



September 2, 2011

L-2011-354  
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

Response to Containment & Ventilation 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-2010-259), "License Amendment Request (LAR) for Extended Power Uprate," November 22, 2010, Accession No. ML103560419.
- (2) Email from T. Orf (NRC) to C. Wasik (FPL), "St. Lucie 1 EPU followups from Containment and Ventilation (SCVB)," July 26, 2011.

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).

By email from the NRC Project Manager dated July 26, 2011 [Reference 2], additional information was requested by the NRC staff in the Containment & Ventilation Branch (SCVB) to support their review of the EPU LAR. The request for additional information (RAI) identified two follow-up questions to a previous FPL RAI response and one new question. The response to these three RAIs is provided in Attachment 1 to this letter.

A001  
NRK

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-2010-259 [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 *02 - 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 Extended Power Uprate (EPU) License Amendment Request (LAR) for St. Lucie Nuclear Plant Unit 1 that was submitted to the NRC by FPL via letter (L-2010-259) dated November 22, 2010, Accession Number ML103560419.

In an email dated April 22, 2011 from NRC (Tracy Orf) to FPL (Chris Wasik), "St. Lucie Unit 1 EPU – request for additional information (Containment and Ventilation)," (Accession Number ML 111120264), the NRC staff requested additional information regarding FPL's PSL1 EPU LAR. The RAI consisted of fifteen (15) questions from the NRC's Containment and Ventilation Branch (SCVB). The responses to the 15 RAI questions were submitted to the NRC via FPL letter (L-2011-187) dated May 18, 2011 Accession Number ML11145A087.

In an email dated July 26, 2011 from NRC (Tracy Orf) to FPL (Chris Wasik), "St. Lucie 1 EPU followups from Containment and Ventilation (SCVB)," the NRC's Containment & Ventilation Branch requested additional information regarding FPL's PSL1 EPU LAR and the May 18<sup>th</sup> RAI response. The July 26<sup>th</sup> RAI consisted of two follow-up questions and one new question. With the agreement of the NRC Project Manager and to prevent confusion, the questions have been numbered as SCVB-16, SCVB-17, and SCVB-18. These three RAI questions and the FPL responses are documented below.

#### **RAI SCVB-16 [Comment on response to RAI # SCVB-5]**

The first paragraph of the response is in conflict with the last paragraph. The first paragraph states: "EPU has no effect that needs to be addressed to resolve the concerns of GSI-191--". The last paragraph states: "As part of the resolution of GSI-191, the sump strainer head losses will be re-evaluated to include consideration of changes resulting from EPU as well as potential changes in the strainer debris loading." Please clarify which statement is correct.

#### **RAI SCVB-17 [Comment on response to RAI # SCVB-6]**

Refer to statement in response to SCVB 5: "As part of the resolution of GSI-191, the sump strainer head losses will be re-evaluated to include consideration of changes resulting from EPU as well as potential changes in the strainer debris loading." This statement implies that Table 2 "NPSH Calculation Recirculation Mode Design Case" of the SCVB-6 response does not provide the EPU results because the sump screen head loss may be higher thus lowering the NPSH margin.

### **Response to SCVB-16 & SCVB-17**

A single response to these two draft RAIs is provided since both draft RAIs are related to clarification of GSI-191 statements made in FPL's response to RAI SCVB-5 [FPL Letter L-2011-187, dated May 18, 2011, ML11145A087].

The response to RAI SCVB-5 was intended to note that EPU does not significantly impact the St. Lucie GSI-191 resolution effort. The confusing statement in the SCVB-5 response states: "As part of the resolution of GSI-191, the sump strainer head losses will be re-evaluated to include consideration of changes resulting from EPU as well as potential changes in strainer debris loading." This statement was not intended to reflect the need for a GSI-191 re-analysis in order to address EPU; rather, it was intended to recognize the on-going nature of the GSI-191 resolution and that any future GSI-191 analyses will include EPU conditions.

The NPSH values provided in the FPL response to SCVB-6 reflect the integration of EPU conditions with the current GSI-191 resolution effort and are considered final.

### **RAI SCVB-18**

**Section 2.6.1.2.2 states: "The blowdown is limited to one SG due to reverse flow check valve which prevents flow from unaffected side SG." Please explain why the case of considering failure of the reverse flow check valve which would allow the steam header volume to participate in the blowdown was not analyzed as one of the single failure cases.**

**Please note that similar case described in Section 2.6.1.2.2 of St. Lucie Unit 2 LR was analyzed as stated in the Section: "Failure of one MSIV to close would allow the steam header volume to participate in the blowdown. This failure is considered in the analysis as one of the potential single failures."**

### **Response to SCVB-18**

For Unit 1, the main steam isolation check valve (MSCV) prevents reverse steam flow and is credited to prevent any blowdown of the steam header and intact steam generator (SG) immediately following a MSLB. This is in agreement with the current Unit 1 UFSAR, which in Section 6.2.1.3.2.B.2.A states:

*Backflow for the St. Lucie design is essentially zero since the check valve downstream of the isolation valve of the faulted steam generator would close immediately on flow reversal, thereby terminating the reverse steam flow. The operation of the reverse flow check valve has been credited in the analysis.*

In accordance with SECY-77-439 (Section 2.D), failure of a check valve to close is considered a passive failure. Standard Review Plan Section 6.2.1.4 (Mass and Energy Release Analysis for Postulated Secondary System Pipe Ruptures) states: "steam and feedwater line break analyses should assume a single active failure in the steam or

feedwater line isolations provisions.” As such, the passive failure of the MSCV does not need to be considered in the Unit 1 MSLB analysis.

The MSIVs in Unit 2 are of a different design, they are one valve, not back to back check valves like the Unit 1 design. The header and intact SG are isolated upon MSIV closure. Therefore, blowdown of the header and intact SG is considered for Unit 2 in containment MSLB analyses until MSIV closure. In addition, since the MSIV is actuated electrically, failure of the MSIV in Unit 2 is an active failure and is analyzed accordingly.

Nevertheless, a sensitivity study for Unit 1 analyzing the MSCV failure was conducted. Peak containment pressure for the sensitivity study with a single failure of the MSCV, crediting the containment fan coolers, crediting the containment liner as a heat sink and modeling the MSIV closure as a linear ramp is determined to be lower than the limiting case in the EPU MSLB analysis.