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

March 25, 2010

Mr. Larry Meyer
Site Vice President
NextEra Energy Point Beach, LLC
6610 Nuclear Road
Two Rivers, WI 54241-9516

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION FROM PIPING AND NDE BRANCH RE: EXTENDED POWER UPRATE (TAC NOS. ME1044 AND ME1045)

Dear Mr. Meyer:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated April 7, 2009, as supplemented by letters dated September 11 and October 9, 2009 (Agencywide Documents Access and Management System Accession Nos. ML091250564, ML092570205, and ML092860098), FPL Energy Point Beach, LLC, submitted a request to increase each unit's licensed core power level from 1540 megawatts thermal (MWt) to 1800 MWt reactor core power, and revise the technical specifications to support operation at this increased core thermal power level.

The NRC staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. During a discussion with your staff on March 12, 2010, it was agreed that you would provide the additional information within 30 days of the date of this letter.

The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-2048.

Sincerely,

Justin C. Poole, Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-266 and 50-301

Enclosure:
Request for Additional Information

cc w/encl: Distribution via ListServ

REQUEST FOR ADDITIONAL INFORMATION

POINT BEACH NUCLEAR POWER PLANT, UNITS 1 AND 2 (PBNP)

DOCKET NOS. 50-266 AND 50-301

Attachment 5, Section 2.1.5, Reactor Coolant Pressure Boundary (RCPB) Materials

RAI CPNB-1: On page 2.1.5-8, the licensee discussed the inspection requirements for the reactor pressure vessel (RPV) closure head based on the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Case N-729-1. The NRC staff notes that ASME Code Case N-729-1 has been incorporated by reference in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(g)(6)(ii)(D), Reactor vessel head inspections, with conditions.

a) Discuss RPV head inspection including methods, results, and dates at PBNP since 2005.
b) Discuss whether the RPV closure head inspections will be conducted in accordance with the regulatory requirements of 10 CFR 50.55a(g)(6)(ii)(D).
c) Discuss whether 10 CFR 50.55a(g)(6)(ii)(E), Reactor coolant pressure boundary visual inspections, will be followed.

RAI CPNB-2: On page 2.1.5-9, the licensee referenced ASME Code Case N-481 for the inspection of primary loop pump casings that are fabricated with cast austenitic stainless steel (CASS). ASME Code Case N-481 was previously approved for use in Regulatory Guide (RG) 1.147, Revision 14, but ASME annulled Code Case N-481 as of March 28, 2004, and this annulment is reflected in Revision 15 of RG 1.147. Justify the use of Code Case N-481 or propose alternative examinations for pump casings and valve bodies that are fabricated with CASS.

RAI CPNB-3: Table 2.1.5-1 on page 2.1.5-5 summarizes service temperature changes in the RPV closure head and bottom-mounted instrumentation (BMI) penetrations due to the proposed EPU. On page 2.1.5-4, the licensee did not clearly describe how the maximum temperature at the RPV head is used to determine the maximum change in the primary water stress corrosion cracking (PWSCC) susceptibility and whether the maximum temperatures are appropriate or conservative.

a) Clarify the use of the maximum temperature at the RPV head and BMI penetrations to determine the PWSCC susceptibility.
b) Clarify whether the inspection of the reactor coolant system (RCS) components will be affected by the EPU conditions.

RAI CPNB-4: Pages 2.1.5-6 through 2.1.5-8 discussed PWSCC of Alloy 600/82/182 and replacement efforts using Alloy 690/52/152 materials. However, the licensee did not address the impact of the EPU on those Alloy 600 components that have not been replaced with Alloy 690.

Enclosure

Discuss the impact of EPU on Alloy 600 components and any programs or procedures to monitor the degradation of Alloy 600 components.

RAI CPNB-5: On page 2.1.5-9, the licensee stated that the EPU will not increase the susceptibility of Alloy 600/82/182 components to PWSCC at PBNP. Discuss why and how the EPU will not increase the susceptibility of Alloy 600/82/182 components to PWSCC.

RAI CPNB-6: On page 2.1.5-9, the licensee briefly mentioned that a separate flaw tolerance evaluation was done to manage thermal aging of CASS material of the RCS piping components as a part of its license renewal application (LRA). Discuss the details of the flaw tolerance evaluation that was performed to manage the effect of EPU for the RCS piping components.

RAI CPNB-7: Discuss whether the RCS water chemistry program (e.g. chemistry limits and monitoring parameters) needs to be changed as a result of EPU.

RAI CPNB-8: Discuss the impact of EPU on neutron irradiation induced embrittlement of the reactor vessel.

RAI CPNB-9: Page 2.1.5-5 discussed the boric acid corrosion control (BACC) program in terms of LRA. Discuss the impact of the EPU on the BACC program for RCPB and whether the BACC program will be changed as a result of EPU.

RAI CPNB-10: Discuss the impact of the EPU on the integrity of reactor vessel internals.

RAI CPNB-11: On page 2.1.5-3, the licensee briefly mentioned absorption of energy within the elastic strain energy range and absorption of energy by plastic deformation. Discuss in detail the impact of the EPU on the absorption of energy within the elastic strain energy range and absorption of energy by plastic deformation.

RAI CPNB-12: Discuss the impact of EPU on the piping loads and resulting stresses for the RCS piping and whether safety margins in the ASME Code, Section III, NB-3200 and NB-3600 are satisfied.

RAI CPNB-13: Discuss whether the EPU will result in degradation mechanisms (i.e. steam/water hammer, low and high cycle fatigue, creep damage, erosion, general corrosion, and other environmental conditions) which would lead to increased degradation of RCPB systems.

RAI CPNB-14: Pages 2.1.5-9 and 2.1.5-10 discussed that the EPU will not affect thermal aging of CASS. It is not clear to the NRC staff why the high temperature (611.1°F) from the EPU would not have any effect on thermal aging of CASS. Discuss in details why the fracture toughness of CASS will not be affected by the EPU.

Attachment 5, Section 2.1.6, Leak-Before-Break (LBB)

RAI CPNB-15: Section 1.1 does not clearly state the differences in pressure and temperature between the values used in the original LBB evaluation and the values as a result of the EPU. Provide the pressure and temperature used in the original LBB analysis and the values used to assess the original LBB evaluation under the EPU conditions.

RAI CPNB-16: Operating experience has shown that Alloy 82/182 dissimilar metal (DM) butt welds are susceptible to PWSCC.

a) Discuss whether Alloy 82/182 DM butt welds exist in the LBB piping (e.g. primary loop piping, pressurizer surge line piping, accumulator lines, and residual heat removal (RHR) lines).
b) Discuss whether any mitigation has been implemented at these welds. If not, discuss plans for mitigation.
c) Discuss whether the original LBB analysis is affected by EPU.

RAI CPNB-17: In page 2.1.6-5, the licensee stated that based on the evaluations documented in LRA Section 2.2.2.1 the current design basis loads and results for the pressurizer surge line piping, accumulator lines, and RHR lines remain unchanged. However, for the primary loop piping (discussion on page 2.1.6-4), the licensee did not mention LRA Section 2.2.2.1 to evaluate the primary loop piping. Discuss how the primary loop piping was evaluated for the EPU conditions.

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Justin C. Poole, Project Manager
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ADAMS Accession Number: ML100780610 *per memo dated February 25, 2010

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