Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

FPL

February 11, 2012

L-2012-052
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

Information Regarding Fuel Thermal Conductivity Degradation Provided in Support of the 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) NRC Reactor Systems Branch Audit Conducted at AREVA NP Inc. Facilities in Lynchburg, VA, January 30 and 31, 2012.

(3) Pedro Salas (AREVA NP Inc.) to Document Control Desk (NRC), "Request for Review and Approval of EMF-92-116(P)(A), Revision 0, Supplement 1, Revision 0, "Generic Mechanical Design Criteria for PWR Fuel Design," NRC:11:117, dated December 19, 2011, Accession No. ML11363A129.

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).

During the course of the NRC audit conducted at AREVA's facilities in Lynchburg, VA on January 30 and 31, 2012 [Reference 2], the NRC staff requested information on the use of the generic RODEX2 fuel thermal conductivity augmentation factors. Also discussed was AREVA's application to the NRC [Reference 3] to revise the methodology to address the thermal conductivity degradation issues and FPL's willingness to re-visit the St. Lucie Unit 1 fuel safety analyses subsequent to NRC approval of the revised methodology. The RODEX2 code evaluates the thermal-mechanical response of fuel rods under normal operating and transient conditions, including fuel rod internal pressure and fuel centerline melt. In response, FPL

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proposes a License Condition regarding the use of RODEX2. The proposed License Condition and related information are provided in Attachments 1, 2 and 3 to this letter.

The proposed License Condition has been evaluated in accordance with 10 CFR 50.91(a)(1), using the criteria in 10 CFR 50.92(c). FPL has determined that the proposed License Condition does not involve a significant hazards consideration. Therefore, the proposed License Condition 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, but does contain a new License Condition involving the continued use of RODEX2 after NRC approval of a revised generic version of the AREVA RODEX2 code that addresses thermal conductivity degradation.

In accordance with 10 CFR 50.91(b)(1), a copy of this letter is being forwarded to the designated State of Florida official.

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 11-February-2012

Very truly yours,

Richard L. Anderson
Site Vice President
St. Lucie Plant

Attachments (3)

cc: Mr. William Passetti, Florida Department of Health

Proposed Condition of License

The following information is provided by Florida Power and Light Company (FPL) in response to the U. S. Nuclear Regulatory Commission's (NRC) request made during the audit at AREVA's facilities in Lynchburg, VA on January 30 and 31, 2012 [Reference 2]. This information was requested to support review of the St. Lucie Unit 1 License Amendment Request (LAR) for Extended Power Uprate (EPU) [Reference 1].

During the audit FPL was requested to demonstrate that the impact of fuel thermal conductivity degradation (TCD) has been adequately considered in the St. Lucie Unit 1 EPU safety analyses. FPL satisfactorily provided the requested information. Also discussed during the audit was the future consideration of Supplement 1 of the generic code RODEX2, which is currently under review by the NRC [Reference 3]. The RODEX2 code evaluates the thermal-mechanical response of fuel rods under normal operating and transient conditions, including fuel rod internal pressure and fuel centerline melt. In response, FPL proposes a License Condition regarding the continued use of RODEX2.

Proposed Operating License Change

License Condition 3.I is proposed to Renewed Facility Operating License No. DPR-67, consistent with discussions held during the AREVA audit [Reference 2] with the NRC Project Manager (PM) and NRC staff:

3.I RODEX2 Safety Analyses

RODEX2 has been specifically approved for use for St. Lucie Unit 1 licensing basis analyses. Upon NRC approval of a generic supplement to the RODEX2 code and associated methods that account for thermal conductivity degradation (TCD), FPL will, within six months:

a. Demonstrate that the St Lucie Unit 1 safety analyses remain conservatively bounded in licensing basis analyses when compared to the NRC-approved generic supplement to the RODEX2 methodology, or

b. Provide a schedule for re-analysis using the NRC-approved generic supplement to the RODEX2 methodology for any of the affected licensing basis analyses.

Basis for the Change: The language in the license condition will assure that the results of the St. Lucie Unit 1 safety analyses remain conservative and within regulatory limits. Per the license condition, FPL must implement the NRC-approved generic supplement to the RODEX2 methodology in the event that it is more conservative than RODEX2.

See Attachment 2 Marked-up Pages and Attachment 3 Clean Pages of the Facility Operating License (DPR-67).

NO SIGNIFICANT HAZARDS CONSIDERATION

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility involves no significant hazard if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

FPL proposes to add a new license condition (3.I) to DPR-67. The proposed license condition will require FPL to, within six months of NRC approval of a generic supplement to the RODEX2 code and associated methods, either demonstrate that the existing RODEX2 analysis remains conservatively bounding when compared to the NRC-approved supplement to the RODEX2 methodology or provide a schedule to perform re-analysis using the NRC-approved generic supplement to the RODEX2 methodology for any of the affected licensing basis analyses. This will assure that the results of the safety analyses remain conservative and within regulatory limits. The RODEX2 code evaluates the thermal-mechanical response of fuel rods under normal operating and transient conditions, including fuel rod internal pressure and fuel centerline melt.

FPL has reviewed this proposed license amendment for St. Lucie Unit 1 and has determined that its adoption would not involve a significant hazards consideration.

The proposed amendment does not involve a significant hazards consideration for the following reasons:

1. **The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.**

   The proposed license condition will require FPL, within six months of NRC approval of a revised generic supplement to the RODEX2 code and associated methods, to either demonstrate that the existing RODEX2 analysis remains conservatively bounding when compared to the NRC-approved generic supplement to the RODEX2 methodology or provide a schedule for performance of re-analysis using the NRC-approved generic supplement to the RODEX2 code and associated methods for any of the affected licensing basis analyses. This will assure FPL implementation of the NRC-approved supplement to the RODEX2 methodology once it becomes available, in the event that the results are more conservative, i.e., restrictive.

   The proposed license condition has no effect on the probability of an accident previously evaluated as it does not affect the configuration or operation of systems that could initiate an accident previously evaluated. The proposed license condition has no direct effect on the consequences of an accident previously evaluated as it only assures that the results of the safety analyses remain conservative and within regulatory limits.

   Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

   The proposed license condition will not affect the design or operation of any plant equipment that could initiate or contribute to the initiation of an accident. The proposed license condition only assures the results of the safety analyses remain conservative and within regulatory limits.

   Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. **The proposed amendment does not involve a significant reduction in the margin of safety.**

   The proposed license condition only assures FPL's implementation of the NRC-approved generic supplement to the RODEX2 methodology once it becomes available in the event that the results are more conservative, i.e., restrictive. The proposed license condition only assures that the results of the safety analyses remain conservative and within regulatory limits. As such, they cannot reduce any margin of safety.

   Thus, the proposed amendment does not involve a significant reduction in the margin of safety.

Based on the above discussion, FPL has determined that the proposed license condition does not involve a significant hazards consideration.

ATTACHMENT 2

PROPOSED CONDITION OF LICENSE TO ST. LUCIE UNIT 1 FACILITY OPERATING LICENSE (DPR-67) REGARDING FUEL THERMAL CONDUCTIVITY DEGRADATION

Facility Operating License Marked Up Pages

Florida Power & Light
St. Lucie Unit 1

This coversheet plus 2 pages

(c) Actions to minimize release to include consideration of:
1. Water spray scrubbing
2. Dose to onsite responders

H. Control Room Habitability

Upon implementation of Amendment No. 205, adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 4.7.7.1.e, in accordance with TS 6.8.4.m, the assessment of CRE habitability as required by Specification 6.8.4.m.c. (ii), and the measurement of CRE pressure as required by Specification 6.8.4.m.d, shall be considered met. Following implementation:

(a) The first performance of SR 4.7.7.1.e, in accordance with Specification 6.8.4.m.c(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 4.0.2, as measured from September 2003, the date of the most recent successful tracer gas test, as stated in FPL letters to NRC dated December 9, 2003, and October 29, 2004, in response to Generic Letter 2003-01.

(b) The first performance of the periodic assessment of CRE habitability, Specification 6.8.4.m.c(ii), shall be within 3 years, plus the 9-month allowance of SR 4.0.2, as measured from September 2003, the date of the most recent successful tracer gas test, as stated in FPL letters to NRC dated December 9, 2003, and October 29, 2004, in response to Generic Letter 2003-01, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

(c) The first performance of the periodic measurement of CRE pressure, Specification 6.8.4.c.d, shall be within 36 months in a staggered test basis, plus the 138 days allowed by SR 4.0.2, as measured from June 30, 2006, which is the date of the most recent successful pressure measurement test, or within 138 days if not performed previously.

4. This renewed license is effective as of the date of issuance and shall expire at midnight on March 1, 2036.

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

INSERT

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ATTACHMENT 3

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Facility Operating License Clean Pages

Florida Power & Light
St. Lucie Unit 1

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