From: Poole, Justin
Sent: Wednesday, May 12, 2010 3:18 PM
To: Hale, Steve; COSTEDIO, JAMES
Subject: Draft - Request for Additional Information from Balance of Plant Branch RE: EPU only (Not AFW or HELB)

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Steve

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated April 7, 2009 (Agencywide Documents Access and Management System Accession No. ML091250564), 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 Balance of Plant Branch has reviewed the information provided and determined that in order to complete its evaluation, additional information is required. We would like to discuss the questions, in draft form below, with you in a conference call.

This e-mail aims solely to prepare you and others for the proposed conference call. It does not convey a formal NRC staff position, and it does not formally request for additional information.

Justin C. Poole
Project Manager
NRR/DORL/LPL3-1
U.S. Nuclear Regulatory Commission
(301)415-2048
email: Justin.Poole@nrc.gov

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DRAFT

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.
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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 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.

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.

SBPB RAI 2.5-4: In Section 2.5.3.3 of the EPU licensing report, modifications to the high pressure turbine glad 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.

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.

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.

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.

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.

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.