

From: [Valentin-Olmeda, Milton](#)
To: [Mathews, Mitchel A. \(Exelon Nuclear\)](#)
Cc: [Philpott, Stephen](#)
Subject: Request for supporting information for the Dresden SPRA audit review
Date: Tuesday, February 04, 2020 3:12:00 PM

Mitch,

The purpose of this email is to solicit that the following supporting information associated with the [Dresden 50.54\(f\) seismic probabilistic risk assessment \(SPRA\) submittal dated October 30, 2019](#) (RS-19-101) (ADAMS Accession No. ML19304B567) is made available in the ePortal (Sciencetech) audit folder:

Question 1 – Topic #14 - Peer Review of the Seismic PRA, Accounting for NRC Staff Expectations Regarding F&O Closure (SPID Section 6.7)

Section 1.3 of the September 2017 F&O Technical Review for the internal events PRA (032362-RPT-001) states that a finding closure review was conducted on the identified PRA models. Findings were reviewed and closed using the process documented in the February 21, 2017, NEI letter to the NRC, “Final Revision of Appendix X to NEI 05-04/07-12/12-13, Close-Out of Facts and Observations (F&O)” (ADAMS Package Accession No. ML17086A431). However, the report does not reference the NRC acceptance letter of May 3, 2017 (ADAMS Accession No. ML17079A427) that include NRC staff expectations for this process (ADAMS Accession No. ML17121A271). For this reason:

- a. Confirm that the Independent Assessment team was provided with the licensee’s self-assessment and performed an independent assessment that included justification of whether the resolution for each F&O constituted a PRA upgrade or maintenance update, as defined in the ASME/ANS ASME/ANS RA-Sa-2009 PRA Standard and endorsed by RG 1.200, Revision 2.
- b. Provide an assessment that justifies whether the resolution for each finding level F&O that was closed in the September 2017 F&O Technical Review for the internal events PRA constituted a PRA upgrade or maintenance, as defined in the ASME/ANS ASME/ANS RA-Sa-2009 PRA Standard and endorsed by RG 1.200, Revision 2.

Question 2 – Topic #15 – Documentation of the Seismic PRA (SPID Section 6.8)

Tables 5.4-2, 5.4-3, 5.5-2, and 5.5-3 of the SPRA submittal provide the dominant risk contributors to seismic core damage frequency (SCDF) and seismic large early release frequency (SLERF). Most of the risk significant SSCs are not reflected in the top ten cutsets provided for SCDF and SLERF in Tables 5.4-6 and 5.5-6, respectively. For example, event S-INCP04-is ranked as No. 2 for SCDF and No. 5 for SLERF in Tables 5.4-2 and 5.5-2, respectively. However, this event is not present in the top 10 cutsets in Tables 5.4-6 or 5.5-6. For that reason, explain the rationale for basic events (such as S-INCP04-) being risk significant when they do not appear in the top 10 cutsets and justify the representativeness of the significant risk contributors in Tables 5.4-2, 5.4-3, 5.5-2, and 5.5-3 of the submittal.

Question 3 – Topic #15 – Documentation of the Seismic PRA (SPID Section 6.8)

Table 7c-1 shows the sensitivity analysis for Case 7c which extends the bin %G8 hazard interval. The total initiator frequency in the third column is summed to be $9.08\text{E-}07$ /yr, which is different from $9.41\text{E-}07$ /yr in Table 5.5-1 for the bin %G8 (>1 g). It is unclear why the seismic hazard frequency beyond 1 g should change regardless of the number of bins used. For this reason, explain the reason for the change in the seismic hazard frequency for accelerations 1g and higher between the base case and sensitivity case 7c. Also, include a discussion on any impact on the results of the sensitivity case 7c including dominant risk contributors.

Question 4 – Topic #15 – Documentation of the Seismic PRA (SPID Section 6.8)

Section 5.5 of the submittal discusses the basic event 2OPPH-NOLOCA-F which represents a phenomenological occurrence in the containment for SBO scenarios. This basic event has a Fussler-Vessely (FV) value of 0.22 according to Section 5.5 of the submittal. Section 5.7 of the submittal provides the discussion of sensitivity case 2a which modifies the value used for 2OPPH-NOLOCA-F basic event. Based on the discussion in Section 5.7 of the submittal, it appears that the values used for 2OPPH-NOLOCA-F basic event are derived from the Peach Bottom (PB) State-of-the-Art Reactor Consequence Analysis (SOARCA) study and related evaluations. The applicability of the insights from the PB SOARCA to the licensee's seismic PRA are unclear given potential differences in the plant design and evacuation details (e.g., declaration of emergency and timing for releases to be considered early). In addition, the impact of the use of the insights from the PB SOARCA on this submittal (e.g., dominant risk contributors and potential plant modifications) is also unclear. For those reasons:

- a. Justify the use of the insights from the PB SOARCA and related evaluations as being applicable to the licensee's seismic PRA considering potential differences in the plant design and evacuation details (e.g., declaration of emergency and timing for releases to be considered early). Include a discussion of the basis for the probability of 0.25 used for 2OPPH-NOLOCA-F which is different from that used for the PB seismic PRA.
- b. Explain the rationale for the different impact from the use of the PB SOARCA insights for the licensee's seismic PRA as compared to the PB seismic PRA (e.g., 2OPPH-NOLOCA-F does not appear in the top 10 SLERF cutsets for the licensee's seismic PRA as opposed to the PB seismic PRA where it appeared in every one of the top 10 SLERF cutsets).
- c. Provide the change in risk insights (i.e., dominant risk contributors for SCDF and SLERF as well as risk metrics) using a failure probability of 1.0 for 2OPPH-NOLOCA-F to demonstrate the impact of the use of the insights from the PB SOARCA on this submittal.

This information will help the staff in completing the technical checklist used for our audit review (ADAMS Accession No. ML17041A342).

Please let me know when the responses are made available for audit and if we need to discuss the above questions.

Respectfully,

Milton Valentín, PM

Beyond Design Basis Management (Fukushima)

US NRC NRR/DORL/LPMB

Milton.Valentin@nrc.gov

301-415-2864