POINT BEACH

July 27, 2010

NRC 2010-0088
10 CFR 50.90

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

Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
Renewed License Nos. DPR-24 and DPR-27

License Amendment Request 261
Extended Power Uprate
Response to Request for Additional Information

References:
(1) FPL Energy Point Beach, LLC letter to NRC, dated April 7, 2009, License Amendment Request 261, Extended Power Uprate (ML091250564)
(2) NRC electronic mail to NextEra Energy Point Beach, LLC, dated June 3, 2010, Draft – Request for Additional Information from Containment and Ventilation Branch on HELB RE: EPU (ML101540509)

NextEra Energy Point Beach, LLC (NextEra) submitted License Amendment Request (LAR) 261 (Reference 1) to the NRC pursuant to 10 CFR 50.90. The proposed amendment would increase each unit's licensed thermal power level from 1540 megawatts thermal (MWt) to 1800 MWt, and revise the Technical Specifications to support operation at the increased thermal power level.

Via Reference (2), the NRC staff determined that additional information is required to enable the staff's continued review of the request. Enclosure 1 provides the NextEra response to the NRC staff's request for additional information. A disc accompanies this submittal which contains the electronic version of the "GTH" files requested by the staff in Reference (2).

This letter contains no new Regulatory Commitments and no revisions to existing Regulatory Commitments.

The information contained in this letter does not alter the no significant hazards consideration contained in Reference (1) and continues to satisfy the criteria of 10 CFR 51.22 for categorical exclusion from the requirements of an environmental assessment.

A001
NRR

In accordance with 10 CFR 50.91, a copy of this letter is being provided to the designated Wisconsin Official.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on July 27, 2010.

Very truly yours,

NextEra Energy Point Beach, LLC

Larry Meyer
Site Vice President

Enclosure

cc: Administrator, Region III, USNRC, w/o CD
Project Manager, Point Beach Nuclear Plant, USNRC, w/o CD
Resident Inspector, Point Beach Nuclear Plant, USNRC, w/o CD
PSCW, w/o CD

ENCLOSURE 1

NEXTERA ENERGY POINT BEACH, LLC
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

LICENSE AMENDMENT REQUEST 261
EXTENDED POWER UPRATE
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

The NRC staff determined that additional information was required (Reference 1) to enable the Containment and Ventilation Branch to complete its review of License Amendment Request (LAR) 261, Extended Power Uprate (EPU) (Reference 2). The following information is provided by NextEra Energy Point Beach, LLC (NextEra) in response to the NRC staff's request.

Question 1

Please provide a table which compares the values of input parameters in the current licensing basis (CLB) analysis which used COMPARE code, and the proposed analysis which used GOTHIC code. Provide justification for the parameters values that are different in the proposed analysis from the CLB analysis. At least the values of the following inputs parameters should be listed: (a) volumes, (b) initial conditions in each volume, (c) heat sinks along with their shape, material, surface areas and thickness, (d) break sizes and locations considered, (e) boundary conditions, (f) component parameters.

NextEra Response

Based on a teleconference with the NRC staff on July 15, 2010, the response to this question will be provided in later correspondence.

Question 2:

Provide the basis of mass and energy input used in the GOTHIC model. If different from the CLB analysis, explain and justify the differences.

NextEra Response

Main Steam Line Breaks

The system transient that provides the break mass flowrates and enthalpies of the steam release through the steamline break outside containment has been analyzed with the Westinghouse LOFTRAN computer code (WCAP-7907-P-A, April 1984). Blowdown mass and energy releases determined using LOFTRAN include the effects of core power generation, main and auxiliary feedwater additions, engineered safeguards systems, reactor coolant system thick-metal heat storage including steam generator (SG) thick-metal mass and tubing, and reverse steam generator (SG) heat transfer. The LOFTRAN model for calculating superheated steam after SG tube uncovery is documented in Supplement 1 of WCAP-8822-S1-P-A, September 1986, which has been approved by the NRC.

The modeling considerations made in development of the releases focus on maximizing the superheat of the releases. These considerations focus on two main aspects of the transient; minimizing the time until the SG tubes uncover and maximizing the energy available for release. The time of tube uncovery corresponds to the onset of superheated releases, after which, the amount of superheat is driven by the primary side energy. The key input related to these aspects of the analysis involve assuming the highest initial power level, maximizing the primary coolant temperature, maximizing the main feedwater temperature, and minimizing the initial SG inventory. All inputs are selected based on the expected EPU conditions.

The mass and energy releases from a steamline break outside containment have been determined at the uprated nuclear steam supply system (NSSS) power level of 1806 megawatts thermal (MWt) for a spectrum of break sizes and break locations. These are used as input to the compartment temperature analysis to support environmental qualifications. The methods explained above are the same as those previously used to calculate outside containment mass and energy releases from a main steam line break.

Auxiliary Steam Line Breaks in Component Cooling Water (CCW) Heat Exchanger Room

The postulated HELB in the CCW heat exchanger room is considered to be a circumferential guillotine pipe rupture with the two ends completely offset. Blowdown proceeds from both ends of the pipe following the line break. The blowdown from the end connected to the main steam line is termed "forward" blowdown and the discharge from the other end is termed "reverse" blowdown. Both forward and reverse blowdowns are comprised of initial and steady state periods and are calculated independently of each other.

The initial forward blowdown flowrate is determined as an initial depressurization period followed by a steady-state flow supplied by the main steam line. The mass and energy release is based on the initial line conditions; pressure and enthalpy. In this first period, frictional losses are conservatively neglected since not all of the mass within the pipe must traverse the entire distance. The critical flow is calculated using the Moody Critical flow model. The duration of initial flowrate is determined by calculating the time required for the wave (at sonic velocity) to travel from the break location back to the nearest upstream area or energy source and then return back to the break. The steady-state forward flow is controlled by the line losses downstream of the steam source. The steady-state blowdown flow rate is calculated using the RELAP software.

The initial and steady state reverse blowdown mass and energy flow rates are calculated in the same manner as the forward blowdown rates.

The loss coefficients for the piping and fittings are included in a thermal-hydraulic model using the RELAP5 code. The water and steam properties were based on the American Society of Mechanical Engineers (ASME) Steam Tables. The sonic velocity of saturated steam between 800 and 1100 psia was scaled from the American National Standards Institute (ANSI) 58.2, Appendix B. Note that the LAR (Reference 2) and a response to request for additional information (Reference 3), incorrectly stated that the HELB mass and energy releases for the CCW heat exchanger room were determined using the Fanno line methodology. Although this methodology is used for the current HELB analysis for this room, the HELB analysis for EPU conditions utilized the RELAP5 model, as stated above. With this clarification, References (2) and (3) are considered amended.

Other High Energy Line Breaks

The mass flux at the break/crack location is calculated using the Extended Henry-Fauske critical flow model for sub-cooled liquid conditions and the Moody critical flow model for saturated steam and liquid conditions. The ASME International Steam Tables for Industrial Use is used along with the fluid properties (absolute pressure and enthalpy) to determine whether the fluid is subcooled or saturated, and this establishes the appropriate equation to be used.

Question 3

Please provide the electronic version of the 'GTH' files of the GOTHIC model used in the proposed HELB analysis for various break cases.

NextEra Response

Please find the compact disk accompanying this response, containing the electronic version of the "GTH" files of the GOTHIC™ model used in the proposed HELB analysis.

References

(1) NRC electronic mail to NextEra Energy Point Beach, LLC, dated June 03, 2010, Draft – Request for Additional Information from Containment and Ventilation Branch on HELB RE: EPU (ML101540509)

(2) FPL Energy Point Beach, LLC letter to NRC, dated April 7, 2009, License Amendment Request 261, Extended Power Uprate (ML091250564)

(3) NextEra Energy Point Beach, LLC, letter to NRC dated July 8, 2010, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML101940363)