Florida Power & Light, 9760 S.W. 344 St. Homestead, FL 33035

FPL

JAN 23 2012
L-2012-039
10 CFR 50.90

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555-0001

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Response to NRC Reactor Systems Branch Request for Additional Information
Regarding Extended Power Uprate License Amendment Request No. 205
and Non-LOCA Analyses

Reference:

(1) M. Kiley (FPL) to U.S. Nuclear Regulatory Commission (L-2010-113), "License Amendment Request for Extended Power Uprate (LAR 205)," (TAC Nos. ME4907 and ME4908), Accession No. ML103560169, October 21, 2010.

By letter L-2010-113 dated October 21, 2010 [Reference 1], Florida Power and Light Company (FPL) requested to amend Renewed Facility Operating Licenses DPR-31 and DPR-41 and revise the Turkey Point Units 3 and 4 (PTN) Technical Specifications (TS). The proposed amendment will increase each unit's licensed core power level from 2300 megawatts thermal (MWt) to 2644 MWt and revise the Renewed Facility Operating Licenses and TS to support operation at this increased core thermal power level. This represents an approximate increase of 15% and is therefore considered an extended power uprate (EPU).

During the Advisory Committee on Reactor Safeguards (ACRS) full committee meeting on PTN's EPU application on January 19, 2012 in Rockville, MD, an ACRS member requested an explanation of an initial condition assumption for the limiting loss of load/turbine trip (LOL/TT) analysis regarding the nominal pressurizer pressure assumed at the onset of the event and the application of instrument uncertainty to this parameter. FPL's response to the NRC's request for additional information is provided in Attachment 1 to this letter.

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

This submittal does not alter the significant hazards consideration or environmental assessment previously submitted by FPL letter L-2010-113 [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. Robert J. Tomonto, Licensing Manager, at (305) 246-7327.

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NRR

I declare under penalty of perjury that the foregoing is true and correct.

Executed on January 23, 2012.

Very truly yours,

Michael Kiley
Site Vice President
Turkey Point Nuclear Plant

Attachment

cc: USNRC Regional Administrator, Region II
USNRC Project Manager, Turkey Point Nuclear Plant
USNRC Resident Inspector, Turkey Point Nuclear Plant
Mr. W. A. Passetti, Florida Department of Health

Turkey Point Units 3 and 4

RESPONSE TO NRC REACTOR SYSTEMS BRANCH REQUEST FOR ADDITIONAL INFORMATION REGARDING EXTENDED POWER UPRATE LICENSE AMENDMENT REQUEST NO. 205 AND NON-LOCA ANALYSES

ATTACHMENT 1

Response to Request for Additional Information

The following information is provided by Florida Power and Light Company (FPL) in response to the U. S. Nuclear Regulatory Commission's (NRC) Request for Additional Information (RAI). This information was requested to support License Amendment Request (LAR) 205, Extended Power Uprate (EPU), for Turkey Point Nuclear Plant (PTN) Units 3 and 4 that was submitted to the NRC by FPL via letter (L-2010-113) dated October 21, 2010 [Reference 1].

During the Advisory Committee on Reactor Safeguards (ACRS) full committee meeting on PTN's EPU application on January 19, 2012 in Rockville, MD, an ACRS member requested an explanation of an initial condition assumption for the limiting loss of load/turbine trip (LOL/TT) analysis regarding the nominal pressurizer pressure assumed at the onset of the event and the application of instrument uncertainty to this parameter. The LOL/TT event for EPU is described in Licensing Report (LR) Section 2.8.5.2.1, "Loss of External Load, Turbine Trip, Loss of Condenser Vacuum, and Steam Pressure Regulator Failure," in Attachment 4 of Reference 1. FPL's response to the ACRS request is provided below.

Response:

The LOL/TT event is analyzed to address both departure from nucleate boiling (DNB) concerns as well as overpressurization concerns. The safety analysis methods employed to address each of these concerns differ slightly to ensure that the most conservative results with respect to each of these acceptance criteria are obtained and reported in the plant's Updated Final Safety Analysis Report (UFSAR). In the case of reactor coolant system (RCS) overpressurization, the standard analysis method requires the modeling of an initial pressurizer pressure that explicitly accounts for a negative pressure uncertainty, i.e., the initial pressurizer pressure is to be set at a value below the nominal operating pressure. By modeling a lower initial pressurizer pressure, the timing of reactor trip on high pressurizer pressure is conservatively delayed. With the reactor trip delayed, the primary-to-secondary power mismatch that results from terminating all secondary-side steam relief with the reactor still operating at full-power conditions would last longer. An extended primary-to-secondary power mismatch time period poses a more serious challenge to the installed pressurizer safety valve capacity, which is the only source of primary-side pressure relief assumed in the typical UFSAR analysis. Thus, delaying reactor trip during the LOL/TT event leads to a more limiting peak RCS pressure.

The LOL/TT analysis performed in support of the Turkey Point EPU models an initial pressurizer pressure of 2197 psia, which accounts for a pressure uncertainty of -53 psi. The analysis results, which were reported in Turkey Point EPU LR Section 2.8.5.2.1 in Attachment 4 of Reference 1, show a maximum RCS pressure of 2746.6 psia, compared to the applicable limit of 2748.5 psia.

To quantify the impact of initiating the same transient from a higher initial pressurizer pressure, a plant-specific sensitivity study was performed. This sensitivity modeled an initial pressurizer pressure of 2303 psia (nominal pressure *plus* the pressure uncertainty of 53 psi). As expected, the results of this sensitivity show that the maximum RCS pressure reached is less than that reported in the Licensing Report. The table below contains a comparison of several key results from the proposed licensing basis case and the high initial pressurizer pressure sensitivity case.

Time Sequence of Events – Loss of Load / Turbine Trip
Peak RCS Pressure Case

Event	Licensing Report Case	High Initial Pressurizer Pressure Sensitivity Case
	Time (seconds)	Time (seconds)
Loss of Load / Turbine Trip Initiated	0.0	0.0
High Pressurizer Pressure Reactor Trip Setpoint (2455 psia) Reached	6.3	4.9
Rod Motion Begins	8.3	6.9
Peak RCS Pressure Occurs	8.9 (2746.6 psia)	7.5 (2713.8 psia)

Reference

1. M. Kiley (FPL) to U.S. Nuclear Regulatory Commission (L-2010-113), "License Amendment Request for Extended Power Uprate (LAR 205)," (TAC Nos. ME4907 and ME4908), Accession No. ML103560169, October 21, 2010.