

**SUMMARY OF MITIGATING SYSTEMS PERFORMANCE INDEX (MSPI)
PRA QUALITY TASK GROUP MEETING
September 21, 2004
8:30 a.m. - 12:30 p.m.**

Agenda

1. Opening Remarks, Introductions (NRC)
2. Charter Discussion (NRC and Stakeholders)
3. Break
4. Overview of the Verification of the MSPI Results for the Pilot Plants (Don Dube - NRC/RES)
5. Future Activity Discussion (NRC and Stakeholders)
6. General Discussion (All)
7. Adjourn

Attendees

1. Gareth Parry
2. Michael Tschiltz
3. Michael Cheok
4. Mark Caruso
5. Pat O'Reilly
6. James Trapp
7. Don Dube
8. William Stillwell
9. Jeff Gabor
10. Tom Houghton
11. Michele Laur

Meeting Notes

Opening Remarks, Introductions

The following documents were passed out at the start of the meeting:

- Final Meeting Agenda
- Charter Memo from Gareth Parry to Task Group Members
- NRC Public Feedback Form (NRC 659)
- Powerpoint slides #13 and #14 on Sensitivity Studies to Address PRA Adequacy
- Draft NEI MSPI report documents
 - Draft NEI 99-02 Post Pilot Revision H, dated 9/20/04
 - Draft NEI 99-02 MSPI, Appendix F, Revision I, dated 9/20/04
 - Draft NEI 99-02 MSPI Basis Document Development, Appendix G, dated 9/2/04

After brief introductions and sign-in of meeting attendees, Gareth Parry began the meeting by outlining the issues that need to be addressed by the Task Group to resolve PRA quality requirements to support implementation of the MSPI. The concern is that the MSPI provides

input to reactor oversight based upon input from licensees' PRAs that have not been reviewed by NRC to determine whether they are of sufficient quality to support the MSPI function. The Task Group effort was initiated upon agreement between NRC and industry.

Charter Discussion

Gareth Parry stated that the main purpose of this meeting was to establish the charter for this Task Group, to reach a common understanding of the MSPI and its role, and to plan the work of the group. The purpose of the Task Group is provide guidance on the quality required of licensee PRA models to support the MSPI function, and to develop a process for verification that the quality has been achieved. To support the discussion, the attention of the Task Group members was directed to a memo dated September 21, 2004. The subject of the memo was "Mitigating Systems Performance Index (MSPI) PRA Quality Task Group Charter." It contained a list of issues requiring resolution as well as a strawman charter for the Task Group. The subsequent discussion centered around the issues and charter outlined in that memo.

After introductory comments on the strawman charter, the Task Group discussed each of the issues on the memo (i.e., A, B, C, D and E), focusing the majority of the discussion on issue B and E.

To determine the PRA quality needed to support the MSPI, it is essential to understand the role of the MSPI, and what role the PRA models should fill in the implementation of the MSPI. As clarified by Don Dube (RES), the MSPI is not intended to be an accurate risk evaluation, but more of an indicator of trends with respect to a baseline. Furthermore, the MSPI is used only to indicate a value within an order of magnitude.

The MSPI is based only on the PRA model for internal initiating events at full power. Based on this, with regard to the issue B (i.e., Phased Approach and MSPI), the Task Group thought that MSPI was in Phase 2 of the Commission's phased approach because the PRA standard for internal events at full power has been issued and endorsed by the staff in RG 1.174. In terms of the RG 1.200 definition of quality, which includes scope, level of detail, and technical adequacy, since the scope of PRA is defined (internal events at full power), the concern of the group is with technical adequacy and level of detail.

The group agreed that it was appropriate to make use of current guidance on PRA technical adequacy, including the ASME PRA standard, the industry peer review process (NEI-00-02), and RG 1.200. In terms of the capability categories of the ASME PRA Standard, the task group members agreed that capability category 3 was likely not necessary. Because the peer reviews for licensees' PRAs were performed before issuance of RG 1.200, licensees will need to perform the self assessment that is included in NEI-00-02 to close the gap between the peer review and the ASME Standard. The industry members of the group estimated the time required for this assessment to be approximately 6 months. The implementation of the MSPI is not scheduled until January 2006, so this would not be a limiting factor. Consistent with the intent in RG 1.200, any staff review would be focused, with the option to perform audits of the base PRA technical adequacy as considered necessary.

With regard to issue E (i.e., modeling issues that give rise to variability, etc.), Gareth Parry stated that it was his intention that this group should not be the group to decide on resolution of

issues that have a broader impact than MSPI implementation (e.g., use of MAAP to determine success criteria). However, a concern was raised that plants should not have to maintain two PRA models, one for implementation of MSPI and one for other licensee applications, such as license amendments. Because this issue is a major focus of the group's activities, Don Dube was invited to give an overview of the work done by the Office of Research to verification of the MSPI results for the pilot plants.

At the conclusion of this discussion, Gareth Parry did a check for group consensus on the charter proposed in his September 21, 2004, memo. Given that a number of issues were raised, Gareth agreed to revise the charter and re-circulate it to the group prior to the next meeting.

Overview of the Verification of the MSPI Results for the Pilot Plants

Don Dube began his presentation by reminding participants that the MSPI process looks only at "at power" plant operating scenarios. Don stated that the MSPI was a measure of performance deviation for components in a system and that the PRA provided a "weighting" mechanism for the component (or system). This weight could be expressed as a Birnbaum Importance Measure, B_i . It provides information on how important a component (or system) is. It could also provide unavailability trending information and a means to transfer unavailability from the system to the component.

The MSPI would still use the colors (i.e., green, white, yellow and red) associated with delta CDF (e.g., 10^{-6} , 10^{-5} and 10^{-4} etc.) as the measure of performance.

PRA models and data scope were two areas important to the verification issue as well as good failure modeling. If small B_i differences exist between the SPAR model and licensee model results, nothing needs to be done since it is the trend that is important rather than the actual number. However, if the B_i differences are off by one to two orders of magnitude (or more), we need to determine what is driving the differences.

To support his discussion, Don Dube directed the attention of Task Group members to two Powerpoint slides (numbered 13 and 14) that contained the results of a sensitivity study using SPAR and licensee PRA models. The study was performed on 11 models that covered 20 plants with no effort made to judge which model was more accurate. The purpose of the study was to identify differences between model results (see slide #13) and to determine the impact of these differences on MSPI results (see slide #14).

The Task Group reviewed the results on slide #14. Most of the discussion centered around the plant scenarios that were in the large "Potential Impact on MSPI" bin (i.e., Braidwood PORV Success Criteria, Millstone 2 LOCA Issues and Salem SWS/CCW Issues). Potential drivers for these results were discussed. In addition, Task Group members asked if the NRC has had a dialogue with these utility companies to resolve the differences. NRC responded that they have not resolved the issues with the utility companies. Task Group members also wondered if the "high impact" scenarios were identified as weaknesses during plant peer reviews. No one knew if that was the case. Both Jeff Gabor and Bill Stillwell offered to look closer into this issue. In addition to the sensitivity study results, Pat O'Reilly of the NRC talked about an NRC Excel spreadsheet that had more complete model difference information. The spreadsheet is not

currently available to the public so it was not shared with the group but potential use of such information was discussed by the Task Group. Task Group members wondered how this information could be used to determine the technical adequacy of the PRA models. Members raised the possibility that the information could help identify areas that should be focused on. If the peer reviews give similar results, they might be used to determine the technical adequacy of licensee PRA models. In response to this discussion, NRC agreed to look at the detailed information for insights that might resolve these issues. The NRC also agreed to share high level insights garnered from the spreadsheet with non-NRC Task Group members.

Don Dube concluded his presentation with the statement that to meet the technical adequacy required for implementation of MSPI, the Task Group may need to identify a list of items as "category 2". These items would require model corrections when large differences exist between the SPAR and licensee PRA models.

Future Activity Discussion

Two activities were discussed under this agenda topic. First, the Task Group discussed the scheduling of the next Task Group meeting. It was decided that the Task Group would meet at the NRC Headquarters facility on October 13, 2004. Michele Laur agreed to make the necessary arrangements for this meeting.

The second topic discussed was a tentative schedule for tasks associated with this effort (i.e., implementation of the MSPI). The tentative schedule was verbally presented by NEI. Various milestones were discussed with no resolution of the tentative schedule.

General Discussion

Since there were no attendees other than Task Group members or NRC staff directly involved with this process, it was agreed that a general discussion was not needed. The meeting was adjourned at 11:55 a.m.

Action Items

1. Bill Stillwell and Jeff Gabor would look at relevant peer review reports and compare weaknesses against those identified in Don Dube's slide #14
2. Pat O'Reilly would share the Excel spreadsheet with NRC Task Group members within the next week
3. NRC would look at Pat O'Reilly's detailed Excel spreadsheet to determine if there are any insights related to PRA differences and impacts on MSPI results that can be drawn from the information
4. Cheok, Trapp and Parry will review the guidance found in the ASME PRA standard and propose elements that may be important to MSPI. [Note: These elements will be candidates for Capability Category 2. Guidance from the MSPI technical report, and insights from O'Reilly's and Dube's sensitivity evaluations will be used as appropriate.]
5. Gareth Parry would revise the charter to reflect the discussions in this meeting and send it to Task Group members prior to the next Task Group meeting
6. Michele Laur would schedule the next Task Group meeting for October 13, 2004 from 9:00 a.m. to 5:00 p.m.