

NRR-PMDAPEm Resource

From: Beltz, Terry
Sent: Wednesday, November 19, 2014 10:39 AM
To: Millen, Michael (Michael.Millen@nexteraenergy.com)
Cc: Hanneman, Harv; Klein, Alex; Hamzehee, Hossein; Fields, Leslie; Miller, Barry; Metzger, Brian; Wu, Angela; Pelton, David; Wall, Scott; 'Clark, Roger'
Subject: RE: Point Beach Nuclear Plant, Units 1 and 2 – Follow-up Requests for Additional Information (AFPB) re: NFPA 805 License Amendment Request Review (TAC Nos. MF2372 and MF2373)

Dear Mr. Millen:

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 license amendment request (LAR) 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. In an e-mail dated September 9, 2013 (ADAMS Accession No. ML13256A197), the NRC staff informed NextEra that supplemental information was required to enable the staff to make an independent assessment regarding the acceptability of the proposed amendment request in terms of regulatory requirements and protection of public health and safety and the environment. In response to the NRC staff's request, NextEra provided supplemental information in a letter dated September 16, 2013 (ADAMS Accession No. ML13259A273). In a letter dated September 25, 2013 (ADAMS Accession No. ML13267A037), the NRC staff concluded that there was information in sufficient detail to enable the staff to begin its technical review and make an independent assessment regarding the acceptability of the proposed license amendment.

The NRC staff in the Office of Nuclear Reactor Regulation subsequently determined that additional information was needed to complete its review. The final Point Beach NFPA 805 RAIs were issued in an e-mail dated May 27, 2014 (ADAMS Accession No. ML14153A390). The NRC staff conducted an onsite audit during the week of June 9, 2014. As a result of the audit, the NRC staff identified that two changes were required to the final RAIs. The changes affected PRA RAI 03, and added a new PRA RAI 25. A final and revised set of RAIs were issued via e-mail on July 8, 2014 (ADAMS Accession No. ML14189A365).

The NRC staff requested that NextEra provide its RAI responses in accordance with a 60-, 90-, and 120-day timeline, and the responses to these RAIs have been submitted for NRC staff review. The NRC staff has reviewed the responses and developed an additional set of RAIs associated with Probabilistic Risk Assessment, which are provided below. In a teleconference on November 12, 2014, the content of the RAIs was discussed with members of your staff.

In a November 19, 2014, phone call, with Mr. Harv Hanneman of your staff, it was agreed that NextEra would provide a response to the below RAIs no later than January 16, 2015.

Please don't hesitate to contact me if you have any additional questions.

Sincerely,

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Probabilistic Risk Assessment (PRA)

PRA RAI 05.01 (Justification of Reduced Transient Heat Release Rates)

It is not clear that the response to PRA RAI 05.b (ADAMS Accession No. ML14210A645) provides adequate justification for the reduced heat release rates (HRRs) credited in the Fire PRA. The response explains that the “quantities of combustibles needed to perform activities would not typically exceed the reduced heat release rates modelled in the fire PRA”, but that “[i]n the event that combustibles are required to be brought into these areas, their presence will require a continuous fire watch.” The NRC staff notes that for the two cited fire areas, the licensee’s Fire PRA does not credit a continuous fire watch, but rather reduced HRRs, and that the controls described in the response do preclude the possibility of transient combustibles present in quantities that would exceed the reduced HRR used in the fire PRA. Accordingly, it is not clear whether the controls discussed in the RAI response are the current controls or the updated controls credited in the Fire PRA.

In light of these observations, please describe the updated controls that are credited in the Fire PRA for limiting transient combustibles, and justify that they provide an adequate basis for the reduced HRRs used in the Cable Spreading Room and Vital Switchgear Room.

PRA RAI 10.01 (Main Control Room Abandonment Modeling)

The response to PRA RAI 10 (ADAMS Accession No. ML14210A645) does not directly address the question in the RAI about how estimation of CDF/CLERP for Main Control Room (MCR) abandonment due to loss of habitability (LOH) considers fire induced failures including spurious actuations. Regarding determination of non-abandonment scenario CCDP/CLERP, the response states: “N[n]o split fractions are used to credit abandonment,” and that “in some cases, this is conservative as there is some possibility that operators decide to abandon.” It is not completely clear how these statements address the question of how fire impacts are considered in the estimation of CDF/LERF. The analysis appears to indicate that the human error probabilities (HEPs) used to calculate the CCDP for MCR abandonment do not include actions (e.g., manually trip reactor coolant pumps (RCPs), isolation of letdown flow, isolation of open main steam isolation valves (MSIVs)) to mitigate fire-induced failures or actuations.

The response provided to PRA RAI 16 appears to indicate that a single CDF/LERF was used to model MCR abandonment due to LOH (i.e., one scenario with a CCDP of 0.56). This appears inconsistent with the response to PRA RAI 10 which refers to more than one CDF for these scenarios (e.g., the phrase is used: “are multiplied together to determine the abandonment CDF for each scenario”). In general, due to the range of failures associated with remote shutdown operations, it is expected that a range of CCDPs is needed to characterize the likelihood of shutdown failure associated with MCR abandonment for either LOH or loss of control (LOC).

In light of these observations, please:

- a) Explain how estimation of CDFs/CLERPs for MCR abandonment due to LOH addresses fire induced failures including spurious actuations, and why the estimation of CCDP/CLERP does not appear to

include operator actions to recover the impact of spurious actuations. Identify the actions credited in the Fire PRA for MCR abandonment and justify that the operator actions credited include actions necessary for alternate shutdown.

- b) Explain the statements made in response to PRA RAI 10, “N[n]o split fractions are used to credit abandonment” and that “in some cases, this is conservative as there is some possibility that operators decide to abandon,” and how these statements address the question of fire-induced impact on estimation of CDFs/CLERPs for MCR abandonment on LOH.
- c) Justify the single abandonment CCDPs for the post transition and compliant plants for both LOH and LOC given that a range of CCDPs is possible.

PRA RAI 13.01 (Fire PRA Credit for Westinghouse RCP Seals)

There appears to be a possible mismatch between the RCP shutdown seals that will be installed and credit taken for these seals in the Fire PRA. The response to PRA RAI 13 (ADAMS Accession No. ML14210A645) states that report PWROG-14001-P/NP, “PRA Model for the Generation III Westinghouse Shutdown Seal” was used as the basis for credit taken in the Fire PRA integrated analysis provided in response to PRA RAI 03. However, updated Table S-2 of the LAR, Item MOD-3 (The RCP Seal will be upgraded to Westinghouse Shutdown Seals), does not indicate which seals (e.g., Generation 2 or 3 Westinghouse Shutdown Seals) will be installed.

Therefore, please provide the following:

- a) Explain which Westinghouse Shutdown Seals will be installed.
- b) If the credit taken in the Fire PRA is not consistent with the report cited in the RAI response, then identify the proper report on which the analysis relies.

PRA RAI 16.01 (Calculation of Change-in-Risk)

The approach and basis for calculation of the change-in-risk for “MCR abandonment non-habitability cases” (i.e., loss of control (LOC) cases) is not clear. This response and updated Section W.2.1 of the LAR explain that MCR abandonment is credited in the compliant plant model for the MCR, Cable Spreading Room, and the 4kV Vital Switchgear Room, for both habitability and non-habitability scenarios. In contrast, the response indicates that in the post-transition plant model MCR abandonment is not credited for LOC scenarios. Accordingly, it appears that for these fire areas the compliant and post-transition plants for LOC scenarios are based on different models: MCR abandonment is modeled for the compliant plant and not modeled for the post-transition plant.

For the MCR abandonment scenarios, the response explains that in the compliant plant model operator actions are assumed to be successful and so the CCDP (0.19) is based on the likelihood of random hardware failures associated with alternate shutdown. The response does not discuss contributors to CCDP for the post-transition plant model, but the NRC staff infers that the contributors are fire-induced and random failures of normal shutdown systems and actions. Of concern is that the difference in compliant plant and post-transition plant models can produce anomalous change-in-risk results. For example, it is possible that the post-transition plant CDF/LERF could be less than the compliant plant CDF/LERF which would result in a negative change-in-risk. Given a CCDP of 0.19 for MCR abandonment, it appears likely that there are a number of fires in the cited abandonment fire areas that would result in a lower CCDP for the post-transition plant model. The staff notes that a conservative estimate of the compliant plant model CCDP can lead to non-conservative change-

in-risk estimates. The response to PRA RAI 16.a appears to address, though it is not certain, the possibility of anomalous change-in-risk results.

In light of these observations, please provide the following:

- a) Explain how calculation of the change-in-risk for LOC scenarios in which MCR abandonment is credited in the compliant but not the post-transition plant model avoids producing anomalous results such as a negative change-in-risk. Also, explain what the following phrase means: "An example of application would be if a specific fire scenario in an abandonment area had a CCDP of 0.75 this CCDP would be replaced with the 0.19 ceiling, because it is assumed the operators have perfect judgment to initiate abandonment, when it will reduce plant risk."
- b) Of the nine random failure contributors to the estimate of 0.19 for CCDP of the compliant plant in MCR abandonment scenarios, discuss the dominant contributors and justify that an overly conservative complaint plant CCDP estimate does not lead to a non-conservative change-in-risk estimate.

PRA RAI 25.01 (Changes in Modification Identified in Attachment S)

The response does not describe the adjustments made to the Fire PRA to add or remove credit for modifications affected in the updated Table S-2 of the LAR as requested in the RAI. Accordingly, it is not clear whether changes to modifications presented in the updated Table S-2, including the deletion of a number of modifications, are reflected in the integrated analysis provided in response to PRA RAI 03. The response to SSA RAI 05 indicates that modeling of overcurrent trip (OCT) logic was added to the Fire PRA in order to justify removing a number of modifications. The response to PRA RAI 25 states that for four modifications (i.e., MOD-17, MOD-28, MOD-29, and MOD-30) "OCT analysis confirmed this modification was not necessary," and "A[a]cceptability confirmed by final quantification." Though not clear from the response provided to PRA RAI 25, it appears that OCT logic was excluded from the original Fire PRA associated with the LAR submittal and later added so that the risk increase associated with deleting these modifications could be incorporated into the risk results.

Please describe the adjustments made to the Fire PRA to add or remove credit for modifications affected in the updated Table S-2 of the LAR used for performing the integrated analysis provided in response to PRA RAI 03, and justify that the adjustments are sufficient to reflect the altered risk resulting from the altered list of modifications.

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Subject: RE: Point Beach Nuclear Plant, Units 1 and 2 – Follow-up Requests for Additional Information (AFPB) re: NFPA 805 License Amendment Request Review (TAC Nos. MF2372 and MF2373)

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