July 23, 2010

NRC 2010-0085
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 May 26, 2010, Draft – Request for Additional Information from Mechanical and Civil Engineering Branch RE: AFW (ML101481053)

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.

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.

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 23, 2010.

Very truly yours,

NextEra Energy Point Beach, LLC

Larry Meyer
Site Vice President

Enclosure

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

**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 Mechanical and Civil Engineering Branch to complete the 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.

**EMCB AFW RAI 1-1**

*NextEra's response did not answer EMCB RAI 1.*

a) *Please identify the original codes of construction for the AFW pipe stress analyses and pipe support design and any codes that have been found acceptable to use through code reconciliation and are included in the current design basis as codes of record.*

b) *Please identify the codes utilized in qualifying the structural integrity of piping and pipe supports for the AFW modifications and whether the evaluations have been performed at CLTP or EPU conditions. If different from the plant design basis codes of record, provide an acceptable justification by reconciling these codes to the original codes of construction.*

**NextEra Response:**

a) The Code of record for Point Beach Nuclear Plant (PBNP) secondary piping systems is United States of America Standard (USAS) B31.1-1967. Pipe stress analysis has been done to American Society of Mechanical Engineers (ASME) Section III, 1977 Edition with Addenda through Winter 1978. This Code is consistent with that used in the codes used for the PBNP As-Built Reconciliation Program for NRC Bulletin (IEB) 79-14, Seismic Analyses for As-Built Safety-Related Piping Systems, which is the current design basis.

The American Institute of Steel Constructors (AISC) code in affect at the time of design for PBNP was the AISC Manual of Steel Construction, Sixth Edition. The current design basis for structural steel references the AISC Manual of Steel Construction, Sixth through Ninth Editions, for pipe support qualification. Pipe support qualifications for the auxiliary feedwater (AFW) modifications were done using the Ninth Edition.

b) The codes utilized in qualifying the structural integrity of piping and pipe supports for the AFW modifications are discussed in Item a) above. Code reconciliation was performed in 1988, prior to the start of the Bulletin 79-14 program. A formal pipe code reconciliation study was performed and documented by Impell Corporation, which reconciled USAS B31.1-1967 to ASME Section III, 1977 Edition with Addenda through Winter 1978. The AISC Manual of Steel Construction, Ninth Edition used for structural steel design of pipe supports is consistent with the current design basis for PBNP.

The piping qualification calculations use pipe temperature and pressure and seismic spectra as their main inputs. The maximum condensate storage tank (CST) temperature determines the maximum operating temperature for the AFW system. This temperature is not affected by the EPU. The maximum CST level defines the maximum operating pressure for the AFW suction piping. This is not affected by EPU. The new motor-driven AFW (MDAFW) pump discharge piping is designed for maximum discharge pressure for the new pumps. For this parameter there is no differentiation between EPU conditions and current licensed thermal power (CLTP). As discussed in Reference (3), the design pressure for AFW discharge piping to the steam generators is based on main steam relief valve setpoint. This is also not affected by EPU.

Therefore, the stress analyses, including calculated forces, moments, stresses, and nozzle loads, are applicable to both CLTP and EPU conditions. The AFW system pipe design, pipe evaluations, and pipe support designs have been completed and meet the design basis Code of record requirements for piping structural integrity and pipe support design.

**EMCB AFW RAI 2-1**

*RAI 2 requested the following:*

*Provide loadings and load combinations used for the AFW piping design and analysis, which include seismic and fluid transient loads, and a quantitative summary of the maximum pipe stresses and fatigue usage factors with a comparison to code of record allowable stresses which shows that the acceptance criteria have been met for EPU conditions. Include data at critical locations. For equipment nozzles provide a summary of loads compared to specific allowable values.*

*NextEra's response in part answers EMCB RAI 2.*

a) *Please provide the ASME code year that was mentioned in the response.*

b) *Please explain why fluid transient loads have not been mentioned in the response and provide a technical justification why water hammer can not occur in the AFW system, if that is the case.*

c) *Specify whether the calculated forces, moments and stresses shown in the response are due to CLTP loading conditions or EPU. If due to EPU, provide an explanation which shows quantitatively how the EPU piping loads changed from CLTP.*

d) *Clarify the statement made in the response that "The nozzle loads for the turbine-driven AFW pumps are not changing" by indicating whether the "nozzle loads" are for CLTP or EPU.*

*In the November 21st (first) RAI response, the following statement is made:*

*The following nozzle loads are used in the qualification of the new MDAFW pumps. These loads are used to evaluate the results of the ongoing piping system qualification analyses. Additional supports may be added or vendor requalification of the nozzles for the calculated loads may be performed, if required. The support addition or nozzle requalification will be completed prior to commissioning of the new MDAFW pumping system. The summary of loads compared to specific allowable values for the nozzles will be provided by January 8, 2010.*

e) *Please verify that all AFW system pipe design, pipe evaluations and pipe support designs have been completed and meet the design basis code of record requirements for piping structural integrity and pipe support design. Also specify whether the evaluations are for CLTP or EPU loads.*

*In the January 8 (second) RAI response, it is indicated that the pump vendor has "preliminarily indicated" that bounding pipe to pump loads produce "pump stresses [that] are within Code allowable values. Confirmation that the loads are within Code allowable values will be confirmed by final calculations."*

f) *Please indicate whether these loads supplied to vendor are suction and discharge bounding loads and whether the vendor is using them on both sides (suction and discharge) for pump casing and support evaluation/qualification.*

g) *Please specify the code name, code section and code year. If different than the design basis code of record, provide a technical justification for its acceptance, which reconciles the differences.*

h) *Please complete the response to this RAI when the final calculations have been completed. Until then this RAI will remain an open item.*

**NextEra Response:**

a) See the NextEra response to RAI EMCB AFW RAI 1-1, Items a) and b), above.

b) Analysis of fluid transients is not part of the current design basis for the PBNP AFW system. Additionally, the AFW system operates at low temperatures (100°F maximum operating temperature) and is maintained water filled. As a result, neither the existing nor the new system design would introduce the potential for fluid transients.

c) See the NextEra response to RAI EMCB AFW RAI 1-1, Item b), above.

d) See the NextEra response to RAI EMCB AFW RAI 1-1, Item b), above. The AFW modifications do not make physical changes to turbine-driven AFW (TDAFW) pump piping that would impact pump nozzle loads.

e) See discussion in the NextEra response to RAI EMCB AFW RAI 1-1, Item b) above, relative to the CLTP or EPU loads and relative to completion of the analyses.

f) The loads provided to the pump vendor were suction and discharge bounding loads and the vendor has considered loads from both sides (suction and discharge) for pump casing and support evaluation/qualification.

g) Although the MDAFW pumps are not classified as ASME Section III components, the rules of ASME Section III, 1998 Edition including 2000 Addenda have been used in the pump seismic qualification. The original Code of construction for the AFW pumps was USAS B31.1-1967. Since USAS B31.1-1967 and the current version of ASME B31.1 do not include rules for seismic qualification of pumps, PBNP elected to establish owner's requirements to use the rules of ASME Section III for this purpose.

h) Consistent with the design change process, NextEra has completed the calculations necessary to ensure that the Code allowables are satisfied with sufficient margin to allow for as-built configuration changes required to meet field conditions. Assessments are performed to demonstrate that the final installed as-built piping and pipe supports for the AFW system are structurally adequate.

**EMCB AFW RAI 3-1**
*(see also RAI 2-1.e)*

*The response to RAI 3 states that "Piping and pipe supports affected by modifications to the AFW system have been evaluated and remain structurally adequate for the current design." Please clarify what is meant by the term "current design".*

**NextEra Response:**

"Current design" refers to the design of the modified AFW system, and applies to both the CLTP and EPU conditions. Installation of the piping and supports is in progress and some minor adjustments from the design configurations are required to meet field conditions. Consistent with the design change process, as-built assessments are performed to demonstrate that the calculated stresses remain within allowable stresses for the final installed as-built piping and pipe supports, ensuring the AFW system is structurally adequate.

**EMCB AFW RAI 4-1**

*The response to RAI 4 identified that the only lines in the AFW system that meet the current licensing basis (LB) high energy (HE) line definition criteria are steam supply lines from the main steam system up to the normally closed TDAFW pump steam supply motor-operated valves. The RAI response stated that HE line break (HELB) analyses have been completed for these lines and have demonstrated acceptable response to a HELB event.*

*a) Please discuss whether the pipe failure postulation and HELB analyses for these lines are in accordance with the current license conditions and whether they are affected by the station's HELB reconstitution stated in UFSAR 2007, Appendix A.2. Not approved yet. Approval has been sought with the EPU. If that is the case AFW will have to wait for the EPU.*

b) *The response did not include the section of AFW system from its feed water (FW) connection to the check valves. Some of these lines are new AFW lines. Please provide a summary evaluation of the pipe failure postulation and HELB analyses for these lines in accordance with the current license conditions and indicated where the EPU will have an effect on the HELB of these lines. Also discuss whether the station's HELB reconstitution affects these lines.*

**NextEra Response:**

a) The design of the steam supply lines from the main steam system up to the normally closed TDAFW pump steam supply motor-operated valves is not changing for the AFW system upgrade. This existing design of the high energy steam supply piping up to the normally closed TDAFW pump steam supply valves has been evaluated for HELB and meets the current HELB licensing basis, as documented in the PBNP Final Safety Analysis Report (FSAR), Appendix A.2, High Energy Pipe Failure Outside Containment. The HELB evaluations for EPU conditions reduced the number of HELB locations, did not identify any new break locations for EPU conditions, and did not increase the loadings at the remaining locations, including the AFW steam supply piping. The pipe whip restraints and the analysis to determine that the safe shutdown capabilities of the plant would not be affected, which are described in FSAR Appendix A.2, High Energy Pipe Failure Outside Containment, demonstrate that breaks of these high energy lines will not result in unacceptable damage to systems, structures, and components important to safety, including the upgraded AFW system. Therefore, the pipe failure postulation and HELB analyses of the TDAFW pump steam supply high energy lines will continue to meet the current HELB licensing basis. Accordingly, NRC approval of the HELB evaluations at EPU conditions is not required to implement the AFW system upgrades.

b) As stated in FSAR Appendix A.2, High Energy Pipe Failure Outside Containment, high energy piping systems are defined as systems where the combined pressure and temperature conditions of the fluid exceeds 275 psig and 200°F. This definition of high energy piping systems is not changing for the HELB evaluations at EPU conditions. For the upgraded AFW system, the only portion of the AFW system that is considered high energy is the TDAFW pump steam supply lines up the normally closed TDAFW pump steam supply motor-operated valves. The new AFW lines for connection of the new MDAFW discharge to the feedwater lines are not high energy lines and do not connect to high energy lines. These new AFW lines do not affect the current HELB licensing basis and do not affect the HELB evaluations at EPU conditions. Therefore, no pipe failure postulation nor HELB analyses are required for these new lines.

**References**

(1) NRC electronic mail to NextEra Energy Point Beach, LLC, dated May 26, 2010, Draft - Request for Additional Information from Mechanical and Civil Engineering Branch RE: AFW (ML101481053)

(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 June 17, 2009, License Amendment Request 261, Supplement 1, Extended Power Uprate (ML091690090)