delta T$ , Cooldown Time, and Condensate Volume Requirement**  
**For Natural Circulation**

### **1. Summary of Change**

This supplement updates information contained in License Amendment Report (LAR) Attachment 5, Section 2.8.7.2 for St. Lucie Unit 1 (SL1) Extended Power Uprate (EPU). FPL determined that a feature of the CENTS computer code had been unintentionally activated when it was used in analyses for the Natural Circulation Cooldown (NCC) capability and Condensate Storage Tank (CST) sizing supporting the SL1 EPU LAR. The application of the modeling feature results in a conservative conclusion with respect to the calculations performed for CST sizing for SL1. The application of the modeling feature results in a non-conservative conclusion with respect to the calculations performed for NCC capability for SL1. Accordingly, FPL is providing updated information based on revised calculations performed with the modeling feature disabled. The updated information includes the quantity of CST inventory required and the expected duration of the NCC event. The results of the updated analyses do not change the conclusions of the subject LAR section with respect to the capability to perform a NCC to shutdown cooling (SDC) entry conditions without voiding following implementation of the EPU.

### **2. Input Consideration**

The primary change to the subject analyses was to ensure that all modeling features used in the SL1 EPU NCC capability analyses are consistent with the NRC approved version of CENTS. No changes were made to the plant specific input values used in the analyses for the SL1 NCC cases. Changes were made to the sequence of operator actions applied during the simulated event. These changes were required as a direct consequence of disabling the affected modeling feature, which influenced the dynamics of the simulated event. The operator actions assumed in the updated analyses are consistent with current SL1 specific procedures for performing a NCC.

### **3. Summary of Results**

The application of the modeling feature results in conservative conclusions with respect to the calculations performed for CST sizing for SL1. Therefore, no changes to the reported results or conclusions with respect to CST sizing are provided.

The application of the modeling feature is non-conservative with respect to the calculations performed for NCC capability for SL1. Accordingly, the SL1 NCC capability analyses were revised. The re-analysis performed used operator limited cooldown rates at various points during the event in order to ensure that there is no voiding in the reactor vessel upper head (RVUH) while simultaneously maintaining the plant within appropriate operational limits. A reduction in cooldown rate results in an extension in the duration of the event and an increase in the condensate requirements. The impact to both the time to SDC entry and the condensate requirements are summarized in Table 1 below for each of the reported cooldown rates. The increase in the NCC condensate requirements for EPU is acceptable as makeup water can be supplied to the CST from the two 500,000 gallon city water storage tanks as described in FPL letter L-80-431 (see reference 1 in EPU LAR Attachment 5, Section 2.8.7.2.4).

The EPU re-analysis values reported in Table 1 supersede those reported in EPU LAR Attachment 5, Table 2.8.7.2-1 and associated text in the subject LAR section.

**Table 1**  
**Summary of Results for the**  
**Updated Natural Circulation Cooldown Analysis**

<b>Parameter for 30°F/hr Cooldown Rate</b>	<b>EPU Updated Analysis</b>
Maximum Calculated Loop $\Delta T$ (°F)	26
Time to Shutdown Cooling Entry (hr)	24.8
Condensate Requirement (gallons)	287,000

<b>Parameter for 50°F/hr Cooldown Rate</b>	<b>EPU Updated Analysis</b>
Maximum Calculated Loop $\Delta T$ (°F)	29
Time to Shutdown Cooling Entry (hr)	23.7
Condensate Requirement (gallons)	291,500