NRR-DMPSPEm Resource

From: Lingam, Siva
Sent: Friday, April 6, 2018 3:15 PM
To: Matthew.Cox@aps.com
Cc: Pascarelli, Robert; Rosenberg, Stacey; Casto, Greg; Bailey, Stewart; Wittick, Brian; Robinson, Jay; Driver, Adrienne; Zoulis, Antonios; Thomas, George; Hsu, Kaihwa; Reisi Fard, Mehdi; Darbali, Samir; Hilsmeier, Todd; Grenier, Bernard; Heeszel, David; Thomas.N.Weber@aps.com; Michael.Dilorenzo@aps.com; Carl.Stephenson@aps.com
Subject: RE: Palo Verde 1, 2, and 3 - Official RAIs for 10 CFR 50.69 LAR (CAC Nos. MF9971, MF9972, and MF9973; EPID L-2017-LLA-0276)
Attachments: Palo Verde 50.69 RAIs.docx

From: Lingam, Siva
Sent: Friday, April 06, 2018 3:13 PM
To: 'Matthew.Cox@aps.com' <Matthew.Cox@aps.com>
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Subject: RE: Palo Verde 1, 2, and 3 - Official RAIs for 10 CFR 50.69 LAR (CAC Nos. MF9971, MF9972, and MF9973; EPID L-2015-LLA-0276)

Minor correction in red please under "Subject."

From: Lingam, Siva
Sent: Friday, April 06, 2018 3:00 PM
To: 'Matthew.Cox@aps.com' <Matthew.Cox@aps.com>
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Subject: Palo Verde 1, 2, and 3 - Official RAIs for 10 CFR 50.69 LAR (CAC Nos. MF9971, MF9972, and MF9973; EPID L-2017-LLA-0276)

We transmitted the draft requests for additional information (RAIs) for the subject license amendment request (LAR) on March 20, 2018, and at your request, held a clarification call on March 29, 2018. Attached please find the **official** RAIs from the U.S. Nuclear Regulatory Commission (NRC) staff for the subject LAR, and provide your responses within 45 days from the date of this e-mail, as mutually agreed during the clarification call. Further, based on the clarification call held on March 29, 2018, final responses to RAIs 5, 15, and 21 will

not be provided within 45 days, however, best estimate response dates/times/plan will be provided in your 45 days response for these RAIs. Your timely responses will allow the NRC staff to complete its review on schedule.

Siva P. Lingam
U.S. Nuclear Regulatory Commission
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Grand Gulf Nuclear Station, Unit 1
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Subject: RE: Palo Verde 1, 2, and 3 - Official RAIs for 10 CFR 50.69 LAR (CAC Nos. MF9971, MF9972, and MF9973; EPID L-2017-LLA-0276)
Sent Date: 4/6/2018 3:15:24 PM
Received Date: 4/6/2018 3:15:00 PM
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Files	Size	Date & Time
MESSAGE	3876	4/6/2018 3:15:00 PM
Palo Verde 50.69 RAIs.docx	86246	

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Priority:	Standard
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REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST TO ADOPT 10 CFR 50.69 RISK-INFORMED

CATEGORIZATION AND TREATMENT OF STRUCTURES, SYSTEMS, AND COMPONENTS

FOR NUCLEAR POWER REACTORS

ARIZONA PUBLIC SERVICE COMPANY

PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3

DOCKET NOS. 50-528, 50-529, AND 50-530

By letter dated July 19, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17200D162), Arizona Public Service Company (APS, the licensee), submitted a license amendment request (LAR) to adopt Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.69, "Risk-informed categorization and treatment of structures, systems, and components for nuclear power reactors," for Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the LAR and determined that additional information is required in order to complete the review.

Request for Additional Information (RAI) 01 APLA – RG 1.200, Revision 2, PRA Acceptability, F&O Closure

a. 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 No. ML090410014), provides guidance for addressing probabilistic risk assessment (PRA) acceptability including addressing the need for the PRA model to represent the as-designed or as-built, as-operated plant through: (1) a discussion of the resolution of the peer review (or self-assessment, for peer reviews performed using the criteria in Nuclear Energy Institute (NEI) 00-02, Revision 1, "Probabilistic Risk Assessment (PRA) Peer Review Process Guidance," May 2006 (ADAMS Accession No. ML061510619), findings and observations that are applicable to the parts of the PRA required for the application; and (2) documenting the use of the parts of the PRA that conform to capability categories or grades lower than deemed required for the given application.

   Without the described information above, the NRC staff is unable to complete its review. Please provide the following:

   i. For the PRA quality requirements addressed in the self-assessment, please confirm the scope of the facts and observation (F&O) closure review included review of the self-assessment findings of the internal events PRA (IEPRA) against the American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) RA-Sa-2009, "Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications, Addendum A to RA-S-2008," supporting requirements (SRs) at Capability Category II (CC- II), as qualified by RG 1.200, Revision 2.

ii. If the F&O closure review did not include review of findings from the self-assessment of the IEPRA against the ASME/ANS RA-Sa-2009 SRs at CC-II, as qualified by RG 1.200, Revision 2, then please provide all the self-assessment findings and a disposition for each finding as it pertains to this application.

b. Section 3.3, "PRA Review Process Results [10 CFR 50.69(b)(2)(iii)]," of the LAR, the licensee stated that a F&O closure review was performed in June 2017 "to assess the closure of all finding level F&Os from these peer reviews." Additionally, the NRC staff determined that APS performed a self-assessment of the IEPRA model in March 2011 to address the PRA quality requirements not considered in the Combustion Engineering Owners Group (CEOG) peer review.

   Appendix B, "NRC Position on the NEI Peer Review Process (NEI 00-02)," of RG 1.200, Revision 2, provides guidance that states the results of the self-assessment are used to demonstrate the technical adequacy of a PRA for an application, differences between the current version of the standard (i.e., ASME/ANS Ra-Sa-2009) as endorsed in RG 1.200, Appendix A, and the earlier version (i.e., ASME RA-Sb-2005) be identified and addressed. The licensee's peer review performed in 1999 was performed using the CEOG peer review process prior to the inception of the ASME/ANS RA-Sb-2005 PRA Standard.

   i. For the self-assessment, please clarify how the 1999 Peer Review performed was assessed against the current version of the ASME/ANS PRA standard, as qualified by RG 1.200, Revision 2. Please provide the date to confirm when the self-assessment was performed.

RAI 02 APLB – Seismic PRA RG 1.200, Revision 2, PRA Acceptability, NEI 12-13

Section 3.2.3, "Seismic Hazards," of the LAR states, in part, that "[t]he categorization process for seismic hazards will use a peer reviewed plant-specific Seismic PRA [SPRA] model in accordance with RG 1.200, Revision 2…." The NRC staff was unable to determine, which peer review guidance was used. Please indicate, which guidance document was used to perform the SPRA peer review.

If the peer review was performed using guidance not described in RG 1.200, Revision 2, such as NEI 12-13, "External Hazards PRA Peer Review Process Guidelines" (ADAMS Package Accession No. ML122400044), please provide the following additional information to justify the use of NEI 12-13:

a. Please describe how the qualifications of the SPRA peer review team comply with the peer review requirements in ASME/ANS RA-Sa-2009, Sections 1-6.2 and 5-3.2, as endorsed in RG 1.200, Revision 2.

b. Please identify any unreviewed analysis methods (UAMs) used in the SPRA, as determined by the peer review team, and describe each UAM with a level of detail appropriate for the NRC staff to evaluate its acceptability.

c. Please describe if the SPRA relies on expert judgement to meet any SR and, if so, demonstrate conformance to the expert judgment requirements of ASME/ANS RA-Sa-2009, Section 1-4.3. Also, please cite any information from the peer review report related to the evaluation of the use of expert judgment by the peer review

team and whether the peer review team found the use of expert judgment to be appropriate.

d. Please clarify whether the SPRA was reviewed against CC-I for any SR. Provide a list of all SRs that were reviewed against CC-I or found to meet only CC-I without an associated finding. For each such SR, please justify why not meeting the SR at CC-II does not impact this application.

e. Please clarify whether an "in-process" peer review was performed for the SPRA. If an "in-process" approach was utilized, confirm that (i) the approach met the requirements for an independent peer review as stated in ASME/ANS RA-Sa-2009 and the process described in NEI 12-13; (ii) a final review by the entire peer review team occurred after the completion of the SPRA; and (iii) peer reviewers remained independent throughout the PRA development activity as discussed in the enclosure to the letter dated November 16, 2012, from Mr. Donald G. Harrison, NRC to Mr. Biff Bradley, NEI (ADAMS Accession No. ML12321A280).

RAI 03 APLB – [SPRA] RG 1.200, Revision 2, PRA Acceptability, FPIE as Basis for SPRA

ASME/ANS RA-Sa-2009, Section 5-2.3, Part 5, "Requirements for Seismic Events At-Power PRA," assumes that full-scope internal-events at-power Level 1 and Level 2 large early release frequency (LERF) PRAs exist, and that those PRAs are used as the basis for the SPRA systems analysis. Please provide the following information to establish the technical adequacy of the IEPRA model, which was used as the foundation for the SPRA.

a. Please identify the version of the IEPRA which was used as the foundation for the SPRA and any finding-level F&Os that had not been closed in accordance with an NRC-accepted process at the time it was used.

b. For each finding-level F&O, please describe the disposition and the impact of the F&O on the SPRA as it pertains to this application.

c. Please identify any IEPRA upgrades that were incorporated into the IEPRA, which was used as the foundation for the SPRA, but had not been peer-reviewed prior to the development of the SPRA.

RAI 04 APLB – RG 1.200, Revision 2, PRA Maintenance and Update: Configuration Control

Section 3.2.6, "PRA Maintenance and Updates," of the LAR states that the licensee's risk management process ensures that the applicable PRA models used, continue to reflect the as-built and as-operated plant for each of the PVNGS units. NEI 00-04, Revision 0, "10 CFR 50.69 SSC [Structure, System, and Component] Categorization Guideline" (ADAMS Accession No. ML052910035), Section 12.1, states that the assessment of new technical information should be performed during the normally scheduled periodic review cycle. However, based on the information provided in the LAR, it was not clear to the NRC staff how the site-specific seismic hazard information would be evaluated to ensure that the SPRA continues to reflect the as-built, as-operated plant.

Please summarize the process that will be used to review seismic hazard information, including: the frequency of the review if it is to be performed periodically, the sources of information that

will be used to perform the reviews, and the criteria that will be used to determine when new hazard results will be incorporated into the SPRA. Please include a description of the approach that will be taken to propagate updated site-specific hazard information throughout the SPRA model that could impact the categorization results.

RAI 05 APLA(B) – RG 1.200, Revision 2, PRA Acceptability, F&O Closure Process

Section 3.3 of the LAR states, in part, "[a]n F&O closure peer review was performed in June 2017, in accordance with NRC letter dated May 3, 2017…." Furthermore, it states, in part, "[t]he F&O closure review was conducted to ensure the findings had been satisfactorily resolved to meet the ASME PRA Standard RA-Sa-2009… to Capability Category II, the sub-element criteria for the CEOG from Internal Events PRA peer review…, and RG 1.200, Revision 2…."

Please provide the following information to clarify and confirm that the F&O closure review was performed consistent with Appendix X to NEI 05-04/07-12/12-06 guidance (ADAMS Accession No. ML16158A035) governing the process for "Close-out of Facts and Observations" that the NRC staff accepted, with conditions, in the letter dated May 3, 2017, from Joseph Giitter and Mary Jane Ross-Lee, NRC to Greg Krueger, NEI (ADAMS Accession No. ML17079A427).

1. Please clarify whether a focused-scope peer review was performed concurrently with the F&O closure process. If so, please provide a brief summary of the focused-scope peer review that includes:

    i. Discussion of the scope of F&Os reviewed (e.g., which peer review(s) generated F&Os, self-assessment finding(s), external hazards peer review(s), etc.).

    ii. Discussion of any new findings generated from the concurrent focused-scope peer review performed and the associated dispositions as it pertains to this application.

    iii. Summary of the peer review team's conclusion(s) and comments on the concurrent focused-scope peer review performed.

b. Please 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 PRA upgrade or maintenance update, as defined in ASME/ANS RA-Sa-2009 and qualified by RG 1.200, Revision 2. 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, please discuss how this aspect of the F&O closure process was met consistent with the NRC staff's acceptance and conditions provided in the letter dated May 3, 2017.

c. Appendix X, Section X.1.3, includes the following five criteria for selecting members of the closure review team.

    i. Every member of the independent assessment team should be independent of the PRA associated with the F&Os being reviewed, per the criteria of "independent" in the ASME/ANS PRA Standard. These members may be contractors, utility personnel, or employees of other utilities, and may include members of peer review teams that previously reviewed the models being assessed.

ii. Every member of the independent assessment group should meet the relevant peer reviewer qualifications as stated in the ASME/ANS PRA Standard for the technical elements associated with the F&Os being reviewed.

iii. The overall review team experience includes two qualified reviewers for each F&O. An exception to this is allowed for the closure of an F&O related to a single SR, in which case, a single independent reviewer is acceptable, in alignment with the peer review guidance in the main body of this document and in accordance with the ASME/ANS PRA Standard.

iv. Each member of the independent assessment team should be knowledgeable about the F&O independent assessment process used to assess the adequacy of the F&O resolution.

v. The total number of reviewers is a function of the scope and number of finding F&Os to be reviewed for closure.

Please describe how the selection of members for the June 2017 independent assessment met the above criteria. Please 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 ASME/ANS RA-Sa-2009 SRs at CC-II.

d. Please 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 at CC-II. If not, please identify and describe those findings that were excluded from the F&O closure review scope. For each identified finding-level F&O, please describe the disposition and the impact of the F&O on PRA as it pertains to this application.

RAI 06 APLA(B) – RG 1.200, Revision 2, PRA Acceptability, F&Os Not Resolved by Closure Review

Attachment 3, “Disposition and Resolution of Open Peer Review Findings and Self-Assessment Open Items from Facts and Observation Closure Review Process,” of the LAR provides dispositions for the self-assessment open items and the F&Os from the peer review of the IEPRA (including internal flooding) and SPRA that were not closed by the June 2017 F&O closure review. These dispositions state that the closure review team recommendations will be addressed or implemented and that “[t]hese [PRA] changes will be implemented and the finding verified closed by a subsequent F&O Closure Review as a prerequisite to categorization.“

Please propose a mechanism that ensures these activities and changes will be completed and appropriately reviewed in accordance with an NRC-accepted process (e.g., full-scope peer review, focused-scope peer review, or F&O closure review) and any issues resolved prior to implementing the categorization process. This mechanism should also include any additional finding-level F&Os identified in response to APLA(B) RAI 01, APLB RAI 03, APLA(B) RAI 05, APLA(B) RAI 09, APLA RAI 17, and APLA RAI 21 and specify, how the F&Os will be resolved in the PRA (e.g., provide an explicit description or a reference to the appropriate section of the

LAR). An example would be a table of listed implementation items referenced in a license condition.

As an alternative to providing an implementation item for an F&O, please demonstrate that the F&O will have no impact to the 10 CFR 50.69 categorization process results.

RAI 07 EMIB/ESEB – [SPRA] RG 1.200, Revision 2, PRA Acceptability, F&Os Not Resolved by Closure Review

Finding-level F&O SFR-F3-01 in Attachment 3 of the LAR noted that the detailed fragility evaluation for dominant relay contributors should demonstrate that the seismic demand is an appropriate median-based response, and that the important uncertainties are included in obtaining log standard deviations. The closure review team recommended that the following be incorporated into the calculation to provide the basis for potential resolution and closure of the finding:

1. Justify the use of Best Estimate [BE] ISRS [in-structure response spectra] as the median. In our [closure review team] opinion, the SSI [soil-structure interaction] analysis using BE soil properties, best estimate structure stiffness and a conservative estimate of best estimate structure damping results in a 84th percentile response.

2. The βu associated with SSI is obtained using the BE, UB [upper bound] and LB [lower bound] [envelope] as the 84th and the BE alone as the median. Please explain the rationale that this results for the same building (Control Building) a wide range of SSI βc from 0.09 to 0.22.

3. Explain why the uncertainties associated with structure stiffness and damping, time history simulation and earthquake component combination are ignored in the SOV [separation of variables) calculations.

The above closure team resolution recommendations appear to suggest that: (a) the ISRS, derived from the building SSI analysis, used as input for the seismic fragility evaluation of the equipment (relays in this case) may not be an appropriate median-centered response; and (b) that important uncertainties associated with the structure response may not have been included in the SOV calculations, such that the resulting equipment fragilities using the ISRS input are reasonably realistic. Since fragility is the input to evaluate core damage frequency (CDF)/LERF the results of which are used for equipment categorization criterion, this finding may have the potential to impact the categorization results.

Describe the technical rationale for addressing the above closure review team recommendations that would justify that the building ISRS are an appropriate median response and that important uncertainties associated with the structure response were appropriately included, such that the resulting equipment fragility values are reasonably realistic. Alternatively, provide information that would demonstrate that the F&O will have no impact on the 10 CFR 50.69 categorization process results.

RAI 08 RGS – [SPRA] RG 1.200, Revision 2, PRA Acceptability, F&Os Not Resolved by Closure Review

In Attachment 3 of the LAR, finding-level F&O SHA-E2-01 included a recommendation for the licensee to "[d]emonstrate that the updated set of soil [peak ground acceleration (PGA)] hazard curves fractiles (mean, and 5th, 16th, 50th, 84th, 95th) is bounded by the soil [PGA] hazard curves used in the Seismic PRA model. If the updated set of soil [PGA] hazard curves is greater than those used in the Seismic PRA model, the impact on Seismic risk quantification should be assessed." This discussion indicates that the current version of the SPRA is based on a seismic hazard study performed prior to the 2015 study evaluated by the NRC staff as part of its 10 CFR 50.54(f) review (ADAMS Accession Nos. ML15076A073 and ML16221A604) and that the updated seismic hazard curves will be incorporated in a PRA update. Finding level F&O SHA-E2-01 states, in part, "… it is not clear if the seismic risk quantification using the [PGA] hazard curves from LCI [LCI Report 2211-PR-07-Rev. 4, "Seismic Hazards Evaluation for Palo Verde Nuclear Generating Station"] (2013) is appropriate."

Provide a comparison (e.g., a graph or table) of the seismic hazard currently used in performing the SPRA (LCI 2013) with the updated seismic hazard curves (LCI 2015b) to be incorporated in a PRA update. In addition, please provide a description of how fragility analyses performed using the 2013 seismic hazard curves will be reconciled with the updated seismic hazard. Alternatively, demonstrate that the F&O will have no impact to the 10 CFR 50.69 categorization process results.

RAI 09 APLA(B) RAI 09 – RG 1.200, Revision 2, PRA Acceptability, PRA Upgrades Identified in F&O Closure Review Report

Section 3.3 of the LAR states, in part, that "[a]ll PRA upgrades (as defined by the ASME PRA Standard RA-Sa-2009…) implemented since conduct of the CEOG peer review in 1999 have been peer reviewed." The LAR indicated that one full-scope peer review was performed on the IEPRA model in July 1999, Internal Flooding PRA (IFPRA) (2010), SPRA (2013), Fire PRA (FPRA) (2012 and 2014). The NRC staff requests that the licensee provide the following additional information to enable the NRC staff to evaluate if the guidance provided in RG 1.200, Revision 2, regarding PRA upgrades was followed:

a. Describe the changes made to the IEPRA since the full-scope peer review was conducted in 1999, including any changes that would impact the modeling framework for the PRA, such as converting the PRA to a one-top fault tree across all the PRA hazards. Provide the dates for when each change occurred. This description should be of sufficient detail for the NRC to determine whether the changes are considered PRA maintenance or PRA upgrades as defined in ASME/ANS RA-Sa-2009, Section 1-5.4, as qualified by RG 1.200, Revision 2. Include in your discussion: (1) any new methodologies (i.e., summarize the original method in the PRA and the new method); (2) changes in scope that impact the significant accident sequences or the significant accident progression sequences; (3) changes in capability that impact the significant accident sequences or the significant accident progression sequences.

b. For each change described in Part a above, indicate whether the determination for the change was PRA maintenance or a PRA upgrade as defined in ASME/ANS RA-Sa-2009, Section 1-5.4, as qualified by RG 1.200, Revision 2, along with justification for the determination.

c. Discuss any focused-scope (or full-scope) peer reviews that have been performed for the PRA upgrades identified in Part b above, providing the timeline of when the peer reviews were performed and when the peer review reports were approved. For each upgrade identified, either:

   i. Provide the findings of the peer review(s) performed on the upgrade and the disposition of the findings as it pertains to the impact on the 10 CFR 50.69 application, OR,

   ii. Confirm that the resulting F&Os from the peer review(s) on the upgrade were assessed in the F&O closure review in June 2017.

d. Describe the changes that have been made to the IFPRA, SPRA, and FPRA since their respective peer reviews on November 2010, February 2013, and December 2012, and December 2014, respectively. Provide information commensurate with that requested for the IEPRA in Parts (a), (b), and (c) which indicate and justify the determination of whether the changes were maintenance or an upgrade and, if an upgrade, provide information to support a technical acceptability determination.

RAI 10 APLB – RG 1.200, Revision 2, PRA Acceptability, Key Assumptions and Key Sources of Uncertainty

Section 3.3.2, "Assessment of Assumptions and Approximations," of RG 1.200, Revision 2, states, in part, that "[f]or each application that calls upon this regulatory guide, the applicant identifies the key assumptions and approximations relevant to that application. This will be used to identify sensitivity studies as input to the decision-making associated with the application." Further, RG 1.200, Revision 2, Section 4.2, "Licensee Submittal Documentation," states, in part, that "[t]hese assessments provide information to the NRC staff in their determination of whether the use of these assumptions and approximations is appropriate for the application, or whether sensitivity studies performed to support the decision are appropriate." RG 1.200, Revision 2, Section 3.3.2, defines the terms "key assumption" and "key source of uncertainty."

Section 3.2.7, "PRA Uncertainty Evaluations," of the LAR states, in part, that "[t]he list of assumptions and sources of uncertainty were reviewed to identify those which would be significant for the evaluation of this application… Only those assumptions or sources of uncertainty that could significantly impact the risk ranking calculations were considered key for this application… These key assumptions and sources of uncertainty reviewed were previously submitted to the NRC in the application dated July 31, 2015…." (ADAMS Accession No. ML15218A300).

a. Describe the approach used to identify and characterize the "key" assumptions and "key" sources of uncertainty in the SPRA for this application.

   i. Discuss (1) whether all assumptions and sources of uncertainty (including relevant methods) related to all aspects of the models (e.g., hazard, fragility, and plant response analysis for the SPRA) were evaluated to determine whether they were "key"; and (2) the criteria that were used to determine whether the modeling assumptions and sources of uncertainty were considered "key."

   ii. Discuss whether any approaches or models were determined to be a consensus approach or model for the purposes of identifying the "key" assumptions and

"key" sources of uncertainty. If a "consensus model" was used, discuss whether the determination was made in accordance with the guidance in NUREG-1855, Revision 1, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decisionmaking (ADAMS Accession No. ML090970525), which indicates that "for risk-informed regulatory decisions, the consensus model approach is one that NRC has used or accepted for the specific risk-informed application for which it is proposed."

b. Describe each key assumption and key source of uncertainty identified in the SPRA. Provide this in sufficient detail to enable the NRC staff to identify whether the key assumptions and key sources of uncertainty used in the SPRA involve any changes to industry consensus approaches.

c. Discuss how each key assumption and key source of uncertainty identified above was dispositioned for this application. If available, provide the results of any sensitivity studies that will be used to support the disposition for this application or use a qualitative discussion to justify why different reasonable alternative assumptions would not affect this application.

RAI 11 APLA(B) – Overall Categorization Process

Section 3.1.1, "Overall Categorization Process," of the LAR 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 No. ML17249A072) for the September 6, 2017, public meeting with NEI regarding 10 CFR 50.69 LARs (ADAMS Accession No. 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 No. 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. Section 7.1, "Engineering Categorization," of Section 7, "Preliminary Engineering Categorization of Functions," of NEI 00-04, states, in part, 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 the licensee's 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. Section 9.2.2, "Review of Safety Related Low Safety-Significant Functions/SSCs," of NEI 00-04, which is performed by the IDP, states, in part, "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 specific questions that should be considered by the IDP for making the final determination of the safety-significance for each 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 DID 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.

f. Section 7.1 of NEI 00-04, states, in part, "[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." Clarify at what point during the licensee's risk categorization process will assessment of the risk significance of SSCs that support multiple functions be identified to ensure they are assigned the highest risk significance given all SSCs that may overlap, may not be categorized.

g. 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. Furthermore, in the LAR Section 3.1.2, "Passive Categorization Process," the licensee states, in part, that "[p]assive components and the passive function of active components will be evaluated using the Risk-Informed Repair/Replacement Activities (RI-RRA) methodology consistent with the Safety Evaluation (SE) by the Office of Nuclear Reactor Regulation for Arkansas Nuclear One, Unit 2, regarding their 'Request to Use Risk-informed Safety Classification and

Treatment for Repair/Replacement Activities in Class 2 and 3 Moderate and High Energy Systems,' dated April 22, 2009 [ADAMS Accession No. ML090930246]." 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 for Class 2 and Class 3, and 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 DID and safety margins are maintained. A technical justification for Class 1 SSCs should 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 conditional core damage probability (CCDP) numerical criteria 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) 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, etc.

As mentioned in the meeting summary from the February 20, 2018, Risk-Informed Steering Committee (RISC) meeting (ADAMS Accession No. ML18072A301), the NRC staff understands that the industry is planning to limit the scope to Class 2 and Class 3 SSCs, consistent with the pilot Vogtle license amendment (ADAMS Accession No. 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 equipment.

RAI 12 APLB – [SPRA] Overall Categorization Process

Paragraph 50.69(c)(1)(iv) of 10 CFR requires that the categorization process include evaluations that provide reasonable confidence that for SSCs categorized as RISC-3, and any potential increase in CDF and LERF resulting from changes in treatment are small. Paragraphs 50.69(e)(2) and (3) of 10 CFR require the licensee to monitor the performance of RISC-1 and RISC-2 SSCs and consider the data collected for RISC-3 SSCs and make adjustments to the categorization or treatment processes so that the categorization process and results are maintained valid.

Paragraph 50.69(b)(2)(iv) requires that each application includes a description of, and basis for acceptability of, the evaluations to be conducted to satisfy 10 CFR 50.69(c)(1)(iv). The evaluations shall include the effects of common cause interaction susceptibility, and the potential impacts from known degradation mechanisms from both active and passive functions, and address internally and externally initiated events and plant operating modes (e.g., full power and shutdown conditions).

Section 8, "Risk Sensitivity Study," of NEI 00-04, provides guidance on performing a risk sensitivity study to confirm that the categorization process results in acceptably small increases to CDF and LERF. An example is provided in the guidance to increase the unreliability of all

preliminary LSS SSCs by a factor of 3 to 5, which appears to address random failures. No explicit discussion of seismic risk sensitivity studies is provided in the guidance.

The categorization of SSCs using the SPRA is dominated by structural failure modes which are dependent on the corresponding modeling inputs such as the "dominant failure modes" and "fragility curves." These modeling inputs are derived using several parameters, including the SSC design, testing, and as-built installation, all of which can be impacted by alternative treatments.

Additionally, NEI 00-04, Section 5.3, "Seismic Assessment," states that for SSCs screened out of the SPRA due to "inherent seismic robustness," it is important that the inherent seismic robustness that allows them to be screened out of the SPRA is retained.

Based on the preceding discussion, it is unclear to the NRC staff how the required risk sensitivity study will be performed for categorization using the SPRA to meet the requirements of 10 CFR 50.69(c)(1)(iv) and 10 CFR 50.69(b)(2)(iv), and how the modeling inputs in the SPRA and those used for the risk sensitivity study continue to remain valid to ensure compliance with the requirements of 10 CFR 50.69(e). Provide the following:

a. A description of the evaluations that will be performed to demonstrate conformance with 10 CFR 50.69(c)(1)(iv) and 10 CFR 50.69(b)(2)(iv) for those SSCs that may be classified as RISC-3 based, in part, on SPRA results.

b. A justification of how the required evaluations described in response to Part a above meet the requirements of 10 CFR 50.69(c)(1)(iv) and 10 CFR 50.69(b)(2)(iv).

c. A description of how it will be determined that the modeling inputs in the SPRA continue to remain valid to ensure compliance with the requirements of 10 CFR 50.69(e).

RAI 13 APLB – [SPRA] Overall Categorization Process

The guidance in NEI 00-04, Sections 5.1, "Internal Events Assessment," and 5.3, indicate that the categorization of SSCs, including that using the SPRA, should be based on importance measures and corresponding numerical criteria. Further, NEI 00-04, Section 5.6 discusses the "integral assessment" wherein the hazard specific importance measures are weighted by the hazards contribution to the plant risk. It is unclear how the integrated importance measures are calculated for certain SPRA basic events that may not align with basic events in other PRA models.

Describe and justify how the integrated importance measures are calculated for SPRA basic events that may not align with basic events in other PRA models. Indicate how the resulting integrated importance measures will be used to assign the safety-significance of affected SSCs.

RAI 14 APLB – [SPRA] Overall Categorization Process

NEI 00-04, Section 5.1 provides guidance on the use of importance measures for identifying the "candidate safety significance" of components during the categorization process. Based on the information provided in the LAR, the NRC staff could not determine how importance measures for identifying the "candidate safety significance" of components during the categorization process will be used. Provide the following:

a. NEI 00-04, Section 5.1 states that in calculating the Fussel-Vesely (FV) risk importance measure, it is recommended that a CDF (or LERF) truncation level of five orders of magnitude below the baseline CDF (or LERF) value be used for linked fault tree PRAs and that the truncation level used should be sufficient to identify all functions with a risk achievement worth of greater than 2. Demonstrate the impact of the selected truncation level for the "higher bins" in the SPRA on the importance measure criteria and the categorization.

b. A description of how the selected screening level in the SPRA maintains consistency with the importance measure criteria in NEI 00-04 or justify any deviations from the guidance by using the selected screening level. This justification may include demonstration of the impact of the selected screening level in the SPRA on the importance measure criteria and the categorization of SSCs.

RAI 15 APLA – Disposition of Key Assumptions and Uncertainties for IE, IF, and FPRA as it pertains to 10 CFR 50.69 Categorization

NEI 00-04, Section 5, "Component Safety Significance Assessment," as endorsed by RG 1.201, Revision 1, stipulates use of sensitivity studies during the categorization process associated with the choice of specific models and assumptions, as discussed in RG 1.174, Revision 2, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" (ADAMS Accession No. ML100910006).

Section 3.2.7 of the LAR explains that PRA model assumptions and sources of uncertainty have been identified for this application using guidance from NUREG-1855. Section 3.2.7 further states, in part:

> Key PVNGS PRA model specific assumptions and sources of uncertainty for this application were evaluated and documented. These key assumptions and sources of uncertainty reviewed were previously submitted to the NRC in the application dated July 31, 2015… for risk-informed completion times.

The NRC staff found that the evaluation of the PRA model assumptions and sources of uncertainty in the licensee's LAR dated July 31, 2015, were dispositioned in each case specifically for the risk-informed completion time (RICT) program. Some of these dispositions refer to an element of the RICT program, such as Risk Management Actions, which are not part of the risk categorization process. As such, the LAR associated with 10 CFR 50.69 does not present dispositions of how the PRA model assumptions and sources of uncertainty impact the risk categorization process.

The licensee stated that the conclusion of the review for this application is that no additional sensitivity analyses are required to address PVNGS PRA model specific assumptions or sources of uncertainty except for in the process of categorizing SSCs into risk-informed safety classifications. The licensee will include in the risk sensitivity study a sensitivity increasing all the seismic PRA human event failures (HEFs) derived from the IEPRA model by a factor of 3 to address the uncertainty associated with main control room actions that might take longer in a seismic event versus and internal initiating event.

Provide the technical justification to support the LAR conclusion that no additional sensitivity analyses are required to address model specific assumptions or sources of uncertainty except as indicated above (e.g., provide the key PRA modelling assumptions and sources of

uncertainty for the internal events and fire events PRAs and disposition them explicitly for the risk categorization process).

RAI 16 APLB – [SPRA] Sensitivity Studies

Section 5.3 of NEI 00-04 indicates that components can be identified as being safety-significant following sensitivity studies. Section 5.3 also recommends the completion of several sensitivity studies, including any applicable sensitivity studies identified in the characterization of SPRA adequacy.

a. NEI 00-04, Table 5-4 identifies, among other SPRA sensitivity studies, any applicable sensitivity studies identified in the characterization of PRA adequacy.

    i. Indicate whether the key assumptions and key sources of uncertainty (including relevant methods) have been evaluated to determine whether an additional SPRA sensitivity study will be performed in accordance with NEI 00-04, Section 5.3.

    ii. Summarize the results of the evaluation discussed in Part (i), the process that will be performed to complete the evaluation discussed in Part (i), or a justification for not performing the evaluation discussed in Part (i).

b. The key assumptions and sources of uncertainties identified as part of the licensee's submittal may change as SPRA model updates could affect the significance of those assumptions for this application or create new or different key assumptions or sources of uncertainties. Describe how your 10 CFR 50.69 program will continue to evaluate assumptions and sources of uncertainty when the SPRA model is updated in the future and subsequently incorporates key assumptions and key sources of uncertainty in sensitivity analysis that are performed consistent with the guidance in NEI 00-04.

RAI 17 APLA – Other External Hazards Peer Review

Section 3.3 of the LAR states that a full-scope external hazards screening peer review was performed in December 2011 in accordance with RG 1.200, Revision 2. The LAR does not discuss the results from this external hazards screening peer review and does not state whether the F&O closure review in June 2017 addressed any findings from the external hazards screening peer review.

a. Clarify whether the finding-level F&Os, if any, from the December 2011 peer review of the external hazards screening process was encompassed in the scope of the June 2017 F&O closure review.

b. If finding-level F&Os from the December 2011 peer review of the external hazards screening process were not addressed in the June 2017 F&O closure review, provide these findings and the associated dispositions as it pertains to this application.

RAI 18 APLA – 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. Fire and seismic hazards are discussed in Section 5.2 and 5.3 of NEI 00-04, respectively. All other hazards are discussed in Section 5.4, "Assessment of Other External

Hazards." Figure 5-6 in Section 5.4 illustrates the process that begins with the SSC selected for categorization and then proceeds through the flow chart for each external hazard. 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, it has to be further shown that if the component was removed, the screened scenario would not become unscreened. NEI 00-04 explicitly states, in part, "[i]f it can be shown that the component either did not participate in any screened scenarios or, even if credit for the component was removed, the screened scenario would not become unscreened, then it is considered a candidate for the low safety-significant category."

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 Parts 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 from Parts a, b, or c above, will be considered insignificant for every SSC and, therefore, will not be considered during the categorization process.

e. Attachment 4, "External Hazards Screening," of the LAR indicates that the external flooding hazards are screened from consideration in the 10 CFR 50.69 process. Further comment for external flooding screening states, "Plant design meets 1975 SRP [Standard Review Plan] requirements."

    i. Identify what type of SSCs, if any, are credited in the screening of external flooding, such as passive or active features.

    ii. If any SSCs are credited for screening of external flooding, then explain and justify how the guidance in Figure 5-6 of NEI 00-04 will apply to external flooding hazards.

f. The LAR states that extreme wind or tornado hazard is screened on the basis that the frequency of damage to the exposed components is estimated to be less than 1E-6/year. Further comments for screening extreme wind or tornado states the spray pond nozzles (not protected against missiles) have a bounding median risk less than 1E-07/year.

    i. Explain and justify how the guidance in Figure 5-6 of NEI 00-04 will be applied for this hazard. Specially, Figure 5-4 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, it has to be further shown that if the component was removed, the screened scenario would not become unscreened.

    ii. Explain how the discussion in Part i above would be impacted by the current effort to assess tornado missile protection hazard in response to NRC Regulatory Issue Summary 2015-06, "Tornado Missile Protection."

RAI 19 APLA – Shutdown Risk

Section 3.2.5, "Low Power & Shutdown," of the LAR states the categorization process will use the shutdown safety management plan described in NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," dated December 1991 (ADAMS Accession No. 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 20 APLA(B) – Reported Baseline Risk Values

Attachment 2, "Total Unit 1/2/3/ Baseline Average Annual CDF/LERF," of the LAR provides the CDF and LERF values for internal events, internal flooding, internal fire, and seismic events for PVNGS Units 1, 2, and 3. The CDF and LERF values of each hazard presented in LAR Attachment 2 are identical for each unit. Typically, differences in CDF and LERF results exist for multiple-unit plants, even if the differences are not significant. Also, the LAR states numerous times that the licensee's risk management process ensures the PRA model used in the application reflects the as-built and as-operated plant for Units 1, 2, and 3. It is not clear to the NRC staff whether the risk values reported in LAR Attachment 2 are the results of separate PRAs performed for each unit or whether PRAs were performed only for a given unit and assumed to represent all three units.

a. If the PRAs were performed only for a given unit and assumed to represent all three units, then for each hazard:

    i. Justify that the PRA model is an adequate representation of all three units.

    ii. Include a discussion of SSCs that are shared between units and how these were implicitly or explicitly modeled.

    iii. Indicate how this assumption will be confirmed going forward if plant modifications vary between units.

b. If the PRAs were performed for each unit separately, explain why the risk results are identical.

RAI 21 APLA – Fire Hazards

Section 3.2.2, "Fire Hazards," of the LAR states in part, "the Internal Fire PRA model was developed consistent with NUREG/CR-6850 and only utilizes NRC approved methods. As part of the ongoing PRA maintenance and update process described in Section 3.2.6, APS will address Internal Fire PRA methods approved by the NRC since the development of the Internal Fire PRA." Furthermore, in Section 3.3 of the LAR, the licensee specifies that a full-scope FPRA model peer review was performed in December 2012 and a focused-scope FPRA model peer review was conducted in December 2014.

There have been numerous changes to the FPRA methodology since the last full-scope peer review of the PVNGS FPRA. The integration of NRC-accepted FPRA methods and studies

described below that are relevant to this submittal could potentially impact the 10 CFR 50.69 risk categorization results and/or risk acceptance guidelines for total CDF and total LERF:

- NRC letter, "Recent Fire PRA Methods Review Panel Decisions and EPRI 1022993, 'Evaluation of Peak Heat Release Rates in Electrical Cabinet Fires,'" dated June 21, 2012 (ADAMS Accession No. ML12171A583), providing staff positions on (1) frequencies for cable fires initiated by welding and cutting, (2) clarifications for transient fires, (3) alignment factor for pump oil fires, (4) electrical cabinet fire treatment refinement details, and (5) the EPRI 1022993 report.

- NUREG/CR-7150, "Joint Assessment of Cable Damage and Quantification of Effects from Fire (JACQUE-FIRE)," Volume 2, "Expert Elicitation Exercise for Nuclear Power Plant Fire-Induced electrical Circuit Failure" (ADAMS Accession No. ML14141A129), which is supported by a letter from the NRC to NEI, "Supplemental Interim Technical Guidance on Fire-Induced Circuit Failure Mode Likelihood Analysis" (ADAMS Accession Nos. ML14086A165 and ML14017A135).

- NUREG-2169, "Nuclear Power Plant Fire Ignition Frequency and Non-Suppression Probability Estimation Using the Updated Fire Events Database: United States Fire Event Experience Through 2009" (ADAMS Accession No. ML15016A069).

Section 2.5.5 of RG 1.174, provides guidance that indicates additional analysis is necessary to ensure that contributions from the above influences would not change the conclusions of the LAR.

a. Provide a detailed justification for why the integration of the above NRC-accepted fire PRA methods and studies would not change the conclusions of the LAR, and subsequently change the categorization process results. As part of this justification, identify potential fire PRA methodologies used in the fire PRA that are no longer accepted by the NRC staff. Provide technical justification for its use and evaluate the significance of its use on the risk metrics for the application (RG 1.174) provided in Attachment 2 of the LAR. OR

b. Alternatively, for each NRC-accepted fire PRA method described above, provide the following:

    i. Explain how each method is addressed in the fire PRA that will be used during the 10 CFR 50.69 categorization process, and provide updated results for the risk metrics in Attachment 2 of the LAR.

    ii. Indicate whether any changes to the fire PRA to address the methods are PRA maintenance or a PRA upgrade as defined in ASME/ANS RA-Sa-2009, Section 1-5.4, as qualified by RG 1.200, Revision 2, along with justification for the determination.

    iii. Discuss the focused-scope (or full-scope) peer review(s) that has been performed to evaluate the changes that were determined in Part b.ii above to constitute a PRA upgrade, providing the date for when the peer review(s) was performed and when the peer review report(s) was approved that evaluated the incorporation of the method(s).

c. Provide the findings of the peer review(s) performed from Part b.iii (above) and the disposition for each finding as it pertains to the impact on the 10 CFR 50.69 application.

RAI 22 APLA – Integrated PRA Hazards Model

NEI 00-04, Section 5.6, "Integral Assessment," discusses the need for an integrated computation using the available importance measures. It further states, in part, that the "integrated importance measure essentially weights the importance from each risk contributor (e.g., internal events, fire, and seismic PRAs) by the fraction of the total core damage frequency [or large early release frequency] contributed by that contributor." The guidance provides formulas to compute the integrated Fussel-Vesely (FV), and integrated Risk Achievement Worth (RAW).

To address the integration of importance measures, some licensees have updated their PRA model to a one-top model that integrates the PRA model(s) across all hazards (i.e., internal events, internal flooding, fire, seismic, high winds, external flooding).

To confirm that the importance measures generated for use in the 10 CFR 50.69 process is consistent with the NEI guidance and does not inadvertently introduce a deviation from the computations for FV and RAW provided in the NEI 00-04 guidance, as endorsed by RG 1.201, Revision 1:

a. Explain whether the PRA model that will be used in the 10 CFR 50.69 categorization process is an integrated one-top model across multiple PRA hazards and if the integrated one-top model includes accident sequence(s) modeling to support quantification of both CDF and LERF. If using an integrated one-top model across multiple PRA hazards, provide the following:

    i. Discuss the process used to validate and confirm the integration of the PRA hazards into a one-top model to ensure that after the PRA model change was performed, SRs QU-F2 and SR FQ-F1 continue to be met (e.g., cutset reviews, identification of non-minimal cutsets, peer review).

    ii. Discuss how the individual importance measures (i.e., FV and RAW) for the PRA one-top all hazards model are derived from the one-top model, and justify why the importance measures generated do not deviate from the NEI guidance. If the practice or method used to generate the integrated importance measures is determined to deviate from the NEI guidance, justify why the integrated importance measures computed are appropriate for use in the categorization process.

RAI 23 APLA - 10 CFR 50.69(e), Feedback and Adjustment Process

Section 50.69 of 10 CFR delineates that a licensee voluntarily choosing to implement this section shall submit an application for license amendment under Section 50.69 that contains the following information. Paragraph 50.69(e)(1) of 10 CFR, "Feedback and process adjustment-RISC-1, RISC-2, RISC-3 and RISC-4 SSCs," states, in part, "[t]he licensee shall review changes to the plant, operational practices, applicable plant and industry operational experience, and, as appropriate, update the PRA and SSC categorization and treatment processes.

NEI 00-04, Section 11.2, “Following Initial Implementation,” discusses that “[t]he periodic update of the plant PRA may affect the results of the categorization process. If the results are affected, the licensee must make adjustments as necessary to either the categorization or treatment processes to maintain the validity of the processes.” Specifically, NEI 00-04, Section 12.1 discusses cases for which, in some instances, an updated PRA model could result in new RAW and FV importance measures that are sufficiently different from those in the original categorization so as to suggest a potential change in the categorization.

Explain how this periodic review will be administered. At minimum, discuss the following:

a. Participants involved in the review;

b. Sources of material identified to be reviewed;

c. Periodicy for when the review will be performed;

d. Documentation of the review performed (e.g., corrective action program, engineering evaluation, etc.); and

e. Criteria used to determine if the change being reviewed has any impact to a modeled PRA hazard(s) and/or any SSC categorized by the 10 CFR 50.69 process.