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

December 6, 2011

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

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 – NRC STAFF RESPONSE TO CLARIFICATION/COMMENTS RELATED TO THE SAFETY EVALUATION REPORT ASSOCIATED WITH THE AUXILIARY FEEDWATER SYSTEM MODIFICATION LICENSE AMENDMENT

Dear Mr. Meyer:

By letter to the U.S. Nuclear Regulatory Commission (NRC, the Commission) dated September 16, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML112770439), NextEra Energy Point Beach, LLC (NextEra, the licensee) provided clarifying information related to the licensing basis analysis and design of the auxiliary feedwater (AFW) system for the Point Beach Nuclear Plant (PBNP), Units 1 and 2. The clarifications were to specifically address and resolve apparent misunderstandings associated with the NRC staff's safety evaluation report (SER) associated with approval of the AFW modification license amendment dated March 25, 2011 (ADAMS Accession No. ML110230016).

In August 2011, NRC staff in the Division of Reactor Safety in Region III conducted a component design basis inspection at PBNP. During the inspection, the NRC staff questioned the capability of the newly-installed motor-driven AFW (MDAFW) pumps to meet specific design-basis accident flow requirements. Of specific interest to the NRC staff was the impact on design flow through cavitating flow venturis that were recently installed in the discharge lines of the new MDAFW pumps. One venturi is installed in each of the MDAFW pump discharge lines to the steam generators (SGs) (two per unit; one per SG). They are located downstream of the flow control valves and are sized to cavitate at approximately 240 gallons per minute (gpm) of flow. The cavitation inhibits flow and prevents higher flow regardless of downstream pressure.

A margin-to-overfill analysis included a scenario in which the AFW system delivered only 275 gpm to the unit, split evenly to both SGs initially, with only 137.5 gpm to the intact SG following manual operator action to isolate AFW to the ruptured SG. The analysis demonstrated that under such a scenario, the limited AFW flow to the intact SG, combined with the pre-existing SG secondary inventory, was sufficient to ensure an adequate heat sink in support of decay heat removal and the forced cool down needed to restore reactor coolant system subcooling prior to terminating break flow.

During a main steam line break event, the licensee stated that the 1200 gpm analytical limit was reduced to 1139 gpm by analysis in support of the EPU. To ensure that a faulted SG in combination with an additional single failure would not result in exceeding this flow rate, cavitating venturis were incorporated into the design of the MDAFW pump discharge piping.

The venturis prevent flow from the MDAFW pump to a faulted SG from exceeding approximately 230 to 240 gpm.

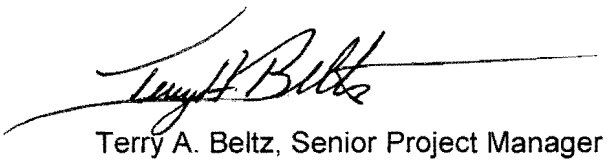
In Section 3.4.1 of the SER associated with the NRC staff's Loss of Normal Feedwater Flow (LONF) and Loss of Non-Emergency Alternating Current Power to the Station Transformers (LOAC), it was stated, in part, that with the new MDAFW pumps, AFW flow will be initiated within 60 seconds after the low-low SG water level is reached, and 100 percent flow, minimum of 275 gpm, will be obtained within 150 seconds ***to one*** [emphasis added] or split equally between two SGs. The licensee provided clarification in its September 16, 2011, letter, that while 275 gpm of flow to a single generator would be sufficient to mitigate the transients, it is not within the capability of the AFW system as analyzed for the LONF/LOAC events. As previously stated, if the LONF/LOAC event is limited to only the MDAFW pump (as assumed in the analysis), the maximum flow that can be delivered to a single SG is approximately 230 gpm due to the presence of the cavitating flow venturis.

The NRC staff has reviewed the information provided by your staff in the September 16, 2011, letter. The NRC staff determined that the NextEra response continues to support the NRC staff's conclusions as documented in the SERs supporting both the AFW modification and extended power uprate license amendments. The cavitating flow venturis that were installed in the MDAFW pump discharge lines continue to support the safety analyses as previously reviewed by the NRC staff.

Finally, a description of the design and function of the cavitating flow venturis is currently not provided in the PBNP Final Safety Analysis Report (FSAR). Since the venturis are credited in meeting specific design basis accidents, the NRC staff strongly suggests that there be a discussion of cavitating flow venturis in the next periodic update to the FSAR.

Please contact me at (301) 415-3049, if you have any questions.

Sincerely,



Terry A. Beltz, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-266 and 50-301

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/RA/
Terry A. Beltz, Senior Project Manager
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