UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 30, 2009

Mr. Mano Nazar
Senior Vice President, Nuclear and
Chief Nuclear Officer
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: ST. LUCIE PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING TECHNICAL SPECIFICATION REQUIREMENTS ASSOCIATED WITH REFUELING WATER TANK MINIMUM CONTAINED VOLUME OF BORATED WATER (TAC NOS. MD9208 AND MD9209)

Dear Mr. Nazar:

The Commission has issued the enclosed Amendment Nos. 209 and 157 to Renewed Facility Operating License Nos. DPR-67 and NPF-16 for the St. Lucie Plant, Units 1 and 2. These amendments consist of changes to the Technical Specifications in response to your application dated June 30, 2008, as supplemented by letter dated August 13, 2008.

These amendments would modify Technical Specification requirements related to Refueling Water Tank (RWT) minimum contained volume of borated water. The proposed changes will make permanent the current administrative RWT minimum level of 32.5 feet for both units.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

Brenda Mozafari

Brenda L. Mozafari, Senior Project Manager
Plant Licensing Branch II-2
Division of Operator Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-335
and 50-389

Enclosures:
1. Amendment No. 209 to DPR-67
2. Amendment No. 157 to NPF-16
3. Safety Evaluation

cc w/enclosures: Distribution via Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

FLORIDA POWER & LIGHT COMPANY

DOCKET NO. 50-335

ST. LUCIE PLANT UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 209
Renewed License No. DPR-67

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Florida Power & Light Company (the licensee), dated June 30, 2008, as supplemented by letter dated August 13, 2008, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, Renewed Facility Operating License No. DPR-67 is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and by amending paragraph 3.B to read as follows:

   B. Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 209, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas H. Boyce, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Operating License
and Technical Specifications

Date of Issuance: June 30, 2009

ATTACHMENT TO LICENSE AMENDMENT NO. 209

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-67

DOCKET NO. 50-335

Replace Page 3 of Renewed Operating License DPR-67 with the attached Page 3.

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain marginal lines indicating the area of change.

Remove Pages	Insert Pages
3/4 1-18	3/4 1-18
3/4 5-8	3/4 5-8

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 or incorporated 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).

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 209 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

The 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 March 1, 2016, 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. Sustained Core Uncovery Actions

Procedural guidance shall be in place to instruct operators to implement actions that are designed to mitigate a small-break loss-of-coolant accident prior to a calculated time of sustained core uncovery.

REACTIVITY CONTROL SYSTEMS

BORATED WATER SOURCES – OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.8 At least two of the following four borated water sources shall be OPERABLE:

a. Boric Acid Makeup Tank 1A in accordance with Figure 3.1-1.

b. Boric Acid Makeup Tank 1B in accordance with Figure 3.1-1.

c. Boric Acid Makeup Tanks 1A and 1B with a minimum combined contained borated water volume in accordance with Figure 3.1-1.

d. The refueling water tank with:

1. A minimum contained volume of 477,360 gallons of water,

2. A minimum boron concentration of 1720 ppm,

3. A maximum solution temperature of 100°F,

4. A minimum solution temperature of 55°F when in MODES 1 and 2, and

5. A minimum solution temperature of 40°F when in MODES 3 and 4.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With only one borated water source OPERABLE, restore at least two borated water sources to OPERABLE status within 72 hours or make the reactor subcritical within the next 2 hours and borate to a SHUTDOWN MARGIN equivalent to the requirements of Specification 3.1.1.2 at 200°F; restore at least two borated water sources to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.8 At least two borated water sources shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1. Verifying the boron concentration of the water source,

EMERGENCY CORE COOLING SYSTEMS

REFUELING WATER TANK

LIMITING CONDITION FOR OPERATION

3.5.4 The refueling water tank shall be OPERABLE with:

a. A minimum contained volume 477,360 gallons of borated water,

b. A minimum boron concentration of 1720 ppm,

c. A maximum water temperature of 100°F,

d. A minimum water temperature of 55°F when in MODES 1 and 2, and

e. A minimum water temperature of 40°F when in MODES 3 and 4

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the refueling water tank inoperable, restore the tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.5.4 The RWT shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1. Verifying the water level in the tank, and

2. Verifying the boron concentration of the water.

b. At least once per 24 hours by verifying the RWT temperature.

UNITED STATES
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FLORIDA POWER & LIGHT COMPANY

ORLANDO UTILITIES COMMISSION OF

THE CITY OF ORLANDO, FLORIDA

AND

FLORIDA MUNICIPAL POWER AGENCY

DOCKET NO. 50-389

ST. LUCIE PLANT UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 157
Renewed License No. NPF-16

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Florida Power & Light Company, et al. (the licensee), dated June 30, 2008, as supplemented by letter dated August 13, 2008, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, Renewed Facility Operating License No. NPF-16 is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and by amending paragraph 3.B to read as follows:

   B. Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 157, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas H. Boyce, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Operating License
and Technical Specifications

Date of Issuance: June 30, 2009

ATTACHMENT TO LICENSE AMENDMENT NO. 157

TO RENEWED FACILITY OPERATING LICENSE NO. NPF-16

DOCKET NO. 50-389

Replace Page 3 of Renewed Operating License NPF-16 with the attached Page 3.

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain marginal lines indicating the area of change.

Remove Pages	Insert Pages
3/4 1-14	3/4 1-14
3/4 5-8	3/4 5-8

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 FR 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. 145, which limits the percent of steam generator tubes plugged to a maximum of 42 percent (3532 tubes) 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. 57 are hereby incorporated in the renewed license. FPL shall operate the facility in accordance with the Technical Specifications.

REACTIVITY CONTROL SYSTEMS

BORATED WATER SOURCES – OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.8 At least two of the following four borated water sources shall be OPERABLE:

a. Boric Acid Makeup Tank 2A in accordance with Figure 3.1-1.

b. Boric Acid Makeup Tank 2B in accordance with Figure 3.1-1.

c. Boric Acid Makeup Tanks 2A and 2B with a minimum combined contained borated water volume in accordance with Figure 3.1-1.

d. The refueling water tank with:

1. A minimum contained borated water volume of 477,360 gallons,

2. A boron concentration of between 1720 and 2100 ppm of boron, and

3. A solution temperature of between 55°F and 100°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With the above required boric acid makeup tank(s) inoperable, restore the tank(s) to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to its COLR limit at 200°F; restore the above required boric acid makeup tank(s) to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

b. With the refueling water tank inoperable, restore the tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.8 At least two required borated water sources shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1. Verifying the boron concentration in the water and

2. Verifying the contained borated water volume of the water source.

b. At least once per 24 hours by verifying the RWT temperature when the outside air temperature is outside the range of 55°F and 100°F.

c. At least once per 24 hours when the Reactor Auxiliary Building air temperature is less than 55°F, by verifying that the boric acid makeup tank solution is greater than 55°F.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.4 REFUELING WATER TANK

LIMITING CONDITION FOR OPERATION

3.5.4 The refueling water tank shall be OPERABLE with:

a. A minimum contained borated water volume 477,360 gallons,

b. A boron concentration of between 1720 and 2100 ppm of boron, and

c. A solution temperature of between 55°F and 100°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the refueling water tank inoperable, restore the tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.5.4 The RWT shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1. Verifying the contained borated water volume in the tank, and

2. Verifying the boron concentration of the water.

b. At least once per 24 hours by verifying the RWT temperature when the outside air temperature is less then 55°F or greater than 100°F.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 209 AND 157

TO RENEWED FACILITY OPERATING LICENSES NOS. DPR-67 AND NPF-16

FLORIDA POWER AND LIGHT COMPANY, ET AL.

ST. LUCIE PLANT, UNITS NOS. 1 AND 2

DOCKET NOS. 50-335 AND 50-389

1.0 INTRODUCTION

By letter dated June 30, 2008 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML081840148), as supplemented by letter dated August 13, 2008 (ADAMS Accession No. ML082320367), Florida Power and Light Company, et al. (FPL, the licensee) requested amendments to Renewed Operating Licenses DPR-67 and NPF-16 for St. Lucie Plant, Unit Nos. 1 and 2 (St. Lucie 1 and 2), respectively, by revising the Technical Specifications (TSs). These amendments would modify TS requirements related to Refueling Water Tank (RWT) minimum contained volume of borated water. The proposed changes will make permanent the current administrative RWT minimum level of 32.5 feet for both units. These amendments include proposed changes to increase the minimum water level and corresponding volume in the RWT as specified in TS 3/4.1.2.8, "Borated Water Sources - Operating," and TS 3/4.5.4, "Refueling Water Tank."

2.0 REGULATORY EVALUATION

The licensee addressed the regulatory requirements applicable to the proposed amendment in Section 5.0 of Attachment 1 to the application dated June 30, 2008. The regulatory requirements, criteria, and guidance that the NRC staff applied in its review are discussed below.

As described in Section 3.1 of St. Lucie Unit 1 Updated Final Safety Analysis Report (UFSAR), the Construction Permit for St. Lucie Unit 1 preceded the publication of the Atomic Energy Commission "General Design Criteria for Nuclear Power Plants" published as Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) in February 1971. Section 3.1 of the Unit 1 UFSAR provides a summary description of the design intent for Unit 1 in consideration of the General Design Criteria (GDC) for Nuclear Power Plants. As described in Section 3.1 of St. Lucie Unit 2 UFSAR, the St. Lucie Unit 2 fully satisfies and is in compliance with the GDC. The 10 CFR 50, Appendix A criteria and other regulations applicable to the proposed changes are listed below, as quoted from licensees UFSAR:

- 10 CFR 50.36, "Technical Specifications," states, "Each applicant for a license authorizing operation of a production or utilization facility shall include in his application proposed technical specifications in accordance with the requirements of this section." Specifically, 10 CFR 50.36(d)(3) (January 1, 2008, edition) states, "Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

- 10 CFR 50.46 "Acceptance criteria for emergency core cooling systems for light water nuclear power reactors," 10 CFR 50, Appendix K, "ECCS [Emergency Core Cooling System] Evaluation Models." These regulations are in place to ensure adequate core cooling following a loss-of-coolant-accident LOCA such that certain acceptance criteria are satisfied and require that licensees design their ECCS systems to meet five criteria, one of which is to provide the capability of long term cooling.

- GDC 13, "Instrumentation and Control," requires that instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges.

- GDC 16, "Containment design," insofar as it requires that the containment and its associated systems (e.g., penetrations) be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

- GDC 20, "Protection System Functions," requires that the protection system be designed (1) to initiate automatically the operation of appropriate systems, including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

- GDC 35, "Emergency core cooling," insofar that it requires that a system be provided to assure abundant emergency core cooling.

- GDC 38, "Containment heat removal," insofar as it requires that the reactor containment be provided with a system to reduce rapidly, consistent with the functioning of other associated systems, the containment pressure and temperature following any loss-of-coolant accident, and maintain them at acceptably low levels.

- GDC 50, "Containment design basis," insofar as it requires that the containment and its penetrations accommodate without exceeding the design leakage rate, and with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident (LOCA).

- Regulatory Guide (RG) 1.105, "Setpoints for Safety-Related Instrumentation," describes a method acceptable to the NRC [Nuclear Regulatory Commission] staff for complying with the NRC regulations for ensuring that setpoints for safety-related instrumentation are initially within and remain within the TS limits.

3.0 TECHNICAL EVALUATION

Among the corrective actions taken by FPL in response to the Generic Letter (GL) 2004-02 is the replacement of the original sump screens with new strainer systems at St. Lucie Units 1 and 2. The Unit 1 replacement sump strainer was installed during refueling outage SL1-21 in spring 2007 and the Unit 2 replacement sump strainer system was installed during refueling outage SL2-17 in fall 2007. As stated in Section 4.0 of Attachment 1 to the licensee's application dated June 30, 2008, the new containment recirculation sump screen design requires that the screen be fully submerged to prevent vortexing and air ingestion and to provide net positive suction head (NPSH) margin to the ECCS and containment spray system (CSS) pumps, during changeover from injection mode to the cold-leg recirculation mode for a large break (LB) LOCA. The licensee stated that an increased RWT minimum borated volume was administratively implemented for both St. Lucie Unit 1 and Unit 2 as a compensatory measure consistent with NRC Bulletin 2003-01. The licensee has since determined that an amendment to the St. Lucie Unit 1 and Unit 2 TSs to increase the minimum RWT borated water volume to correctly bound the calculations and test results associated with the new strainers, is necessary. Accordingly, the licensee is proposing to make permanent the current administrative requirement by incorporating the increased RWT minimum volume into the TS as follows:

TS 3.1.2.8 "Borated Water Sources - Operating," and TS 3.5.4 "Refueling Water Tank" identify the requirements for minimum RWT volume of water. The licensee is proposing to revise the minimum RWT water volume from 401,800 gallons to 477,360 gallons for Unit 1 and from 417,100 gallons to 477,360 gallons for Unit 2. The new volume of 477,600 gallons corresponds to the current administratively implemented RWT minimum level of 32.5 feet.

The licensee stated that the proposed RWT minimum TS borated volume itself does not include instrument uncertainty in the calculation of volume from the level indication. However, TS verification of the volume does account for instrument uncertainty. In addition, the licensee is proposing to establish the RWT level instrument low level alarm setpoint at a level higher than the new minimum TS value to account for instrument uncertainty. This portion of the licensee's proposal is evaluated in Section 3.5 below.

This safety evaluation reviews the licensee's proposed TS change, in part, to ensure that consistency with the current licensing basis is maintained. Assurance that pressurized-water reactor (PWR) licensees' proposed sump modifications are adequate in light of the technical issues associated with GSI-191 is being provided separately through the NRC staff's review of GL 2004-02 supplemental responses, selected sample audit reviews of PWR licensees' sump performance calculations, and through reviews of standardized industry guidance and vendor practices.

The final GL 2004-02 supplemental response by FPL was also submitted on June 30, 2008 (ML081840513), the same day the licensee submitted the proposed change to increase RWT minimum required volume by a separate letter. The staff reviewed the final supplemental response and requested that the licensee provide additional information. The licensee

responded to the request by letters dated April 22, 2009 (ML091210225) for Unit 1, and April 16, 2009 (ML091130222) for Unit 2. The staff's review of these responses is independent of the licensing action request presently under review by the staff.

3.1 Refueling Water Tank (RWT) Minimum Inventory

As stated in the St. Lucie Unit 1 and Unit 2 UFSAR, Section 6.3, the safety function of the RWT is to provide a sufficient reservoir of borated water to meet the following requirements:

- Provide adequate coolant during the safety injection phase to the Emergency Cooling System (ECCS).
- Increase the boron concentration of reactor coolant and recirculation water to a point that ensures no return to criticality with the reactor at cold shutdown.
- Fill the containment sump to permit the initiation of recirculation.
- Fulfill spray requirements of the Containment Spray System (CSS).

In Section 4.0 of Attachment 1 to the letter dated June 30, 2008, the licensee stated that the TS requirements for RWT borated water temperature and boron concentration remain unchanged. Increasing minimum required water inventory in the RWT will have no adverse effect on the requirements to have adequate coolant during the injection phase, to increase the boron concentration of reactor coolant and recirculation water to a point that ensures no return to criticality with the reactor at cold shutdown, or on fulfilling spray requirements of CSS.

The safety injection mode of operation must be maintained for at least 20 minutes, after which the recirculation mode of operation is initiated. At this time, the core decay heat will be less than the heat removal capacity of one high pressure safety injection (HPSI) pump taking suction from the containment sump. The licensee stated that the proposal to increase the borated water inventory in the RWT ensures that following a small break and LBLOCA, there is adequate emergency sump water levels to submerge the containment sump strainer systems and also provides adequate NPSH for the ECCS and CSS pumps at the time of switchover to recirculation. The licensee stated that post-LOCA containment water level has been evaluated in accordance with the NRC Content Guide for Supplemental Responses to GL-2004-02 (Reference). The licensee further stated that sump level calculations were revised to accommodate potential areas of water holdup based on lessons learned from the NRC audit of the Waterford licensee's corrective actions in response to GL 2004-02. Based on the information provided by the licensee, the calculations appropriately included water hold up, such as filling the empty containment spray headers, containment spray droplets, water in refueling canal, steam in containment atmosphere, liquid condensation on containment surfaces, reflood the vessel and reactor coolant system (RCS), and volume changes due to heating and cooling of the RWT and RCS contents. The licensee stated that results of the calculation show that at switchover to recirculation for Unit 1, the submergence of the highest opening in the strainer system is 14 inches for a LBLOCA and 8 inches for a small break (SB) LOCA. The corresponding numbers for Unit 2 are 22 inches for LBLOCA and 15 inches for SBLOCA. The license further stated that the incremental increase in NPSH margin using the proposed RWT minimum TS volume of 477,360 gallons is equal to the incremental increase in post-LOCA sump level. For Unit 1, the incremental increase in NPSH margin is 0.93 feet for a LBLOCA and

1.37 feet for a SBLOCA. For Unit 2, the incremental increase in NPSH margin is 0.83 feet for a LBLOCA and 1.30 feet for a SBLOCA. The licensee also concluded that the new strainer system is not susceptible to vortex formation. A detailed discussion regarding submergence, vortexing, and NPSH margin is provided in the licensee's supplemental response to GL 2004-02, dated June 30, 2008. As stated earlier, the staff reviewed the response and requested additional information. The licensee responded by letters dated April 22, 2009, for Unit 1, and April 16, 2009, for Unit 2. The staff is reviewing these responses also in conjunction with the GL 2004-02 closeout review.

The licensee performed calculations with potential losses of water conservatively estimated to show that the new containment sump screens will be submerged at the start of recirculation after a LOCA. The licensee is already operating St. Lucie Unit 1 and Unit 2 under an administrative requirement to maintain a greater volume of borated water in the RWT than in the current TS. The licensee stated that the increased inventory is now needed based on the new sump screens and revised the sump evaluations based on the greater volume as stated in the GL 2004-02 supplemental responses. While the remaining issues associated with GL 2004-02 for St. Lucie Unit 1 and Unit 2 are being reviewed by the staff, the licensee requested a TS amendment to revise the minimum required RWT water volume to bound the sump evaluations. This was done to fulfill the commitments made in their letter dated February 27, 2008. Based on the importance of ensuring the submergence of the new screens, the staff believes that the proposed change is prudent as it enhances the scrutiny and surveillance of the minimum RWT useable volume requirement.

3.2 Containment Analysis

As discussed in Section 4.0 of Attachment 1 to the licensee's application dated June 30, 2008, the RWT serves as a source of borated cooling water to the CSS and the ECCS during accident conditions. The CSS reduces the containment ambient temperature and pressure. The CSS also helps to limit offsite radiation levels following postulated LOCA by removing airborne iodine from the containment atmosphere. The ECCS consists of the HPSI pumps and the low pressure safety injection (LPSI) pumps. The primary function of the ECCS following a LOCA is to remove the stored and fission product decay heat from the reactor core to prevent fuel rod damage to the extent that such damage may impair effective core cooling. The ECCS also functions to maintain the core subcritical for the duration of a LOCA by means of boron injection. The operation of the ECCS and CSS following LOCA is divided into two distinct phases:

Injection Phase:

The CSS pumps draw borated water from the RWT and spray it into containment atmosphere through spray nozzles mounted high in the containment. The ECCS pumps draw borated water from RWT and discharge into the cold legs of the RCS. The operation of the ECCS during the injection mode terminates any reactivity increase following the postulated accidents, accomplishes initial cooling of the core, and replenishes coolant lost from the primary system. The injection mode of the ECCS will continue until RWT low level is reached, at which time the low pressure safety injection pumps are automatically tripped. Upon receipt of the recirculation actuation signal (RAS), the ECCS pumps and CSS pumps automatically align from the injection mode to the recirculation mode of operation.

Recirculation Phase:

During the recirculation phase, the CSS provides long-term core cooling during the accident recovery period. This function is accomplished by aligning the CSS pumps to take suction from the containment sump and cool the water by the shutdown heat exchangers. The cooled water is discharged back into the containment through the sprays to absorb more decay heat. The HPSI pumps operate on a "piggy back" mode on the CSS pumps during recirculation. As stated in Section 4.0 of Attachment 1 to the licensee's letter dated June 30, 2008, the events for which the RWT provides mitigation and for which the RWT parameters are limiting are large and small break LOCAs and steam line breaks. The licensee stated that the screen must be fully submerged to prevent vortexing and air ingestion during changeover from the injection mode to the cold-leg recirculation mode for a large-break LOCA.

Available RWT volume is not an explicit assumption in analyses for other than LOCA events since the required volume for those events is much less than that required for a LOCA. The minimum required deliverable volume is dependent on the LOCA and containment analysis, and the containment recirculation sump and sump screen design. The TS requirements for RWT borated water temperature and boron concentration remain unchanged. Except for RWT inventory, the initial containment design parameters used for post-accident containment analysis remain the same. A higher RWT inventory could potentially increase the injection period slightly compared to the present analysis. During the injection phase of post-accident operation, the ECCS pumps water from the RWT into the reactor vessel at a lower temperature than that of the water in the vessel. This water can, therefore, absorb heat from the core until saturation temperature is reached. Likewise, the entire heat capacity of the spray from the RWT temperature to the containment atmosphere temperature is available for energy absorption. A slightly longer period of operation in injection mode will have no adverse effect on the results of the existing containment analysis. On the contrary, it may even have a beneficial effect, albeit small. Therefore, the results of the existing containment analyses for short term post-accident operation will bound the new condition with the higher RWT water inventory. The long term cooling is also unaffected because the higher RWT inventory will provide full submergence of the containment sump screen, thus ensuring ECCS systems operate as designed. The Component Cooling Water, which removes containment heat during long term scenarios, via the shutdown heat exchangers, is unaffected by the proposed change.

The NRC Staff concludes that the proposed change will continue to meet the requirements of GDCs 16, 35, 38 and 50. GDC 16 is satisfied since the proposed change would not result in pressure and temperatures exceeding the containment design limits and since surveillance testing will continue to demonstrate that containment is "essentially leak-tight." GDC 35 is satisfied since the increased RWT inventory has no impact on short term core cooling, and by providing full submergence of the sump screens, it also ensures long term core cooling. GDC 38 and 50 are satisfied since the increased RWT inventory will have no adverse effect on the previously analyzed containment pressures and temperatures. Based on the information provided by the licensee, the NRC Staff also concludes that the proposed amendment will have no adverse impact on long term core cooling and, therefore, the proposed amendment is acceptable with respect to the requirements of 10 CFR 50.46.

3.3 Containment Flood Level

In Section 4.0 of Attachment 1 to the licensee's letter dated June 30, 2008, it was stated that based on the calculation of the maximum flood level after a LOCA that includes RWT inventory, the proposed change has no adverse impact on the post-LOCA containment analyses or on the Equipment Qualification Analysis. Based on the discussion in Section 3.2 above regarding the effects of a slight increase in level, the staff finds it acceptable.

3.4 RWST Seisrnic Qualification

In Section 4.0 of Attachment 1 to the licensee's letter dated June 30, 2008, the licensee stated that the proposed RWT minimum TS inventory is enveloped by the volume already considered in the seismic analysis of the RWT. Based on this, the proposed change will have no affect on the seismic qualification of the RWT, and therefore, the staff finds it acceptable.

3.5 Instrument Uncertainty

In response to the NRC staff's request, the licensee submitted the supplemental information regarding the RWT level uncertainty calculation and the measures to ensure the operability of the instrumental channel.

The staff reviewed the RWT level uncertainty calculations in FPL documents PSL-1FJI-08-002, Revision 0, dated July 16, 2008, for Unit 1 and PSL-2FJI-08-001, Revision 0, dated July 14, 2008, for Unit 2. The staff found that the licensee evaluated the RWT level instrument uncertainties associated with the TS minimum operating alarm and the Low level setpoint based on the square-root-sum-of-the-squares method, with the consideration of temperature variation, measuring and test equipment, drift, repeatability, and setting tolerance uncertainties. The staff concludes that this RWT Low level setpoint total loop uncertainties calculation is consistent with RG 1.105 and has maintained the adequate safety margins.

The licensee used the resulting total loop uncertainties to form the basis for the tolerances established in the plant surveillance procedures for RWT level. The tolerances in these procedures provide guidance for acceptable "As Found" and "As Left" settings for the associated instrumentation channel. The licensee also provided information concerning the surveillance procedures for RWT level and volume. The licensee performs periodic surveillances to verify that specific settings are within an acceptable range. The licensee stated that "As Found" data found outside of the acceptable tolerances are flagged as unacceptable and subsequently adjusted back into tolerance. "As Left" data is recorded to document any adjustments to the instrument loop relative to its "As Found" condition. Any TS equipment flagged as unacceptable is assessed for operability in accordance with plant procedures. Any TS equipment found to be inoperable shall be declared out-of-service and entered into the Equipment Out-of-Service log. The equipment shall not be declared back in service until appropriate testing has been performed and documented, ensuring the operability of the RWT level instrumentation.

The licensee's TSs specifies the operability requirements for the RWT level instrumentation. TS SR 4.1.2.8.a.2 and TS SR 4.5.4.a.1 specify that the RWT shall be demonstrated OPERABLE at least once per 7 days by verifying the water levels in the tanks of Unit 1 and Unit 2. The control room RWT level indicating functions of the RAS are safety-related and allow the control room operator to monitor the RWT level and to verify the compliance with TS requirements for

the RWT. In addition to the RAS RWT instrumentation, RWT HIGH/LOW level alarms are also available to the operators. The alarms provide the operators an early warning indication of high or low RWT levels. The RWT low-level alarm is set above the RWT minimum required level and accounts for instrument uncertainty and the margin.

The licensee's RWT Low level setpoint total uncertainty calculation uses the square-root-of-the-sum-of-the-squares method and meets the guidance of RG 1.105. The licensee's procedures would maintain the RWT minimum level and corresponding volume within the established tolerances to ensure that the instruments will be capable of performing their specified safety function. Based on these reasons, the staff finds the proposed TS changes acceptable.

4.0 STATE CONSULTATION

Based upon a letter dated May 2, 2003, from Michael N. Stephens of the Florida Department of Health, Bureau of Radiation Control, to Brenda L. Mozafari, Senior Project Manager, U.S. Nuclear Regulatory Commission, the State of Florida does not desire notification of issuance of license amendments.

5.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding (74 FR 6665, dated February 10, 2009). Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: P. Chung,
N. Karipineni

Date: June 30, 2009

June 30, 2009

Mr. Mano Nazar
Senior Vice President, Nuclear and
Chief Nuclear Officer
Florida Power and Light Company
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Juno Beach, Florida 33408-0420

SUBJECT: ST. LUCIE PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING TECHNICAL SPECIFICATION REQUIREMENTS ASSOCIATED WITH REFUELING WATER TANK MINIMUM CONTAINED VOLUME OF BORATED WATER (TAC NOS. MD9208 AND MD9209)

Dear Mr. Nazar:

The Commission has issued the enclosed Amendment Nos. 209 and 157 to Renewed Facility Operating License Nos. DPR-67 and NPF-16 for the St. Lucie Plant, Units 1 and 2. These amendments consist of changes to the Technical Specifications in response to your application dated June 30, 2008, as supplemented by letter dated August 13, 2008.

These amendments would modify Technical Specification requirements related to Refueling Water Tank (RWT) minimum contained volume of borated water. The proposed changes will make permanent the current administrative RWT minimum level of 32.5 feet for both units.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,
/RA/
Brenda L. Mozafari, Senior Project Manager
Plant Licensing Branch II-2
Division of Operator Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-335
and 50-389

Enclosures:
1. Amendment No. 209 to DPR-67
2. Amendment No. 157 to NPF-16
3. Safety Evaluation

cc w/enclosures: Distribution via Listserv

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PChung, NRR
NKaripineni, NRR
BMarcus, NRR

ADAMS Accession No. (Amendment No.): ML091700314 *transmitted by memo dated

OFFICE	LPL2-2/PM	LPL2-2/LA	DE/EICB/BC	DSS/SCVB/BC	DIRS/ITSB/BC	OGC/NLO Comments addressed	LPL2-2/BC
NAME	BMozafari	BClayton	WKemper	RDennig	CShelton for RElliott	A Jones;	TBoyce
DATE	6/27/09	6/30/09	3/31/09*	5/28/09*	06/30/09	06/30/09	6/30/09

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