



March 28, 2006

L-2006-086  
10 CFR 50.90

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

RE: St. Lucie Unit 2  
Docket No. 50-389  
Proposed License Amendment  
Request for Additional Information Response  
Reduce Reactor System Coolant Flow  
With a Reduction in Reactor Operating Power

By letter L-2005-210 dated October 21, 2005, Florida Power & Light Company (FPL) requested to amend Facility Operating License NPF-16 for St. Lucie Unit 2. The purpose of the license amendment request was to allow operation of St. Lucie Unit 2 with a reduced reactor coolant system (RCS) flow rate of 300,000 gpm and a reduction in the maximum thermal power to 89% of the rated thermal power (RTP). The flow rate of 300,000 gpm is expected to conservatively bound a steam generator tube plugging level of 42% per steam generator. The re-analysis performed to support this reduction in RCS flow has used Westinghouse WCAP-9272-P-A, *Westinghouse Reload Safety Evaluation Methodology*, the same methodology approved for St. Lucie Unit 2 in License Amendment 138 dated January 31, 2005.

FPL letter L-2006-065, dated February 28, 2006, contained FPL's response to RAI number 9 that pertained to a loss of feedwater event. The Staff wanted clarification on what operator training is performed for the time requirement for isolating steam generator blowdown following a loss of feedwater event. The licensed operator training program does include a simulator performance measure to ensure that the operators isolate steam generator blowdown within 30 minutes following a loss of feedwater event.

Additionally, a series of conversations with the Staff led to revisions to some of the proposed Technical Specification wording submitted in FPL letter L-2005-210. This letter provides the final marked-up (Attachment 1) and word-processed (Attachment 2) Technical Specification pages for the proposed Technical Specification pages that required revision. The no significant hazard analysis submitted with FPL letter L-2005-210 remains bounding. In accordance with 10 CFR 50.91 (b)(1), a copy of the proposed amendment was forwarded to the State Designee for the State of Florida.

Based on discussions with the NRC project manager for St. Lucie, the approval of the proposed license amendment is requested to support the St. Lucie Unit 2 refueling outage (SL2-16) scheduled for April 24, 2006, as a contingency for operation with reduced flow corresponding to increased tube plugging in the existing steam generators. Please issue the amendment to be effective on the date of issuance and to be implemented within 60 days of receipt by FPL. The existing St. Lucie Unit 2 steam generators are scheduled for replacement in the fall 2007 refueling outage (SL2-17).

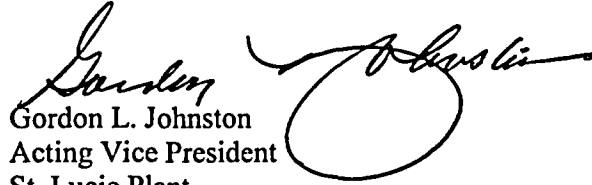
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Please contact Ken Frehafer at 772-467-7748 if there are any questions about this submittal.

Very truly yours,

  
Gordon L. Johnston  
Acting Vice President  
St. Lucie Plant

GLJ/KWF

Attachments

cc: Mr. William A. Passetti, Florida Department of Health

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**Technical Specification Mark-Ups**

Renewed Facility Operating License No. NPF-16 Page 3  
TS Page 3/4 2-15  
TS Page 3/4 4-15 insert revision

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neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

- D. Pursuant to the Act and 10 CFR Parts 30, 40, and 70, FPL to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- E. Pursuant to the Act and 10 CFR Parts 30, 40, and 70, FPL to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

- 3. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission's regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Section 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

A. Maximum Power Level

FPL is authorized to operate the facility at steady state reactor core power levels not in excess of 2700 megawatts (thermal).

INSERT A

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 141 are hereby incorporated in the renewed license. FPL shall operate the facility in accordance with the Technical Specifications.

Appendix B, the Environmental Protection Plan (Non-Radiological), contains environmental conditions of the renewed license. If significant detrimental effects or evidence of irreversible damage are detected by the monitoring programs required by Appendix B of this license, FPL will provide the Commission with an analysis of the problem and plan of action to be taken subject to Commission approval to eliminate or significantly reduce the detrimental effects or damage.

C. Updated Final Safety Analysis Report

FPL's Updated Final Safety Analysis Report supplement submitted pursuant to 10 CFR 54.21(d), as revised on March 28, 2003, describes certain future activities to be completed before the period of extended operation. FPL shall complete these activities no later than April 6, 2023, and shall notify

Renewed License No. NPF-16  
Revised by letter dated October 29, 2004

**TABLE 3.2-2**

**DNB MARGIN**

**LIMITS**

<b><u>PARAMETER</u></b>	<b><u>FOUR REACTOR COOLANT PUMPS OPERATING</u></b>
Cold Leg Temperature (Narrow Range)	Within the limits specified in the COLR Table 3.2-2
Pressurizer Pressure*	Within the limits specified in the COLR Table 3.2-2
Reactor Coolant Flow Rate**	$\geq 335,000$ gpm and $\geq$ the limit specified in the COLR Table 3.2-2
AXIAL SHAPE INDEX	COLR Figure 3.2-4

- \* Limit not applicable during either a THERMAL POWER ramp increase in excess of 5% of RATED THERMAL POWER or a THERMAL POWER step increase of greater than 10% of RATED THERMAL POWER.

\*\* INSERT B

**INSERT A**

Commencing with the startup for Cycle 16 and until the Combustion Engineering Model 3410 Steam Generators are replaced, the maximum reactor core power shall not exceed 89 percent of 2700 megawatts (thermal) if:

- a. The Reactor Coolant System Flow Rate is less than 335,000 gpm but greater than or equal to 300,000 gpm, or
- b. The Reactor Coolant System Flow Rate is greater than or equal to 300,000 gpm AND the percentage of steam generator tubes plugged is greater than 30 percent (2520 tubes/SG) but less than or equal to 42 percent (3532 tubes/SG).

This restriction in maximum reactor core power is based on analyses provided by FPL in submittals dated October 21, 2005, and February 28, 2006, and approved by the NRC in Amendment No. , which limits the percent of steam generator tubes plugged to a maximum of 42 percent (3532 tubes/SG) in either steam generator and limits the plugging asymmetry between steam generators to a maximum of 600 tubes.

**INSERT B**

Commencing with the startup for Cycle 16 and until the Combustion Engineering Model 3410 Steam Generators are replaced, Reactor Coolant Flow Rate will also be limited in accordance with Renewed Operating License Paragraph 3.A.

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The following revised insert modifies TS Page 3/4 4-15 insert D as shown in Attachment 2, page 4 of 6, that was submitted by FPL Letter L-2006-043. Additions for the proposed amendment are indicated in bold below:

10. Tube Repair refers to sleeving with Westinghouse Leak Limiting Alloy 800 sleeves as described in WCAP-15918- P Revision 2 (**with range of conditions as revised in Appendix A of WCAP-16489-NP, Revision 0**), which are used to maintain a tube in service. Leak Limiting Alloy 800 Sleeves are applicable only to the original steam generators. The pressure boundary portion of the original tube wall in the sleeve/tube assembly (i.e., the sleeve-to-tube joint) shall be inspected prior to installation of each sleeve.

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**Word-Processed Technical Specification Pages**

**Renewed Facility Operating License No. NPF-16 Pages 3,4,5, and 6**

**TS Page 3/4 2-15**

**TS Page 3/4 4-15**



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neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

- D. Pursuant to the Act and 10 CFR Parts 30, 40, and 70, FPL to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
  - E. Pursuant to the Act and 10 CFR Parts 30, 40, and 70, FPL to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
3. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission's regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Section 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

A. Maximum Power Level

FPL is authorized to operate the facility at steady state reactor core power levels not in excess of 2700 megawatts (thermal).

Commencing with the startup for Cycle 16 and until the Combustion Engineering Model 3410 Steam Generators are replaced, the maximum reactor core power shall not exceed 89 percent of 2700 megawatts (thermal) if:

- a. The Reactor Coolant System Flow Rate is less than 335,000 gpm but greater than or equal to 300,000 gpm, or
- b. The Reactor Coolant System Flow Rate is greater than or equal to 300,000 gpm AND the percentage of steam generator tubes plugged is greater than 30 percent (2520 tubes/SG) but less than or equal to 42 percent (3532 tubes/SG).

This restriction in maximum reactor core power is based on analyses provided by FPL in submittals dated October 21, 2005, and February 28, 2006, and approved by the NRC in Amendment No. \_\_\_\_\_, which limits the percent of steam generator tubes plugged to a maximum of 42 percent (3532 tubes/SG) in either steam generator and limits the plugging asymmetry between steam generators to a maximum of 600 tubes.

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 141 are hereby incorporated in the renewed license. FPL shall operate the facility in accordance with the Technical Specifications.

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Appendix B, the Environmental Protection Plan (Non-Radiological), contains environmental conditions of the renewed license. If significant detrimental effects or evidence of irreversible damage are detected by the monitoring programs required by Appendix B of this license, FPL will provide the Commission with an analysis of the problem and plan of action to be taken subject to Commission approval to eliminate or significantly reduce the detrimental effects or damage.

C. Updated Final Safety Analysis Report

FPL's Updated Final Safety Analysis Report supplement submitted pursuant to 10 CFR 54.21(d), as revised on March 28, 2003, describes certain future activities to be completed before the period of extended operation. FPL shall complete these activities no later than April 6, 2023, and shall notify the NRC in writing when implementation of these activities is complete and can be verified by NRC inspection.

The Updated Final Safety Analysis Report supplement as revised on March 28, 2003, described above, shall be included in the next scheduled update to the Updated Final Safety Analysis Report required by 10 CFR 50.71 (e)(4), following issuance of this renewed license. Until that update is complete, FPL may make changes to the programs described in such supplement without prior Commission approval, provided that FPL evaluates each such change pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.

D. Antitrust Conditions

FPL shall comply with the antitrust conditions in Appendices C and D to this renewed license.

E. Fire Protection

FPL shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report (The fire protection program and features were originally describe in the Final Safety Analysis Report, and supplemented by FPL submittals L-82-282 dated July 14, 1982, L-83-89 dated February 25, 1983, L-83-425 dated July 22, 1983, L-83-603 dated December 27, 1983, L-84-347 dated November 28, 1984, L-84-389 dated December 31, 1984, and L-85-72 dated February 21, 1985, for the facility) and as approved in the NRC Safety Evaluation Report, Supplement 3 dated April 1983 and supplemented by NRC letter dated December 5, 1986, subject to the following provision:

FPL may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

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F. Physical Protection

The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provision of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Florida Power and Light & FPL Energy Seabrook Physical Security Plan, Training and Qualification Plan and Safeguards Contingency Plan," submitted by letter dated September 23, 2004, and supplemented on October 15, October 22, and October 29, 2004.

G. Before engaging in additional construction or operational activities which may result in a significant adverse environmental impact that was not evaluated or that is significantly greater than that evaluated in the Final Environmental Statement dated April 1982, FPL shall provide written notification to the Office of Nuclear Reactor Regulation.

H. FPL shall report any violations of the requirements contained in Section 3, Items A, D, F, and G of this license within 24 hours by telephone and confirm by telegram, mailgram, or facsimile transmission to the NRC Regional Administrator, Region II, or his designee, no later than the first working day following the violation, with a written follow-up report within fourteen (14) days.

I. FPL shall notify the Commission, as soon as possible but not later than one hour, of any accident at this facility which could result in an unplanned release of quantities of fission products in excess of allowable limits for normal operation established by the Commission.

J. FPL shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims.

K. The use of ZIRLO™ clad fuel at St. Lucie Unit 2 will be subject to the following restrictions:

FPL will limit the fuel duty for St. Lucie Unit 2 to a baseline modified Fuel Duty Index (mFDI) of 600 with a provision for adequate margin to account for variations in core design (e.g., cycle length, plant operating conditions, etc). This limit will be applicable until data is available demonstrating the performance of ZIRLO™ cladding at Combustion Engineering 16x16 plants.

FPL will restrict the mFDI of each ZIRLO™ clad fuel pin to 110 percent of the baseline mFDI of 600.

For a fraction of the fuel pins in a limited number of assemblies (8), FPL will restrict the fuel duty of ZIRLO™ clad fuel pins to 120 percent of the baseline mFDI of 600.

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FPL shall not lift the ZIRLO™ mFDI restriction discussed above without either NRC approval of a supplement to CENPD-404-P-A that includes corrosion data from two Combustion Engineering plants (not at the same site) or NRC approval of St. Lucie Unit 2 plant-specific corrosion data.

4. This renewed license is effective as of the date of issuance, and shall expire at midnight April 6, 2043.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by

J. E. Dyer, Director  
Office of Nuclear Reactor Regulation

Attachments:

1. Appendix A, Technical Specifications
2. Appendix B, Environmental Protection Plan
3. Appendix C, Antitrust Conditions
4. Appendix D, Antitrust Conditions

Date of Issuance: October 2, 2003

Renewed License No. NPF-16  
Revised by letter dated October 29, 2004

**TABLE 3.2-2**

**DNB MARGIN**

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\* Limit not applicable during either a THERMAL POWER ramp increase in excess of 5% of RATED THERMAL POWER or a THERMAL POWER step increase of greater than 10% of RATED THERMAL POWER.

\*\* Commencing with the startup for Cycle 16 and until the Combustion Engineering Model 3410 Steam Generators are replaced, Reactor Coolant Flow Rate will also be limited in accordance with Renewed Operating License Paragraph 3.A.

**REACTOR COOLANT SYSTEM**

**SURVEILLANCE REQUIREMENTS (Continued)**

condition of the tubing. This inspection shall be performed after the field hydrostatic test and prior to Initial POWER OPERATION using the equipment and techniques expected to be used during subsequent inservice inspections.

10. Tube Repair refers to sleeving with Westinghouse Leak Limiting Alloy 800 sleeves as described in WCAP-15918- P Revision 2 (with range of conditions as revised in Appendix A of WCAP-16489-NP, Revision 0), which are used to maintain a tube in service. Leak Limiting Alloy 800 Sleeves are applicable only to the original steam generators. The pressure boundary portion of the original tube wall in the sleeve/tube assembly (i.e., the sleeve-to-tube joint) shall be inspected prior to installation of each sleeve.

- b. The steam generator shall be determined OPERABLE after completing the corresponding actions (plug or repair all tubes exceeding the plugging or repair limit and all tubes containing through-wall cracks) required by Table 4.4-2.

4.4.5.5 Reports

- a. Within 15 days following the completion of each inservice inspection of steam generator tubes, the number of tubes plugged or repaired in each steam generator shall be reported to the Commission in a Special Report pursuant to Specification 6.9.2.
- b. The complete results of the steam generator tube inservice inspection shall be submitted to the Commission in a Special Report pursuant to Specification 6.9.2 within 12 months following completion of the inspection. This Special Report shall include:
1. Number and extent of tubes and sleeves inspected.
  2. Location and percent of wall-thickness penetration for each indication of an imperfection.
  3. Identification of tubes plugged or repaired.