

Comments on NEI White Paper by Carl Stepp

1. The White Paper proposes that any new or updated seismic source model that results in less than 20% change in the mean annual frequency of exceedance of the total hazard calculated for generic rock conditions and accepted seismic source models be considered insignificant and not warrant a change to the existing source model. Staff is of the opinion that a 20% change in the mean annual frequency of exceedance is significant and is concerned about using the safety margin inherent in the performance-based approach to absorb any potential uncertainties resulting from not updating the seismic source models. Further, some standard designs use the GMRS to analyze the potential for liquefaction and/or slope stability analyses. Effects of not including potential increases in GMRS may result in inadequate liquefaction and slope stability analyses. Staff believes that the White Paper should provide a lower threshold value based on the GMRS rather than the annual probability of exceedance.

2. The White Paper proposes the use of the generic rock GMRS as the reference to make acceptance decisions for updating seismic models. The staff is concerned that this might pose difficulties for soil sites when a new seismic source is evaluated. In situations where the addition of a potential seismic source modifies the controlling earthquakes' magnitudes and distances, the site transfer functions might be different. Hence, the generic rock GMRS may not be suitable for comparisons, as the final seismic risk incorporates the fully characterized, site-specific GMRS. Staff believes the White Paper should include additional discussion and criteria for when a site specific study (rather than a generic rock case) would be warranted.

3. The White Paper proposes to evaluate all new seismic sources to determine whether or not they have broad scientific acceptance using the proposed procedures before a new or an updated source is included in an applicant's

PSHA calculations. Staff's view is that when there is scientific consensus, new sources should be included in hazard calculations regardless of their contribution levels to the overall hazard. This will ensure the integrity of the overall seismic hazard characterization for the site, which is required by regulations. The White Paper should include additional discussion and criteria on the treatment of scientifically accepted seismic sources (e.g., Saline River source) that might not trigger an update.

4. Staff believes that there will be circumstances that require updates be made to each of the existing, accepted source models, similar to what has been done to accommodate the recent updates proposed for the New Madrid, Charleston, and Wabash Valley seismic sources. The White Paper should describe potential circumstances that might warrant an update to each of the 6 EPRI seismic source models. As outlined in the White Paper the proposed approach is to freeze the currently accepted EPRI seismic models and to deal with future updates as additional models (7th, 8th, etc.) with equal weights. Staff believes there needs to be a pathway in the proposed methodology to incorporate such "global" revisions of the existing models.

5. The staff is concerned with the criteria outlined in the White Paper to be used to assess the significance of new information or updates to the existing seismic sources developed for non-nuclear hazard studies. The available information in the White Paper is not sufficiently specific to guide an applicant on how to deal with such new data and information. As described in the White Paper, requiring a minimum of SSHAC Level II process before such new data and/or information are assessed creates a very high level entry requirement for individual assessments to be triggered. Although there are some circumstances that may not warrant sensitivity studies to be conducted, the staff believes the proposed criterion is overly restrictive with respect to consideration of new information.

Staff believes that when a decision is made not to conduct sensitivity studies on new information because it is thought to be not appropriate for nuclear plant hazard studies; a full review of the study should be included in the application. The review should include not only what is outlined in the first paragraph of page 13 of the White Paper, but also scientific rationale, and a direct comparison of differing concepts between the approved models and the new information. It is also the staff's recommendation that the White Paper should provide some examples of non-SSHAC Level II activities that would warrant detailed summaries to be provided in future applications.

6. Staff also believes that the White Paper should contain guidance on the use of prior seismic source model updates by subsequent applicants. It is Staff's view that providing general guidelines for subsequent use of the assessed and approved source updates will make the review process more robust and predictable.