

Responses to NEI Comments on SPRA Checklist – February 9, 2017

1. **Overall: We understand that the intent is for the reviewers to independently assess each topic AND the Peer Review results and expand from there only if necessary. It would helpful to clarify this in the narrative.**
 - o **Related comment: Page 2, “part” 2 states that “There is guidance herein for the staff review of each Supporting Requirement in the Standard.” This implies that the staff intends to perform a detailed review against each SR. This is different than our previous understanding that they would focus on the results of the peer review.**

Response: The intent of the reviewers is, and has always been, to start with the results of the Peer Review and expand from there, if necessary. The cited statement from “part” 2 on page 2 should be read in context of the remainder of the discussion in “part” 2. The intent of the guidance is to direct the reviewer to the governing review basis, be it the Standard (Addendum A or B) or the SPID. The reviewer can then use the governing review basis, and the relevant “Topic” from the checklist, if directed there, to review the substance of the peer-review Finding, the licensee’s resolution, and determine the need for any further action. Some new text has been added under “part 2” to address this Comment.

2. **Paragraph A: Third sentence says “Peer reviews are to follow the guidance in NEI 12-13 ... which was endorsed by the staff.” NEI 12-13 does not refer to the SPID, it refers to the PRA Standard, so in effect this is a statement requiring the review to be against the standard. Please clarify/adjust.**

Response: The staff review will be against the SPID. The NEI 12-13 guidance is referred to because it is the staff’s expectation that this is the guidance that licensees will be using for their SPRA peer reviews. Furthermore, the NRC staff has provided qualifications and comments on the guidance therein (see ML12321A280). The staff’s interpretation is that NEI 12-13 describes the process of performing the peer-review which is generic. In case the actual peer-reviews implementing NEI 12-13 are against the Standard, the checklist includes a table informing the staff reviewer of any differences, if they exist, between the SPID guidance and the Standard for each supporting requirement (see response to previous comment). The burden is on the licensee to demonstrate that the peer review was performed in a manner consistent with the SPID.

3. **Paragraph B: Second sentence requires that the requirements in either Addendum A or Addendum B of the PRA Standard be followed. This could be problematic for upcoming peer reviews which will most likely be performed against the new Part 5 “Case”, which will have significant differences from either of the noted versions of the standard. The checklist should reflect the new Part 5 case once it is endorsed.**

Response: The reference to the requirements in either Addendum A or Addendum B of the PRA Standard is directly related to the guidance in the SPID. The industry’s template for SPRA submission under NTTF 2.1 also does not include any consideration of the new Code Case. However, if any licensee anticipates the use of the Code Case it is advisable to interface with the staff and consider the differences in the Code Case against Addenda A and B of the current Standard as well as the guidance in the SPID as laid out in Tables 6-4, 6-5, and 6-6 of the SPID. Submittal of a review against the Code Case without prior interaction with the staff and supporting groundwork will impact the review schedule unfavorably. One approach would be for the industry to request NRC approval of the Code Case for the purposes of responding to the 50.54(f) letter (e.g., via a letter from NEI to the staff). That approach could lead to a generic resolution of the concern with using the Code Case.

4. **Assumption 3: We suggest the following clarification: “Includes evidence of meeting the peer review requirements in the Standard and in the SPID (for those particular items identified as exceptions in the NRC table).”**

Response: The intent of the first bullet in Assumption 3 on page 2 of the checklist is to ensure that the peer-review process has been conducted according to the guidance in the Standard and in Section 6.7 of the SPID. The issue of exceptions that is raised in the comment is addressed in the third bullet and “part 2” on page 2 (see also the response to the second comment).

5. **Assumption 5 is unclear and we do not understand what impact the assumption would have on NRC reviews.**

Response: The intent of Assumption 5 is to clarify that the checklist contains guidance only for the aspects of hazard analysis mentioned in Assumption 4, namely, the site-specific analyses of soil-structure interaction (SSI) effects (for soil sites), how the seismic energy enters the base of the structure, how that energy propagates into the structure (the so-called in-structure-response-spectrum or ISRS analysis), and how the ISRS leads to input seismic motion at the support of each relevant structure or component. If the site-specific PSHA that has been submitted to and accepted by the staff is used for the SPRA, then the checklist contains the information necessary to perform the review. However, if a new site-specific PSHA has been developed, the aspects of the hazard analysis that precede those described above are not part of the checklist and therefore, will need to be reviewed by the staff separately.

6. **Throughout the Checklist Topics, there are statements in the Consequences that “... analysis approach has been endorsed by the peer reviewers.” The peer reviewers do not endorse, so the wording should be changed throughout to “... has been accepted ...”.**

Response: The language will be changed throughout to read “...has been accepted ...”.

7. **Throughout the Checklist Topics, there is reference to “peer review findings and observations”. All such references should be changed to “peer review findings.” Findings are one variety of Facts and Observations (F&Os), which is what the peer reviewers generate.**

Response: The staff notes that the acronym “F&O” has been used differently in various documents. For the purposes of the staff review of SPRA analysis in response to the NTTF 2.1 (seismic) recommendation the staff reviewers are interested in peer-review comments, regardless of whether they are termed “finding and observations”, simply “findings” or “F&Os”, where the SPRA was found to not meet a SR or if the SR is met only at Capability Category I. The intent of all references to “peer review findings and observations” in the checklist is the same.

8. **Topic 1: if the answer to the first question is no, the checklist says “... this issue is moot and the existing PSHA must meet the SHA requirements in the Standard.” We think the intent is that the PSHA is acceptable for NTTF 2.1 resolution and also believe that it meets the intent of the ANS/ASME Standard. As written we are not sure if the PSHA needs to meet the Standard or by definition, does meet the Standard. We suggest deleting “must” and replacing “meet” with “meets.” We have the same question in Topic #2.**

Response: The intent of the guidance in Topic # 1 is to not repeat the review of certain aspects of the PSHA if the PSHA that was submitted to and accepted by the staff is used for the SPRA. However, that does not imply that the SHA elements of the Standard are entirely met. The peer-reviewers may have Findings on certain requirements (e.g. not capturing latest information, aleatory and epistemic uncertainty in the hazard etc.). Moreover, the vertical GMRS and FIRS portions were not part of the submittal and were not reviewed by the staff but will be peer-reviewed which may also result in Findings. Therefore, a review of the Findings for the SHA element of the Standard will be performed by the staff reviewers while being cognizant of the approved PSHA and endorsed guidance in the SPID. Therefore, no change will be made in the checklist text. The response is also true for Topic # 2.

9. **We do not think Topic #3 as written is applicable to an SPRA. It is focused on the SSE Control Point as defined in the SPID. This was important in order to get an apples-to-apples SSE to GMRS screening process, but it isn't important for an SPRA. What is important is that the SPRA input control point be defined and if it is different from the Control Point used for the GMRS that it be explained.**
- **If it happens to be the same, then the seismic hazard in the March 2014 submittal can be used and the NRC acceptance covers it.**
 - **If it is different, then the NRC's previous reviews might not apply and the NRC (or the Peer Reviewers) would need to understand the differences.**

Response: The intent of the guidance in Topic #3 is the same as that stated in the comment. In case a PSHA accepted by the staff is used for the SPRA, the guidance will be used to determine whether the same or different control point from the previously submitted PSHA is used. In case of a difference, the staff will need to understand the differences and determine their acceptability. To address this comment, some new text has been added to the checklist under Topic #3.

10. **Topic 4: If an entirely new structural model is used, it isn't clear why it is necessary or relevant to "(see Topic #2 on the use of a new response analysis)". Topic #2 is associated with the Site Response Model and isn't uniquely affected by a new structural model.**

Response: The cited wording in the parenthesis will be removed.

11. **For Topics #10 and #11 (high frequencies), the checklist points to a flowchart in SPID Figure 6-7. We do not think anyone is specifically using that flowchart. It was a general idea of how people might do the evaluations before we performed any of the HF testing. Since then, we did the HF testing and developed a separate report describing how to consider HF motions in the fragility calculations. We believe the HF motions are generally being carried along with the LF motions in the fragility calculations. Reading these two Topics, our understanding is that the plan is for the NRC to independently review these parts of the SPRA. The level of detail in the submittals will not support that level of NRC review.**

Response: The guidance in Topics #10 and #11 accommodates alternate approaches for capturing the high frequency response. Specifically, Topic #10 allows for the fact that the flowchart in Figure 6-7 of the SPID is not followed. Use of published guidance will facilitate any review of the approach used to capture the high frequency response. Therefore, no change will be made in the checklist text.

12. **Topic 12**

- **Topic 12 indicates that if CDFM has not been used for the bulk of the SSCs, there is no concern. The implication of the "no" here seems to be that CDFM wasn't used in bulk therefore SOV must have been used. But there could be the possibility that the answer is "no" because a more conservative / screening approach was used.**

- **Topic 12 uses the term “dominant” risk contributors – the term “dominant” originally was used in the 50.54(f) letter but it is not defined in the ASME/ANS PRA Standard. At a minimum, it is important to ensure that the term dominant is interpreted consistently by NRC reviewers. We suggest that the wording of topic 12 should be clarified to replace the wording following “If Yes, ...” with “If Yes, significant risk contributors for which use of separation of variables (SOV) fragility calculations would make a significant difference in the SPRA results have been selected for SOV calculations”.**

Response: The two points made in the comment are addressed together as they are related. The focus of Topic #12 is on the dominant (or significant) risk contributor SSCs and the corresponding fragility methodology, which, according to the SPID, should be SOV. The guidance in Topic #12 does accommodate cases where SOV may not have been used (see item “B” under “Potential Staff Findings”).

It is true that the term dominant or significant is not defined in the context of a SPRA (note that the term “significant accident sequence” is defined in Section 1-2 of the Standard for internal events but the staff does not intend to use that definition in the context of the fragility methodology for SPRAs). However, the staff reviewers intend to rely on several sources of information when performing the review against Topic 12 of the checklist. These sources include (a) the Standard (specifically, Addendum B) includes a SR (SFR-F3) that discusses the fragility methodology for “SSCs that appear in significant accident sequences” and therefore, the fragility approach for such “significant” SSCs will be peer-reviewed, (b) the summary of “top SSCs with significant seismic failure contribution to SCDF and associated failure mode and fragility information”, and (c) component ranking based on importance measure(s). The suggested wording for clarifying Topic 12 does capture the intent of the guidance and will be retained.

13. Topic 14

- **item C) requires seismic response and fragility peer reviewers to have completed the SQUG training per SPID section 6.7, but SPID allows SQUG training “or equivalent”.**
- **Topic 14, Item E) implies that if an in-process peer review is not used then the peer review process does not follow the guidance in the SPID. This is incorrect, since the SPID allows either an end of process review as described in the Standard or an in-process as suggested in the SPID.**

Response:

For Item C: The language will be changed to read “...SQUG training or equivalent.”

For Item E: The staff agrees that the SPID allows either an end-of-process or an in-process review. The generic guidance provided in Section 6.7 of the SPID is considered applicable to both types of reviews in conjunction with the guidance in NEI 12-13 with corresponding staff qualifications (see ML12321A280). Item E in Topic #14 applies to cases where the end-of-process peer review implementation deviates from endorsed guidance. A change to the checklist text under Topic #14 has been made to address this comment.

14. Topic #15 (documentation) would not be explicitly covered by the Peer Review. SPRA documentation will be addressed by the Peer Review but we believe Topic 15 is speaking to the SPRA submittal, which would be a subset of the complete SPRA documentation. The NRC’s review of the SPRA Submittal template should take care of this Topic.

Response: The requirements of the Standard need to be met for the development and documentation of the PRA model. The same are expected to be confirmed by the peer-review and, if found lacking, to be documented as findings. As a result, Topic #15 refers to the documentation requirements in the Standard and the peer-review team’s review of the documentation. The topic

also cites 50.54(f) specific requirements in Section 6.8 of the SPID which are expected to be captured in the submittal.

15. **In the attached SPID Table 6-4, which should really be SPID Tables 6-4, 6-5, and 6-6, the last column is labeled NRC staff review guidance. In almost every case it says “This SR governs.” In some cases there is also a pointer to particular Topics in the Checklist or some additional “If’s”. It is not clear what “This SR governs” tells the reviewer to do.**
- **In some cases it is associated with SRs where the SPID says it is covered (e.g. SHA-A1 through SHA-B1).**
 - **In some cases it is associated with SRs but also includes a pointer to selected SPID Sections (e.g. SHA-B2, SHA-E1).**
 - **In some cases it is associated with SRs where the SPID says it isn’t covered (e.g. SHA-F2, SHA-I1, SHA-I2, most SRs in SFR and SPR).**

Response: The intent of the cited table and the last column of the table is to provide the governing review basis to the staff reviewer. Such guidance is required because in some instances the SPID, which is the endorsed guidance for the NNTF 2.1 SPRA submittals, differs from the Standard in the extent of the guidance provided. Therefore, cases with “[t]his SR governs” are intended to inform the reviewer that the Standard and consequently, the peer-review findings, if any, form the basis of the review on that topic without any qualifiers from the SPID. In cases where SPID contains additional guidance that the staff reviewer needs to be aware of, the table highlights the appropriate topic that the reviewer needs to refer to.