NRR-DMPSPEm Resource

From: Valentin-Olmeda, Milton
Sent: Friday, November 16, 2018 2:36 PM
To: STEWART, TRACEY
Cc: MOORE, MICHAEL S; KIRKLAND, WILLIAM HANK; Sebrosky, Joseph
Subject: VC Summer SPRA - Request for ePortal Information on Fragilities

Tracey,

As part of the ongoing audit review of the VC Summer Seismic PRA submittal (ADAMS Accession No. ML18271A109), the NRC staff is completing a technical checklist similar to that in Enclosure 1 of our letter dated July 10, 2018 (ADAMS Accession No. ML18115A138). To proceed, the following information is requested for clarification purposes:

Question 1 - TOPIC #4: Adequacy of the Structural Model (SPID Section 6.3.1)
Section 4.3 of the Seismic PRA submittal provides a general discussion on meeting SPID Section 6.3.1 Criteria 1 through 7. Provide documentation that demonstrates meeting the SPID criteria for at least one of the structures in Seismic PRA Table 4.3-1 that houses SEL equipment.

Question 2 - TOPIC #4: Adequacy of the Structural Model (SPID Section 6.3.1)
Provide documentation that supports the disposition of F&O 24-7 (SFR-D1) regarding the assessment of liquefaction potential near the Service Water Pump House and provide details on the HCLPF capacity evaluation addressed in the Table A-5 of the Seismic PRA submittal. Your response should demonstrate that liquefaction is negligible given the new seismic hazard and that it will not affect the results of the seismic PRA.

Question 3 - TOPIC #6: Use of Seismic Response Scaling (SPID Section 6.3.2)
Provide a discussion of the approach used to develop fragilities for the Service Water Pond Dam and the nuclear steam supply system (NSSS) using scaling of existing analyses. Specifically, discuss the existing ISRS, shapes of the previous UHS/RLE, shapes of the new UHS/RLE, and structural natural frequencies, modes shapes, and participation factors to ensure that SPID Section 6.3.2 was followed.

Question 4 -TOPIC #7: Use of New Response Analysis for Building Response, ISRS, and Fragilities
Seismic PRA Table 5.4-3 identifies Very Small LOCA Fragility (SF-VSLOCA) as a significant contributor to SCDF. Provide documentation that demonstrates consistency between the hazard and response analyses for computing SF-VSLOCA fragility.

Question 5 - TOPIC #9: Use of the CDFM/Hybrid Methodology for Fragility Analysis (SPID Section 6.4.1)
Seismic PRA Table 5.4-3 identifies Relay Chatter (Relay_0.11AC) as a significant contributor to SCDF. However, the SPRA submittal does not explain the process for developing the relay fragility. To confirm that the Hybrid methodology in Section 6.4.1 and Table 6-2 of the SPID was used appropriately for developing the full seismic fragility curves, explain or provide documentation illustrating the development of fragility values for Relay_0.11AC provided in Seismic PRA Table 5.4-3. To support this response, consider to describe the structural analysis of the building where Relay 0.11AC is located, describe the process to develop the ISRS, and describe the adequacy of the structural modeling associated with it.

Question 6 - TOPIC #11: Capacities of Relays Sensitive to High Frequencies (SPID Section 6.4.2)
Seismic PRA Section 4.4.2 identifies that capacity relays sensitive to high-frequencies were evaluated in accordance with two EPRI documents (Ref [42] and Ref [43] of the SPRA submittal). Please clarify

whether circuit analysis and operator actions were considered in relay chatter analysis and provide details of the approaches in these analyses to demonstrate that the guidance in SPID Section 6.4.2 was followed.

Question 7 - TOPIC #12: Selection of Dominate Risk Contributors that Required Fragility Analysis Using the Separation of Variables Methodology (SPID Section 6.4.1)
Section 4.4.1 of the Seismic PRA submittal notes that refined analyses, including separation of variables (SOV) analyses, were performed for important risk contributors. However, the use of SOV analyses to determine that a component is an important risk contributor was not explained. In order to confirm that the guidance in SPID Section 6.4.1 was followed, please explain or provide documentation illustrating the development of the fragility of the RB IA Suction Isolation Valve (SF-XVT2662B) to confirm it was done in accordance with the SOV approach. To support this response, consider to describe the structural analysis of the building where the component is located, describe the process to develop the ISRS, and describe the adequacy of the structural modeling associated with it.

It would be very helpful to have responses to these questions available in your ePortal by December 14, 2018, or sooner.

We are available to discuss the information in this email.
Please let me know if there are any questions.

Respectfully,

Milton Valentín, PM
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