

NRR-PMDAPEm Resource

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Sent: Friday, October 09, 2015 5:45 PM
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Cc: Dinsmore, Stephen; Hyslop, JS; Robinson, Jay; Miller, Barry; Green, Kimberly; Pelton, David; Barrett, Harold; Klein, Alex; Rosenberg, Stacey
Subject: Request for Additional Information - Point Beach Nuclear Plant, Units 1 and 2 - NFPA 805 LAR - MF2372 and MF2373

By letter dated June 26, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML131820453), NextEra Energy Point Beach, LLC (NextEra) submitted a license amendment request for the Point Beach Nuclear Plant, Units 1 and 2 (Point Beach). The proposed amendment request would transition the fire protection licensing basis at Point Beach to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.48(c), National Fire Protection Association Standard NFPA 805. Upon review of your letter dated August 26, 2015 (ADAMS Accession No. ML15238A870), providing supplemental information, the staff has determined that additional information is needed to complete the review of this application.

Please arrange a teleconference to discuss the following requested information with the NRC staff:

Request for Additional Information

PRA RAI S01 (Modelling inadequate breaker fuse coordination in the Fire PRA)

The NextEra letter, dated August 26, 2015 (ADAMS Accession No. ML15238A870), transmitting Supplement 2 of the Point Beach Nuclear Plant NFPA 805 LAR explains that “uncoordinated breakers were explicitly modelled in the Fire PRA after the 120 day response,” and that “[t]his change resulted in new Variance from Deterministic Requirements (VFDRs) and a change in the calculated risk results from the Fire PRA.” The letter appears to indicate that re-assessment of breaker coordination and cable protection performed since providing the 120-day PRA RAI responses have revealed breaker coordination and cable protection vulnerabilities. Updated LAR, Attachment B, Section 3.5.2.4 provided as part of Supplement 2 states that 13kV and 4kV Switchgear, 480V switchgear and Motor Control Centers (MCCs), and 120VAC and 125VDC distribution panels “not properly coordinated and impacting safe shutdown power loads, cables and fire zone/scenario information were evaluated and VFDRs were generated.” Also, updated LAR, Attachment B, Section 3.4.2.5 states that for 13kV and 4kV Switchgear that inadequate cable protection associated with the ability of certain breakers to clear a fault was identified and so a “risk-informed approach was utilized and this condition was incorporated into the Fire PRA model.” Neither the letter nor the Supplement itself describes the specific sources of the circuit inadequacies, which could be undersized protective breakers or fuses or other deficiencies, or how these inadequacies were modelled in the Fire PRA. NRC notes that little NRC guidance exists on how to model inadequate breaker fuse coordination or cable protection. In light of these observations:

- a) Explain how inadequate breaker fuse coordination and cable protection was modelled in the Fire PRA and justify that this treatment addresses the failures that could occur as a result of the identified circuit inadequacies.
- b) Include a description of the circuit failure modes addressed and how associated component failures were modelled in the Fire PRA. Also, describe and justify assumptions made in the Fire PRA about how fire-induced faults associated with inadequately coordinated/protected circuits impact upstream and downstream components from the fault.

- c) Given that the lack of beaker coordination and/or cable protection have been acknowledged and the sizing and coordination of electrical protective devices appear to be in question, include an explanation of how the potential for secondary fires was addressed in the Fire PRA. If secondary fires were not modelled and fire-induced faults in inadequately protected circuits could lead to secondary fires, then justify this modeling exclusion. Alternatively, include modeling of secondary fires in the integrated analysis requested in PRA RAI 03.
- d) In line with the issues described above, NRC staff also notes that the response to PRA RAI 25.01 in NextEra letter dated January 16, 2015, ML15015A281 explains a risk-informed approach that was used in association with removal of circuit protection related modifications No. 17 and No. 30 by modeling overcurrent failure modes and secondary fires. These modifications would have provided overcurrent trip protection for a certain circuits including protection/backup 125 VDC control power to 4 kV and 13.8 kV switchgear. As a result,
 - i. Describe how the plant response model addresses fire-induced faulting of one or more load circuits at the same time that DC control power has been lost due to fire damage.
 - ii. Explain how the lack of circuit protection and the resulting potential for common enclosure issues are analyzed.
 - iii. Discuss the potential for secondary fires and describe how secondary fires are modeled (fire size, zone of influence, propagation, etc.).
 - iv. Discuss the potential for High Energy Arcing Faults (HEAFs) to be created as a result of inability to clear fire-induced load faults at the load breaker. Without DC control power being available at the switchgear, circuit breakers upstream may have to clear the fault and those breakers will very likely have a much higher overcurrent setpoint than that required to protect the integrity of the cables being faulted.

PRA RAI S02 (Modelling licensing limitation to cross-tie the steam supply for the turbine-driven Auxiliary Feedwater (AFW) pumps)

The NextEra letter, dated August 26, 2015 , ML15238A870 transmitting Supplement 2 of the Point Beach Nuclear Plant NFPA 805 LAR explains that the Fire PRA was updated to model licensing limitations associated with cross-tying the Unit 1 and 2 turbine-driven AFW pump steam supply and discharge. The letter does not identify these limitations or explain whether they are associated with specific conditions, certain accident scenarios, or other factors that might be reflected in the Fire PRA. The letter does explain that “to ensure this modification was not over credited the human reliability analysis rates were increased.” It is not clear what the expression “human reliability rates” means, how decreasing “human reliability analysis rates” reflects licensing limitations, and whether this treatment is a departure from NRC guidance on developing Human Error Probabilities. NRC staff notes that this modification appears to have important risk reduction impact.

Briefly describe the licensing limitations associated with this modification and how these limitations were reflected in the Fire PRA.

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