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

August 1, 2012

Mr. Jon A. Franke, Vice President
Crystal River Nuclear Plant (NA2C)
ATTN: Supervisor, Licensing & Regulatory Programs
15760 W. Power Line Street
Crystal River, Florida 34428-6708

SUBJECT: CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT – REQUEST FOR ADDITIONAL INFORMATION FOR EXTENDED POWER UPRATE LICENSE AMENDMENT REQUEST (TAC NO. ME6527)

Dear Mr. Franke:

By letter dated June 15, 2011, as supplemented by letters dated July 5, 2011; August 11, 2011 (two letters); August 18 and 25, 2011; October 11 and 25, 2011; December 15, 2011 (two letters); December 21, 2011; January 5, 2012 (two letters); January 19, 2012 (two letters); January 31, 2012; March 19, 2012; March 22, 2012; April 4, 2012 (two letters); April 12, 2012; and April 26, 2012; Florida Power Corporation, doing business as Progress Energy Florida, Inc., submitted a license amendment request for an extended power uprate to increase thermal power level from 2609 megawatts thermal (MWt) to 3014 MWt for Crystal River Unit 3 Nuclear Generating Plant.

The U.S. Nuclear Regulatory Commission staff is reviewing the submittal and has determined that additional information is required to complete its evaluation. This request was discussed with Mr. Dan Westcott of your staff on May 2, 2012, and it was agreed that a response to the enclosed request for additional information would be provided within 45 days from the date of this letter.

If you have any questions regarding this matter, I can be reached at 301-415-1564.

Sincerely,

Siva P. Lingam

Siva P. Lingam, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

REGARDING EXTENDED POWER UPRATE TO INCREASE THERMAL POWER LEVEL

FROM 2609 MEGAWATTS THERMAL TO 3014 MEGAWATTS THERMAL

CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT

DOCKET NO. 50-302

By letter dated June 15, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML112070659), as supplemented by letters dated July 5, 2011; August 11, 2011 (two letters); August 18 and 25, 2011; October 11 and 25, 2011; December 15, 2011 (two letters); December 21, 2011; January 5, 2012 (two letters); January 19, 2012 (two letters); January 31, 2012; March 19, 2012; March 22, 2012; April 4, 2012 (two letters); April 12, 2012; and April 26, 2012 (ADAMS Accession Nos. ML112010674, ML11228A032, ML11234A051, ML11234A427, ML11242A140, ML112860156, ML113040176, ML11354A232, ML11354A233, ML11361A460, ML12011A035, ML12030A209, ML12024A300 ML12024A301, ML120330114, ML12081A293, ML12086A107, ML12097A183, ML12097A246, ML12107A216, and ML12118A498, respectively), Florida Power Corporation (the licensee), doing business as Progress Energy Florida, Inc., submitted a license amendment request (LAR) for an extended power uprate (EPU) to increase thermal power level from 2609 megawatts thermal (MWt) to 3014 MWt for Crystal River Unit 3 Nuclear Generating Plant (Crystal River 3 or CR-3). In order to complete its review of the above documents, the Nuclear Regulatory Commission (NRC) staff requests additional information originating from our Mechanical and Civil Engineering Branch (EMCB), power ascension and testing plan group, related to Section 2.12 of Attachment 5 of the original LAR dated June 15, 2011:

EMCB Requests for Additional Information

These questions pertain primarily to the licensee's analytical basis for proposing to eliminate certain large transient tests from the power ascension and testing plan.

RAI EMCB-1

LAR Section 2.12, "Power Ascension and Testing Plan," page 2.12.1-7 of Attachment 5 of the original LAR discusses the Digital Power Train (DPT) code used by AREVA NP. Please provide a copy of Babcock and Wilcox (B&W) topical report BAW-10149, Revision 1, November 1981, which is referenced in the section discussing the DPT code. The DPT code was used, in part, as a basis to eliminate performing certain large transient tests as part of the licensee's power ascension and testing plan for EPU.

RAI EMCB-2

LAR Section 2.12, page 2.12.1-8 of Attachment 5 of the original LAR refers to benchmarking performed for the DPT code. Please provide documentation that describes this benchmarking and its results in detail.

Enclosure

RAI EMCB-3

LAR Section 2.12, page 2.12.1-7 of Attachment 5 of the original LAR discusses the elimination of five transient tests from the EPU startup program. The tests are:

- Reactor Trip from 40% power
- Reactor Coolant Pump trip from 40% power
- Main Feedwater Pump trip from 75% power
- Loss of Offsite Power (LOOP) from 15% power.
- Dropped Control Rod from 75% power

The LAR states that the LOOP event was performed at measurement uncertainty recapture and EPU power conditions using the RELAP5/MOD2-B&W (R5/M2) computer code; and also describes the modeling of the remaining transients using the DPT code. Provide the results of these analyses at the same level of detail as those analyses discussed in Section 2.8.5, "Accident and Transient Analyses," of the original LAR.

RAI EMCB-4

LAR Section 2.12, page 2.12.1-8 of Attachment 5 of the original LAR discusses that the DPT code was developed modeling the Rancho Seco Nuclear Steam Supply System, and also provides discussion of benchmarking for Oconee and Three Mile Island events. Provide additional justification of the applicability of DPT to the CR-3 EPU design: demonstrate that there is reasonable agreement, for instance, between the results predicted for an operational event modeled using the RELAP5/MOD2-B&W code as compared to the same event modeled using the DPT code. The comparison would be especially valuable if CR-3 specific data were available to compare.

RAI EMCB-5

Provide additional information regarding the basis for statements in Section 2.12 of the original LAR regarding licensee credit taken for B&W pressurized water reactors industry operating experience and CR-3 plant specific operating experience at power levels greater than original licensed thermal power. The LAR did not discuss in detail the basis for these statements. In some cases, the NRC staff may use such operating experience in its review of the criteria discussed in Standard Review Plan, Chapter 14, Section 14.2.1, Paragraph III.C based on Matrix 12 of the NRC Review Standard for Extended Power Uprates.

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