NRR-DMPSPEm Resource

From: Chawla, Mahesh
Sent: Thursday, June 14, 2018 4:18 PM
To: Catron, Steve (Steve.Catron@fpl.com); Kilby, Gary; Julka, Anil K.
Cc: Schultz, Eric; Manthei, Scott
Subject: Draft - Point Beach - 50.69 Risk Informed LAR 287, Request for Additional Information, CAC Nos. MG0196 and MG0197, EPID L-2017-LLA-0284
Attachments: PNPB 50.69_LAR_RAIs.docx

Dear Mr. Catron,

By letter dated August 31, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17243A201), as supplemented by letter dated October 26, 2017 (ADAMS Accession Number ML17299A012), NextEra Energy Point Beach (NextEra) submitted a license amendment request (LAR) to adopt 10 CFR 50.69, Risk-informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors at Point Beach Nuclear Plant, Units 1 and 2.

The U.S. Nuclear Regulatory Commission staff conducted an audit at the NextEra Headquarters during April 24 through 26, 2018, to get further clarifications on the licensee's submittals. The NRC staff has determined that additional information is required in order to complete the review. The requested additional information is attached. Please arrange a teleconference to discuss the subject draft request for additional information (RAIs).

If you have any questions, or need any additional information, please contact me. Thanks

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REQUEST FOR ADDITIONAL INFORMATION

APPLICATION TO ADOPT 10 CFR 50.69 RISK-INFORMED CATEGORIZATION OF STRUCTURES, SYSTEMS, AND COMPONENTS

NEXTERA ENERGY

POINT BEACH NUCLEAR PLANT (PBNP) UNITS 1 AND 2

DOCKET NOS. 50-266 AND 50-301

By letter dated August 31, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML17243A201), as supplemented by letter dated October 26, 2017 (ADAMS Accession Number ML17299A012), NextEra Energy Point Beach (NextEra) submitted a license amendment request (LAR) to adopt 10 CFR 50.69, Risk-informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors. To complete its review, the NRC staff has the following questions it would like to discuss with the licensee during the audit.

RAI 01 – Facts and Observations (F&O) Closure Process

LAR Section 3.3 states that an F&O closure peer review was performed using the process documented in Appendix X to Nuclear Energy Institute (NEI) 05-04, NEI 07-12, and NEI 12-13, "Close-out of Facts and Observations" as accepted by the U.S. Nuclear Regulatory Commission (NRC) in the letter from Joseph Giitter and Mary Jane Ross-Lee, NRC to Greg Krueger, NEI, dated May 3, 2017 (ADAMS Accession Number ML17079A427). NRC staff provided observations of this F&O Closure on July 2017 (ADAMS Accession Number ML17356A055). Provide the following information to confirm that the July 2017 F&O closure review was performed consistent with the NRC accepted process, as discussed in the May 3, 2017 letter.

a. Clarify whether a focused-scope peer review was performed concurrently with the F&O closure process. If so, provide the following:

   i. Summary of the scope of the peer review.

   ii. Detailed descriptions of any new F&Os generated from the peer review and the associated dispositions for the application.

b. Confirm that the closure review team was provided with a written assessment and justification of whether the resolution of each F&O, within the scope of the independent assessment, constitutes a probabilistic risk assessment (PRA) upgrade or maintenance update, as defined in American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) RA-Sa-2009, "Addenda to ASME/ANS RA-S-2008, Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications," as qualified by Regulatory Guide (RG) 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," (ADAMS Accession Number ML090410014). If the written assessment and justification for the determination of each F&O was not performed and reviewed by the F&O closure review team, provide all the finding-level F&Os and the dispositions of these F&Os as it pertains to the impact on the 10 CFR 50.69 application. Alternatively, perform an Independent Assessment F&O closure review consistent with Appendix X, as accepted, with conditions, by the NRC letter dated

May 3, 2017, and provide any additional open F&Os and associated dispositions as a result of this review.

c. Appendix X (ADAMS Accession Number ML17086A451), Section X.1.3 includes five criteria for selecting members of the closure review team.

   Describe how the selection of members for the July 2017 independent assessment met the five criteria.

d. Explain how closure of the F&Os was assessed to ensure that the capabilities of the PRA elements, or portions of the PRA within the elements, associated with the closed F&Os now meet capability category (CC) II (CC-II) for SRs from ASME/ANS RA-Sa-2009, as endorsed, with clarifications and qualifications, by RG 1.200, Revision 2.

e. Discuss whether the F&O closure review scope included all finding-level F&Os, including those finding-level F&Os that are associated with "Met" SRs. If not, identify and provide detailed descriptions for any F&Os that were excluded from the F&O closure review scope, and their associated disposition for the application.

f. For any SRs that were found to be only met at CC I by previous peer review team(s), summarize the disposition of these SRs and how it was concluded they now meet CC II. Include discussion of whether all associated F&Os described what was needed to achieve CC II and how the F&O reviewed and closed by the F&O closure team.

RAI 02 – Open/Partially Open Findings in the Process of Being Resolved

Attachment 3 of the LAR, "Disposition and Resolution of Open Peer Review Findings and Self-Assessment Open Items," provides finding-level F&Os that are still open or only partially resolved after the F&O closure review. For a number of F&O dispositions there is insufficient information for NRC staff to conclude that the F&O is sufficiently resolved for this application. The NRC staff notes that F&O descriptions and their dispositions were previously provided to the NRC in the LAR to adopt for Technical Specification Task Force (TSTF)-425, "Relocate Surveillance Frequencies to Licensee Control – Risk Informed Technical Specifications Task Force (RITSTF) Initiative 5b" (ADAMS Accession Number ML14190A267). The NRC staff notes that modelling issues that can cause even small impacts to core damage frequency (CDF) and large early release frequency (LERF) (both increases and decreases) can potentially increase the risk importance values for certain system components above the threshold criteria for determining safety significance specified in Section 5 of NEI 00-04, "10 CFR 50.69 SSC Categorization Guideline," Revision 0, (ADAMS Accession Number ML052910035). In light of these observations, address the following:

a. <u>F&O IE-A1-01</u> regarding special initiating events:

   The disposition to F&O IE-A1-01 presented in the TSTF-425 LAR indicates that a number of special initiators related to the 4160 volts alternating current (VAC) Vital Switchgear bus were not included in the internal events PRA (IEPRA) model because they were considered not significant, and estimated the CDF for sequences associated with these initiators as high as 1.9E-07/year. It is not clear to the NRC staff that excluding these sequences cannot increase the risk importance values for specific system components above the

threshold criteria for determining safety significance as discussed in NEI 00-04, Section 5. Therefore:

i. Provide justification that exclusion of scenarios associated with the cited 4160 VAC Vital Switchgear bus related initiators has no impact on the 10 CFR 50.69 categorization results, or

ii. Propose a mechanism in response to RAI 04 that ensures F&O IE-A1-01 will be resolved in the PRA model prior to the implementation of the 10 CFR 50.69 categorization process. This mechanism should also provide an explicit description of changes that will be made to the PRA model or documentation to resolve this F&O.

b. F&O AS-B6-01 and F&O SY-A21-01 regarding excluded electrical alignment

The dispositions to F&Os AS-B6-01 and SY-A21-01 presented in the TSTF-425 LAR stated that although Emergency Diesel Generator (EDG) load management is a potential failure mode for EDGs, it is not modeled in the PRA. The TSTF-425 LAR further provided an estimate of the low likelihood that the EDG load management would be needed. The estimated low likelihood is based on the assumption that the events used in the estimate are independent. The NRC staff notes that loss of coolant accident (LOCA) initiators can induce loss of offsite power (LOOP) events and LOOP initiators can induce LOCAs (i.e., the need for safety injection (SI)) making these events dependent. Additionally, NRC staff notes that modelling exclusions that cause just small increases to CDF/LERF can impact the categorization of specific structures, systems, and components (SSCs). Therefore:

i. Provide justification that the excluded scenarios involving failure of EDG load management has no impact on the 10 CFR 50.69 categorization results. Include consideration of LOCA induced LOOP events and LOOP induced LOCA events, or

ii. Propose a mechanism in response to RAI 04 that ensures F&Os AS-B6-01 and SY-A21-01 will be resolved in the PRA model prior to implementation of the 10 CFR 50.69 categorization process. This mechanism should also provide an explicit description of changes that will be made to the PRA model or documentation to resolve this F&O.

c. F&O AS-B7-01 regarding inadequate treatment of time-phased modelling

The disposition to F&O AS-B7-01 presented in the TSTF-425 LAR states that recovery of LOOP events is only credited for station blackout (SBO) scenarios and the direct current (DC) batteries are conservatively assumed to fail at time zero. Conservative modeling in the PRA can skew the plant's risk profile and impact the SSCs risk importance values determined as part of 10 CFR 50.69 categorization. Therefore:

i. Provide justification that the conservative modelling associated with LOOP recovery and not crediting DC batteries has no impact on the 10 CFR 50.69 categorization results, or

ii. Propose a mechanism in response to RAI 04 that ensures F&O AS-B7-01 will be resolved in the PRA model prior to implementation of the 10 CFR 50.69

categorization process. This mechanism should also provide an explicit description of changes that will be made to the PRA model or documentation to resolve this F&O.

d. F&O HR-D1-01 regarding detailed assessments for significant human failure events (HFEs)

The disposition to F&O HR-D1-01 in LAR Attachment 3 states that no further changes are required. Also, based on the disposition presented in the TSTF-425 LAR, the F&O appeared resolved. Yet, the LAR associated with the adoption of 10 CFR 50.69 states regarding the disposition of this F&O, "[p]rior to implementation, either this finding will be closed or a sensitivity study case will be performed to determine the impact on the CDF and LERF results for those categorizations that could be adversely affected by this finding." Therefore:

i. Provide the reason why this F&O could not be closed by the F&O closure review in July 2017.

ii. Justify why this F&O has no impact on the 10 CFR 50.69 categorization results or propose a mechanism in response to RAI 04 that ensures F&O HR-D1-01 will be resolved in the PRA model prior to implementation of the 10 CFR 50.69 categorization process. This mechanism should also provide an explicit description of changes that will be made to the PRA model or documentation to resolve this F&O.

e. F&O IFQU-A6-01 regarding HFEs for internal flooding scenarios

The description for F&O IFQU-A6-01 states, "HFEs from internal events are 'adjusted' with inadequate basis for those adjustments." The disposition for this F&O presented in the TSTF-425 LAR states that "stress multipliers" from Table 20-16 of NUREG/CR-1278, "Handbook of Human Reliability Analysis with Emphasis on Nuclear Power Plant Applications, Final Report," 1983 (ADAMS Accession Number ML071210299), which are referred to as "stress modifiers" in NUREG/CR-1278, were used to account for the stress associated with an internal flooding event. However, Table 20-16 of the cited NUREG lists modifiers to be applied to human error probabilities (HEPs) for different stress levels and they are not specific to internal flooding. In light of these observations:

i. Justify that the HRA method used is adequate for use in the internal flooding PRA and the values used from NUREG/CR-1278 (that do not seem to relate to internal flooding stress) are appropriate.

ii. Confirm that scenario specific internal flooding HFEs were developed.

iii. Alternatively to items I, and ii above, propose a mechanism in response to RAI 04 that ensures F&O IFQU-A6-01 will be resolved in the PRA model prior to implementation of the 10 CFR 50.69 categorization process. This mechanism should also provide an explicit description of changes that will be made to the PRA model or documentation to resolve this F&O.

f. F&O PRM-B2-01 regarding the impact of internal events findings on the fire PRA

The description for F&O PRM-B2-01 states that resolution of internal events findings could impact fire PRA evaluations. The disposition to this F&O states, "[a]s of the time of this submittal, the only remaining open internal events peer review findings identified…are AS-B6-01 and SY-A21-01." NRC staff notes that AS-B6-01 and SY-A21-01 are the subject of RAI 02.b above. Therefore:

i. Provide justification that not updating the fire PRA to include the resolution of internal events F&Os AS-B6-01 and SY-A21-01 has no impact on the 10 CFR 50.59 categorization results, or

ii. Propose a mechanism in response to RAI 04 that ensures F&O PRM-B2-01 will be resolved in the PRA model prior to implementation of the 10 CFR 50.69 categorization process. This mechanism should also provide an explicit description of changes that will be made to the PRA model or documentation to resolve this F&O.

g. F&O HRA-B2-01 regarding credit for graphically distinct procedural steps

The description for F&O HRA-B2-01 found that credit for graphically distinct factors is taken for all HRA events, as opposed to taking credit for graphically distinct procedural steps that stand out from the other steps. The disposition for this F&O states, "[o]nly about 10% of the HEPs that credited graphically distinct procedure steps would be increased by more than a factor of 2." The disposition concludes "[b]ased on this review, the impact on the model from this finding is judged minimal." NRC staff notes that modelling issues that can cause even small increases to CDF and LERF can potentially increase the risk importance values for specific system components above the threshold criteria for determining safety significance specified in NEI 00-04, Section 5. Therefore:

i. Provide justification that not performing the cited correction to the HRA has no impact on the 10 CFR 50.69 categorization results, or

ii. Propose a mechanism in response to RAI 04 that ensures F&O HRA-B2-01 will be resolved in the PRA model prior to implementation of the 10 CFR 50.69 categorization process. This mechanism should also provide an explicit description of changes that will be made to the PRA model or documentation to resolve this F&O.

h. F&O FQ-A1-01 regarding FRANX and CAFTA discrepancies

The description for F&O FQ-A1-01 states, "some basic events that have been mapped to scenarios, components, or cables are not found in the CAFTA model." The associated disposition states that "information in the mapping table should be reviewed to eliminate the extraneous information and eliminate the discrepancies." The disposition for this F&O presented in the PBNP LAR for transition to the National Fire Protection Association (NFPA) Standard 805 (ADAMS Accession Number ML13182A353) indicates that this review has been performed which identified six failure events that were excluded from the PRA associated with the MCR. The PBNP NFPA 805 LAR for this disposition also states

that a sensitivity study was conducted which determined that the exclusion of these basic events have a negligible impact on fire risk. In light of these observations:

i. Identify which fire PRA modeling actions remain to be performed in order to fully resolve F&O FQ-A1-01, and justify that completion of the remaining actions has no impact on the 50.69 categorization results, or

ii. Propose a mechanism in response to RAI 04 that ensures F&O FQ-A1-01 will be resolved in the PRA model prior to implementation of the 10 CFR 50.69 categorization process. This mechanism should also provide an explicit description of changes that will be made to the PRA model or documentation to resolve this F&O.

RAI 03 – PRA maintenance versus PRA upgrade

Section 3.2 of the LAR states "[a]ll the PRA models described below have been peer reviewed and there are no PRA upgrades that have not been peer reviewed." Justify that any PRA update performed to resolve any F&Os discussed in RAIs 01 and 02 or PRA modelling uncertainties identified in RAI 08, does not constitute a "PRA upgrade" as defined in ASME/ANS RA-Sa-2009, Section 1-5.4, as qualified by RG 1.200, Revision 2. If an upgrade has been identified, provide the summary and results of the focused-scope peer review performed on the upgrade, including all finding-level F&Os and a disposition for each F&O as it pertains to the impact on the 10 CFR 50.69 application.

RAI 04 – Implementation Items to be Completed Prior to Implementing 10 CFR 50.69

LAR Section 3.2.3 states that "[a]n evaluation will be performed of the as-built, as-operated plant against the SMA [Seismic Margin Assessment] SSEL [Safe Shutdown Equipment List]. The evaluation will compare the as-built, as-operated plant to the plant configuration originally assessed by the SMA. Differences will be reviewed to identify any potential impacts to the equipment credited on the SSEL. Appropriate changes to the credited equipment will be identified and documented."

Further, Attachment 3 of the LAR indicates a number of planned updates to the PRA model before implementation of the 10 CFR 50.69 program.

a. Provide a list of each activity and PRA change, including all items from RAIs 01, 02, 03 and 08, that will be completed prior to implementing the 10 CFR 50.69 categorization process (i.e., implementation items). A table of "implementation items" has been used in previous risk-informed licensing actions to formally identify issues requiring resolution before implementation of the amendment.

b. Provide a method to ensure that all implementation items under part a. will be addressed and any associated changes will be made, that focused-scope peer reviews will be performed on any changes that are PRA upgrades as defined in the PRA standard, and any resulting findings will be closed via an NRC-accepted process (e.g., full-scope peer review, focused-scope peer review, or F&O closure review) prior to implementation of the 10 CFR 50.69 categorization process (for example, a license condition that all applicable implementation items will be completed prior to categorization).

RAI 05 – Overall Categorization Process

LAR Section 3.1.1, "Overall Categorization Process," has two different sets of bulleted elements and concludes with an additional list of ten elements. The elements discuss: training that will be provided, the different hazard models, and PRA model results. However, it is not clear to the NRC staff what the sequence of evaluations will be in the categorization process, what information will be developed and used, and what guidance on acceptable decisions by the Integrated Decision-Making Panel (IDP) will be followed during the categorization of each system.

a. Summarize, in the order they will be performed, the sequence of elements or steps that will be followed to categorize a respective system. A flow chart, such as that provided in the NEI presentation (ADAMS Accession Number ML17249A072) for the September 6, 2017, public meeting with NEI regarding 10 CFR 50.69 LARs (ADAMS Accession Number ML17265A020) may be provided instead of a description. The steps should include:

    i. The input from all PRA evaluations such as use of the results from the internal events, internal flooding, seismic, and fire PRAs;

    ii. The input from non-PRA approaches (other external events, and shutdown);

    iii. The input from the responses to the seven qualitative questions in NEI 00-04, Section 9.2;

    iv. The input from the defense-in-depth (DID) matrix;

    v. The input from the passive categorization methodology.

b. Clarify the difference between "preliminary high safety significant (HSS)" and "assigned HSS" and identify which inputs can, and which cannot, be changed from preliminary HSS to low safety significant (LSS) by the IDP. Confirm that the approach is consistent with the guidance in NEI 00-04, as endorsed by RG 1.201, Revision 1, "Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to their Safety Significance," (ADAMS Accession Number ML061090627).

c. Clarify which steps of the process are performed at the function level and which steps are performed at the component level. Describe how the categorization of the component impacts the categorization of the function, and vice-versa. Describe any instances in which the final safety significance of the function would differ from the safety significance of the component(s) that support the function, and confirm that the approach is consistent with the guidance in NEI 00-04 as endorsed by RG 1.201, Revision 1.

d. NEI 00-04, Section 7, states that "if any SSC is safety significant, from either the PRA-based component safety significance assessment (Section 5) or the defense-in-depth assessment (Section 6), then the associated system function is preliminary safety significant." Describe whether your categorization process is consistent with or differs from the guidance in NEI 00-04, Section 7, where functions supported by any HSS component(s) will be assigned as HSS. If your categorization process differs from the

guidance in Section 7 of NEI 00-04 cited above where functions supported by any HSS component(s) will be assigned HSS, justify the approach.

e. The industry flow chart presented at the September 6, 2017, public meeting shows that the passive categorization would be undertaken separately from the active categorization.

   i. Explain how the results from the passive categorization will be integrated with the overall categorization results.

   ii. If the results from the passive categorization can be changed by the IDP, explain and justify the proposed approach.

f. NEI 00-04, Section 9.2.2, "Review of Safety Related Low Safety-Significant Functions/SSCs," states "in making their assessment, the IDP should consider the impact of loss of the function/SSC against the remaining capability to perform the basic safety functions." This section also provides seven questions that should be considered for making the final determination of the safety-significance for each system function/SSC. However, it is unclear in the LAR how the IDP will collectively assess these seven specific questions. For example, is a function/SSC considered HSS when the answer to any one question is false (e.g., failure of the function/SSC will directly cause an initiating event or adversely affect the defense-in-depth remaining to perform the function). Explain how the IDP will collectively assess the seven specific questions to identify a function/SSC as LSS as opposed to HSS.

g. NEI 00-04, Section 7.1 states, "[d]ue to the overlap of functions and components, a significant number of components support multiple functions. In this case, the SSC or part thereof should be assigned the highest risk significance for any function that the SSC or part thereof supports." Section 4 of NEI 00-04 also states that a candidate LSS SSC that supports an interfacing system should remain uncategorized until all interfacing systems are categorized. Confirm that the cited guidance in NEI 00-04 will be followed and that any functions/SSCs that serve as an interface between two or more systems will not be categorized until the categorization for all of the systems that they support is completed and that SSCs that support multiple functions will be assigned the highest risk significance for any of the functions they support, or otherwise justify your proposed approach.

RAI 06 – SSCs Categorization based on Other External Hazards

NEI 00-04 provides guidance on including external events in the categorization of each SSC to be categorized. The process begins with the SSC selected for categorization, as illustrated in NEI 00-04, Section 5.4, Figure 5-6 and proceeds through the flow logic for each external hazard. According to Figure 5-6, if a component participates in a screened scenario, then in order for that component to be considered candidate LSS, it has to be further shown that if the component was removed, the screened scenario would not become unscreened. The LAR does not address this aspect of the guidance, but appears to indicate "other external hazards" (i.e., besides seismic events) are screened from consideration in the categorization process.

a. Identify the external hazards that will be evaluated according to the flow chart in NEI 00-04, Section 5.4, Figure 5-6.

b. Identify the external hazards for which all credited SSCs will be considered HSS.

c. Describe and justify any additional method(s) different from (a) or (b) above that will be used to evaluate individual SSCs against external hazards and identify the hazards that will be evaluated with these methods.

d. Confirm that all external hazards not included in the categorization process (a), (b), or (c) above, will be considered insignificant for every SSC and, therefore, will not be considered during the categorization process.

e. Extreme winds and tornado hazards

Attachment 4 of the LAR, as supplemented, indicates that the extreme wind or tornado hazard is screened on the basis that the high winds CDF is estimated to be less than 1E-6/year. This implies that there are certain mitigating SSCs that, if removed, could increase the CDF above 1E-6/year, and so, these SSCs would become HSS, per the guidance in Figure 5-6 of NEI 00-04. Explain and justify how the guidance in Figure 5-6 of NEI 00-04 will apply to the high winds hazard and whether this hazard will or will not be considered during the categorization process.

f. External Flooding Hazard

Attachment 4 of the LAR indicates that external flooding hazards are screened from consideration in the 10 CFR 50.69 process. The LAR states that the external flooding hazard was screened because events associated with this hazard are bounded by the current licensing basis or in the case of a local intense precipitation (LIP) event there is "an acceptable method of assuring safe shutdown." The LAR states that for LIP "implementing the FLEX strategy provides an acceptable method of assuring safe shutdown." Section 5.4 of NEI 00-04 states that "after identifying the design basis and severe accident functions of the component, the external hazard analysis is reviewed to determine if the component is credited as part of the safe shutdown paths evaluated. If the component is credited, it is considered safety-significant." Further, Figure 5-6 of NEI 00-04 shows that if a component participates in a screened scenario, then in order for that component to be considered candidate LSS, the licensee has to show that if the component was removed, the screened scenario would not become unscreened.

i. Identify all SSCs that are credited in the screening of the LIP that should be designated safety significant per the guidance in Section 5.4 of NEI 00-04, including passive and/or active components. It should be noted, according to the LAR, it appears that FLEX strategy is relied upon for LIP mitigation. Additionally NRC notes that in a letter from NextEra to the NRC dated June 22, 2017 regarding a focused evaluation for LIP events (ADAMS Accession Number ML17173A082) that PBNP has committed to providing flood protection for the "B" train emergency diesel generator exhaust stacks.

ii. Identify any SSCs that are credited in the screening of all other external flooding mechanisms (other than LIP), including passive and/or active components.

iii. Explain and justify how the guidance in Figure 5-6 of NEI 00-04 will be applied to external flooding. Specifically, Figure 5-6 shows that if a component participates in a screened scenario, then in order for that component to be considered candidate

LSS, the licensee has to show that if the component was removed, the screened scenario would not become unscreened.

RAI 07 – Shutdown Risk

LAR Section 3.2.5, "Low Power & Shutdown," states the categorization process will use the shutdown safety management plan described in NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," December 1991, (ADAMS Accession Number ML14365A203) for categorization of safety significance related to low power and shutdown conditions. However, the LAR does not cite the other criteria specified in NEI 00-04, Section 5.5, "Shutdown Safety Assessment," pertaining to low power shutdown events (i.e., DID attributes and failures that would initiate a shutdown event). Clarify and provide the basis for how the categorization of SSCs will be performed for low power and shutdown events, and how it is consistent with the guidance in NEI 00-04 as endorsed by RG 1.201, Revision 1.

RAI 08 – Key Assumptions and Uncertainties that could Impact the Application

LAR Section 3.2.7, "PRA Uncertainty Evaluations," explains that PRA model assumptions and sources of uncertainty have been identified for this application using guidance from NUREG-1855, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision Making," (ADAMS Accession Number ML090970525). LAR Section 3.2.7 indicates that no additional sensitivity analyses are required to address PBNP PRA model specific assumptions or sources of uncertainty beyond what is already required by Sections 5 and 8 of NEI 00-04.

The dispositions presented in Attachment 6 of the LAR for key assumptions and modeling uncertainties appear to fall into one of three categories: (1) the assumption is conservative, (2) the impact is small (negligible), or (3) the assumption realistically models the plant design. NRC staff notes that modelling issues that represent small impacts to CDF and LERF (both increases and decreases) could potentially increase the risk importance values for certain system components above the threshold criteria for determining safety significance specified in NEI 00-04, Section 5. In light of these observations, address the following:

a. <u>Operator action to control Auxiliary Feedwater (AFW) flow late in the accident sequence</u>
Attachment 6 (page 51) of the LAR explains that a sensitivity analysis performed evaluating the impact of not controlling AFW flow for the full PRA mission time shows that exclusion of operator action to control AFW flow late in the accident sequence has a "small" impact. It is not clear to the NRC staff how the sensitivity analysis demonstrates that the exclusion of this operator action has no impact on the categorization of SSCs under 10 CFR 50.69; therefore:

   i. Justify that the exclusion of this operator failure to control the AFW flow late in the accident sequence has no impact on the 10 CFR 50.69 categorization results, or

   ii. Propose a mechanism that ensures that the operator failure to control the AFW flow late in the accident sequence will be incorporated into the PRA prior to implementation of the 10 CFR 50.69 categorization process.

b. <u>Expansion joint failures not in the PRA model</u>
Attachment 6 (page 51) of the LAR explains that failures of expansion joints are not modelled in the fire protection system for the fire PRA. The LAR explains that the results of

a sensitivity analysis on this failure mode demonstrates that the impact of crediting this action has a “negligible impact on the results.” It is not clear to NRC staff what “negligible impact on the results” means quantitatively and notes that just small increases to CDF/LERF can impact the categorization of specific SSCs. Therefore:

i. Justify that the exclusion of the cited failure mode has no impact on the 10 CFR 50.69 categorization results, or

ii. Propose a mechanism that ensures that the expansion joint failures will be incorporated into the fire PRA prior to implementation of the 10 CFR 50.69 categorization process.

RAI 09 – Passive Categorization Process

LAR Section 3.1.2, “Passive Categorization Process,” states that passive components and the passive function of active components will be evaluated using the method for risk-informed repair/replacement activities consistent with the safety evaluation issued by the Office of Nuclear Reactor Regulation, “Request for Alternative ANO2-R&R-004, Revision 1, Request to Use Risk-informed Safety Classification and Treatment for Repair/Replacement Activities in Class 2 and 3 Moderate and High Energy Systems, Third and Fourth 10-Year In-service Inspection Intervals,” for Arkansas Nuclear One, Unit 2, dated April 22, 2009 (ADAMS Accession Number ML090930246). The LAR further states that this methodology will be applied to determine the safety significance of Class 1 SSCs.

The NRC staff notes that this methodology has been approved for Class 2 and Class 3 SSCs. Because Class 1 SSCs constitute principal fission product barriers as part of the reactor coolant system or containment, the consequence of pressure boundary failure for Class 1 SSCs may be different than that for Class 2 and Class 3 SSCs. Therefore, the criteria in the ANO-2 methodology cannot automatically be generalized to Class 1 SSCs without further justification.

The LAR does not justify how the ANO-2 methodology can be applied to Class 1 SSCs and how sufficient defense-in-depth and safety margins are maintained. An acceptable technical justification for Class 1 SSCs would have to address how the methodology is sufficiently robust to assess the safety significance of Class 1 SSCs, including, but not limited to: justification of the appropriateness of the numerical criteria for conditional core damage probability (CCDP) and conditional large early release probability (CLERP) used to assign ‘High’, ‘Medium’ and ‘Low’ safety significance to these loss of coolant initiating events; identification and justification of the adequacy of the additional qualitative considerations to assign ‘Medium’ safety significance (based on the CCDP and CLERP) to ‘High’ safety significance; justification for crediting operator actions for success and failure of pressure boundary; guidelines and justification for selecting the appropriate break size (e.g. double ended guillotine break or smaller break); and include supporting examples of types of Class 1 SSCs that would be assigned low safety significance.

As mentioned in the meeting summary from the February 20, 2018 Risk-Informed Steering Committee (RISC) meeting (ADAMS Accession Number ML18072A301), NRC staff understands that the industry is planning to limit the scope of passive categorization to Class 2 and Class 3 SSCs, consistent with the pilot Vogtle license amendment (ADAMS Accession Number ML14237A034).

Please provide the requested technical justification or confirm the intent to apply the ANO-2 passive categorization methodology only to Class 2 and Class 3 SSCs.

RAI 10 – Modeling of the Reactor Coolant Pump (RCP) Shutdown Seals

In letter dated December 16, 2015, “NextEra Energy Point Beach, LLC's Notification of Full Compliance with Order EA-12-049 Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design Basis External Events and Submittal of Final Integrated Plan” (ADAMS Accession No. ML15350A085), it is stated that Point Beach Units 1 and 2 have installed the Westinghouse SHIELD Generation III low leakage/shutdown RCP seals.

The PRA model for the Generation III seals was approved by the NRC in the August 23, 2017, Topical Report [TR] PWROG-14001-P, Revision 1, 'PRA Model for the Generation Ill Westinghouse Shutdown Seal'" and the associated NRC Safety Evaluation (ADAMS Package Accession No. ML17200A116).

Consistent with the RG 1.174 guidance that the PRA scope, level of detail and technical acceptability be based on the as-built and as-operated and maintained plant, and reflect operating experience at the plant, please address the following:

a) Clarify whether the current internal events and fire PRA models include credit for the Westinghouse Generation Ill RCP seals.

b) If the PRA models include credit for the Westinghouse Generation Ill RCP seals, address the following:

   i. Confirm that the TR PWROG-14001-P was followed and that the limitations and conditions in the NRC safety evaluation for PWROG-14001-P, Revision 1, are met.

   ii. If exceptions to the limitations and conditions exist, identify all the exceptions and justify impact on the application.

   iii. Describe how the Generation Ill Westinghouse RCP seal model has been peer-reviewed as part of the internal events PRA and fire PRA peer-reviews and whether any changes were required after the peer review.

   iv. Justify why the addition of this model to the internal events and fire PRAs is not considered a PRA upgrade requiring a focused-scope peer review. For example, if asymmetric cooling was not included in the peer reviewed PRA, explain how including asymmetric cooling is not an upgrade.

   v. If the addition of RCP seal model qualifies as a PRA upgrade, provide the results from the focused-scope peer review including the associated F&Os and their resolutions.

   vi. If the PWROG-14001-P was not followed, describe and justify the approach used.

c) Alternatively to item b) above or if the PRA models do not include credit for the Westinghouse Generation III RCP seals, propose a mechanism to implement the RCP seals model in the PRA models and ensure adherence to the TR PWROG-14001-P, Revision 1, the associated NRC safety evaluation, and associated limitations and conditions, prior to implementation of the 10 CFR 50.69 categorization process.