NEXTera ENERGY POINT BEACH

June 24, 2010

NRC 2010-0078
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 12, 2010, Draft – Request for Additional Information from Balance of Plant Branch RE: EPU only (Not AFW or HELB) (ML101340516)

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.

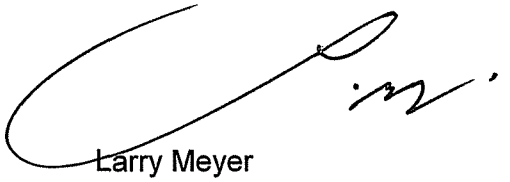
The information contained in this letter does not alter the no significant hazards consideration contained in Reference (1) and continues to satisfy the criteria of 10 CFR 51.22 for categorical exclusion from the requirements of an environmental assessment.

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 June 24, 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 Balance of Plant 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.

SBPB RAI 2.5-1

Appendix A.7, "Plant Internal Flooding," to the PBNP Final Safety Analysis Report (FSAR) describes the protective measures that, in conjunction with plant design features, were found to provide protection against internal flooding for specific sets of flooding sources and potentially affected equipment necessary for safe shutdown. In addition, a letter from Wisconsin Electric to the Nuclear Regulatory Commission staff dated February 17, 1975, which was referenced in the appendix, included a finding that redundant safety equipment at PBNP is adequately separated and protected to assure operability in the event a non-Category I system or component failed.

In Section 2.5.1 of the EPU licensing report, planned modifications to the auxiliary feedwater (AFW) and condensate systems were identified as potentially affecting the adequacy of protection against internal flooding. The licensing report described that an evaluation of the effects of these plant modifications on internal flooding would be performed as part of the modification process. However, the staff found the criteria that would be employed in this evaluation are poorly defined in the PBNP FSAR. Considering the potential for these modifications to introduce new or different sources of internal flooding and new equipment necessary to support safe shutdown, explain the criteria that would be employed in evaluating the need for additional protection against internal flooding resulting from modifications to the AFW and feedwater and condensate systems.

NextEra Response

As provided in the NextEra letter dated October 9, 2009 (Reference 3) response to NRC Acceptance Question #1, the changes and modifications required for EPU implementation were evaluated to assess whether the existing design and licensing basis internal flooding evaluations are affected. FSAR Appendix A.7, Plant Internal Flooding, was revised and the evaluation is based on the revised FSAR Appendix A.7. The acceptance criteria are: 1) There is no failure of a seismic category I or II component that could result in a flooding condition could adversely affect equipment needed to bring the plant to safe shutdown, and 2) The installed height of the equipment must be greater than the predicted equilibrium flood level. This review concluded that based on the planned modifications, the existing internal flooding evaluation and conclusions are not changed and that the existing flood mitigation features incorporated into the plant design continue to be adequate for EPU.

For the areas of the plant where feedwater and condensate piping exist, these systems do not represent the bounding break for flooding that was previously evaluated in FSAR Appendix A.7. While the system flow rate is increased in portions of the feedwater and condensate system for EPU, the available volume of water for these systems is not significantly changed and postulated breaks in the systems remain bounded by other systems such as service water or circulating water.

As provided in NextEra's November 21, 2009 (Reference 4) response to SBPB-AFW-RAI-3, the internal flooding review for the AFW modifications concluded that the existing flood mitigation features incorporated into the plant design continue to be adequate. This conclusion is applicable to implementation of the AFW modifications at both current licensed power level and EPU.

Section 2.5.1.3 of the licensing report provides the discussion of pipe failures and demonstrates that the high energy line break (HELB) reconstitution does not result in the need for additional flood protection.

SBPB RAI 2.5-2

In Section 2.5.1 of the EPU licensing report, planned modifications to the AFW and feedwater and condensate systems were identified as potentially affecting the adequacy of the EFDS [equipment and floor drain system] with respect to protection against internal flooding. The licensing report described that an evaluation of the effects of these plant modifications on internal flooding would be performed as part of the modification process. However, the staff found the criteria that would be employed in this evaluation are poorly defined in the PBNP FSAR. Considering the potential for these modifications to introduce new or different sources of internal flooding and new equipment necessary to support safe shutdown, explain the criteria that would be employed in evaluating the need for the EFDS to perform functions related to protection against internal flooding.

NextEra Response

EPU modifications that could potentially affect flooding outside containment include condensate and feedwater pump replacements, feedwater heater replacements, feedwater recirculation line size changes, high pressure turbine upgrades, and heater drain piping and valve modifications. The AFW system is also being modified. Condensate and feedwater piping will be modified to the extent necessary to allow fit-up to nozzles associated with the new condensate and feedwater pumps, feedwater heaters and installation of new main feedwater isolation valves (MFIVs). Evaluation of the effects of these plant modifications on equipment and floor drains are performed as part of the modification process.

The functions of the design features credited for mitigating plant internal flooding addressed in FSAR Appendix A.7, Plant Internal Flooding, Table A.7-1, List of Design Features Credited for Mitigating Plant Internal Flood, are not affected by EPU. The modification process determines the need for new or enhanced flood protection in areas where significant modifications will be installed. The EPU-required modifications are evaluated for impact on flooding and result in acceptance of the condition or making the necessary changes to accommodate the new conditions, including adding mitigation methods for flood control. This includes the handling of additional expected leakage resulting from added components, the prevention of backflow of

water to areas with safety-related equipment, and ensuring that contaminated fluids are not transferred to non-contaminated drainage systems.

With respect to protection against internal flooding, no required modifications have been identified, other than local routing of equipment drains, to the equipment and floor drains as a result of the EPU modifications. The acceptance criteria are as described in the response to SBPB 2.5-1. No changes which impact internal flood protection have been identified for the handling of additional expected leakage resulting from added components, for the prevention of backflow of water to areas with safety-related equipment, and for ensuring that contaminated fluids are not transferred to non-contaminated drainage systems. The above conclusions are applicable to the AFW modifications at both current licensed power level and EPU.

SBPB RAI 2.5-3

In Section 2.5.1.2 of the EPU licensing report, planned modifications to the AFW and feedwater systems were identified as potentially affecting the adequacy of the protection against internal missiles. The licensing report described that an evaluation of the effects of these plant modifications on internal missile hazards would be performed as part of the modification process. However, the staff found the criteria that would be employed in this evaluation are poorly defined in the PBNP FSAR. Considering the functions of the new equipment in supporting safe shutdown and mitigating the consequences of postulated accidents, explain the criteria that would be employed in evaluating the need for design features to provide protection against internal missiles.

NextEra Response

The EPU modifications to the AFW and feedwater systems that could potentially affect the adequacy of the protection against internal missiles are the condensate pump and feedwater pump replacements, installation of the new MFIVs, and installation of the new AFW pumps. The AFW Class 1 components, both inside and outside containment, will not be impaired as the result of a missile or dynamic effects of a pipe rupture and do not create new missile hazards.

The replacement condensate and feedwater pumps are being replaced with pumps of similar design (i.e., centrifugal, motor-driven) and located in the same area as the existing pumps. The existing pumps, and the replacement pumps when installed, are not identified as potential internal missiles sources affecting safety-related equipment, or requiring protection from internal missiles, since they do not perform a safety-related function.

The response to the NRC SBPB-FW-RAI-3, provided in NextEra letter dated December 16, 2009 (Reference 5), addressed the new MFIVs protection from dynamic effects and missiles that result from plant equipment failures. The evaluation concluded that the failure of the MFIVs does not impact the capability of the AFW system to provide heat removal since the AFW lines are tied into the feedwater piping inside containment, downstream of the MFIVs and the containment isolation check valves.

SBPB RAI 2.5-4

In Section 2.5.3.3 of the EPU licensing report, modifications to the high pressure turbine glad [gland] sealing steam leak-off systems were identified as potentially being necessary to control the excess sealing steam flow provided to the low pressure turbine seals. The licensing report described that an evaluation of the effects of these plant modifications on internal missile

hazards would be performed as part of the modification process. However, the staff found the criteria that would be employed in this evaluation are poorly defined in the PBNP FSAR. Considering the functions of the turbine gland sealing steam system in controlling potential radioactive effluents, explain the criteria that would be employed in evaluating modifications to the turbine gland sealing steam system.

NextEra Response

Based on further evaluations of the high pressure turbine gland sealing steam leak-off systems, no modifications are required. In addition, the turbine gland sealing steam leak-off systems are not credited for controlling radioactive effluents.

SBPB RAI 2.5-5

In Section 2.5.4.2 of the EPU licensing report, the licensing report describes that the EPU post-accident peak containment temperature exceeded the peak post-accident temperature used in the GL 96-06 evaluation of water-hammer loads on the service water system. The licensing report described that the increase in heat transfer resulting from the assumption of zero heat exchanger fouling used in the evaluation of water hammer loads would exceed the increase in heat transfer resulting from the increase in the peak post-accident temperature. However, the staff concluded that the assumption of zero fouling was not clearly conservative enough to encompass the effect of higher peak accident temperatures because near-zero fouling is obtained by routine cleaning of the heat exchanger. Provide additional quantitative justification demonstrating how the existing water-hammer analysis provides a bounding assessment of the potential for water-hammer at the EPU post-accident peak containment temperature.

NextEra Response

The PBNP GL 96-06 evaluation for calculating the post-accident heat transfer that determined water-hammer load was based on current licensed thermal power conditions for the containment peak temperature following a loss of coolant accident (LOCA) and assumed zero tube fouling. The EPU re-evaluation concluded that the limiting accident containment peak temperature would increase the ΔT across the containment fan coils (CFC) by 0.6%. To account for the higher EPU temperature, the assumed fouling would have to be increased to 2.1E -05°F-ft^2/ BTU. This CFC fouling factor value remains well below the PBNP design basis minimum assumed fouling factor of 1E -04°F-ft^2/ BTU, which is one-tenth of the typical recommended value of 1E -03°F-ft^2/ BTU for Great Lakes water.

SBPB RAI 2.5-6

Section 2.5.4.3 of the EPU licensing report describes that the maximum temperatures observed in the CCW system occur during normal cooldown when the RHR system is placed into service and the design temperatures of CCW system components bound these temperatures. The containment analysis described in Section 2.6.1 of the licensing report minimized post-accident containment heat removal through the CCW system. Describe how the normal cooldown scenario was determined to bound the accident scenario with respect to maximum CCW temperature.

NextEra Response

The component cooling water (CCW) system was evaluated during normal operating conditions over the range of service water temperatures to determine the maximum temperature in the CCW system. The maximum temperature in the system was determined to be 171.2°F at the outlet of the residual heat removal (RHR) heat exchanger at the start of normal cooldown. This bounds the maximum CCW temperature during accident conditions (also at the outlet of the RHR heat exchanger), which was determined to be 166.2°F. For comparison, the CCW system piping applicable design temperature is 200°F.

SBPB RAI 2.5-7

Section 2.2.5.2 of the EPU licensing report describes that the main feedwater isolation valves proposed for installation and associated piping would be evaluated for dynamic effects as part of the main feedwater modification process. For the dynamic analysis, describe the scope of dynamic events postulated for the main feedwater isolation valves, key assumptions, methodology, and acceptance criteria. Explain how the applied assumptions and methodology have been validated for accurate prediction of water-hammer and other transient effects that may result from fast closure of the valves. At a minimum, address the potential for water-hammer resulting from the inadvertent fast closure of a main feedwater isolation valve from stable operation at the full EPU power level and closure of the main feedwater isolation valves to mitigate the postulated design-basis main steam line break inside containment.

NextEra Response

In support of the pipe stress analysis efforts on the main feedwater system based on EPU conditions, a computer model was developed to determine fluid transient forcing functions. Fluid transient forces induced by the closure of existing feedwater regulating valves and newly added MFIVs were developed according to the following two scenarios.

Case 1: Existing feedwater regulating valves close during steady-state operation, while feedwater pumps P28 A/B continue to operate.

Case 2: Newly added MFIVs close during steady-state operation, while feedwater pumps P28 A/B trip at the same time.

The initial condition for a transient event was the steady-state operation condition corresponding to EPU 100% power with 2% margin. The two transient events as described above were simulated, and force-time histories were determined for each designated adjacent elbow pair for subsequent input to the pipe stress analysis. The fluid transient force time histories acting on each segment of piping (between consecutive elbows and/or tees and equipment) were input to subsequent pipe stress analysis.

The two transient events described above are simulated using the Shaw proprietary computer program WATHAM. The WATHAM computer program simulates pressure wave (water hammer) and fluid flow in the piping system as a result of valve closure and pump trips. The program is a generalized fluid transient code that is used to perform transient analysis of a water filled flow network due to pump start-up, pump trip and valve opening and closing. The program has the capability to model any incompressible fluid flow network containing in-line and discharge pumps, reservoirs, branch piping, check valves, air inlet valves, in-line and discharge valves, trapped air pockets, and voids.

The WATHAM program is based on the method of characteristics numerical algorithm with finite difference approximations for solutions of unsteady, one-dimensional, homogenous, isothermal, incompressible fluid flows. The WATHAM program is verified and validated according to Shaw corporate software qualification procedures. The qualification is based on comparisons of results to other qualified methods and hand calculations. Transient pressures and flow rates are computed at each time step and at each node. Axial force-time histories are determined for each designated adjacent elbow pair for subsequent input to a pipe stress analysis program. The acceptance criterion is based on the pipe stress meeting the applicable Code allowable values.

SBPB RAI 2.5-8

In Section 2.5.7.2 of the EPU licensing report, the licensing report describes that the emergency diesel generator (EDG) fuel consumption will increase for EPU due to the increase in load from the new AFW pump motors and changes in the starting circuits for the control room ventilation system. Section 8.8.3 of the PBNP FSAR describes that the licensee normally maintains sufficient fuel between the two EDG fuel oil storage tanks to allow one diesel to operate continuously at the required load for 7 days. The EPU fuel consumption for 48 hours remains less than the existing TS 3.8.3 minimum storage requirement of 11,000 gallons. However, the staff found that the means to ensure an adequate fuel oil inventory would be maintained between the two EDG fuel oil storage tanks to allow one diesel to operate continuously at the required load for 7 days was not adequately explained. Provide information regarding how sufficient fuel between the two EDG fuel oil storage tanks to allow one diesel to operate continuously at the required load for 7 days would be maintained for operation at EPU conditions.

NextEra Response

The justification for sufficient fuel oil to support operation of one EDG for 7 days was provided in a NextEra letter dated March 3, 2010 (Reference 6) in the response to NRC Question 4. The EDG fuel oil calculation was submitted in NextEra's letter, Enclosure 8, dated September 25, 2009 (Reference 7).

SBPB RAI 2.5-9

Table 2.12-2, "EPU Test Plan and Comparison of Proposed EPU Tests to Original Startup Tests," discusses proposed testing for the condensate and feedwater system under Item 13. This discussion includes mention of "planned load swing tests" that will "dynamically test the FW control system." The item references Section 2.12.1.2.3 of the EPU licensing report for additional details, but the staff found no discussion of the load swing tests and dynamic testing of the feedwater system. Describe the scope of testing (e.g., initial power level and inserted test transient) and acceptance criteria applicable to the load swing tests. Explain how satisfactory completion of the tests, in combination with completed analyses and operating experience, would provide reasonable assurance that the reliability of the feedwater system for mitigation of anticipated operational occurrences would not be significantly degraded by the proposed power uprate.

NextEra Response

NextEra's letter dated May 20, 2010 (Reference 8) provided the response to the Reactor Systems Branch RAI SRXB-LTT-1. The letter stated that NextEra will not be performing load

swing tests and dynamic testing of the feedwater system. The responses to RAIs SRXB-LTT-3, RAI SRXB-LTT-4 (Reference 8) and RAIs EQVB 2.12-2 and EQVB 2.12-3 (Reference 9) provide additional discussion.

References

(1) NRC Electronic Mail to NextEra Energy Point Beach, LLC, dated May 12, 2010, Draft – Request for additional Information from Balance of Plant Branch RE: EPU only (Not AFW or HELB) (ML101340516)

(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 October 9, 2009, License Amendment Request 261, Extended Power Uprate Response to Acceptance Review Questions (ML092860098)

(4) NextEra Energy Point Beach, LLC letter to NRC, dated November 21, 2009, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML093270032)

(5) NextEra Energy Point Beach, LLC letter to NRC, dated December 16, 2009, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML093510809)

(6) NextEra Energy Point Beach, LLC letter to NRC, dated March 3, 2010, License Amendment Request 261, Extended Power Uprate Response to Request for Additional Information (ML100630133)

(7) NextEra Energy Point Beach, LLC letter to NRC, dated September 25, 2009, License Amendment Request 261, Extended Power Uprate Response to Request for Additional Information (ML092750395)

(8) NextEra Energy Point Beach, LLC letter to NRC, dated May 20, 2010, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML101410093)

(9) NextEra Energy Point Beach, LLC letter to NRC, dated May 6, 2010, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML101270061)