September 27, 2005

Kevin Ennis, ASME
3 Park Ave
New York, New York 10016

Mary Beth Gardner, ANS
555 North Kensington Ave
LaGrange Park, Illinois 60526

SUBJECT: PRA STANDARDS DEVELOPMENT

Dear Mr. Ennis and Ms. Gardner:

The NRC applauds the American Society of Mechanical Engineers (ASME) and the American Nuclear Society (ANS) for their accomplishments and continuing work on the development of consensus standards for a probabilistic risk assessment (PRA) to support risk-informed decisions. The societies and the various participants on the committees and working groups have devoted considerable time and resources to these standards which are a major element in the staff's phased approach to PRA quality. Once finalized and in use, these standards will play a key role in defining PRA quality in support of risk-informed activities. At the various meetings of the ASME and ANS Nuclear Risk Management Coordinating Committee, ASME Committee on Nuclear Risk Management (CNRM), and ANS Risk Informed Standards Committee (RISC), consideration of development of additional standards (i.e., Level 2 and Level 3 PRA standards, including the potential for an integrated PRA standard) has been discussed and support from the NRC was solicited for these new standard activities.. In addition, Dr. Bari, ANS RISC Chair, sent a letter (August 18, 2005) to Dr. Barrett, NRC Standards Executive, requesting NRC support for Level 2 and 3 PRA standards development. To determine whether the NRC can support these efforts, the NRC needs to determine what additional standards are needed and when they should be developed. Current NRC and industry efforts on PRA standards are summarized below.

- ASME published the "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications," ASME RA-S-2002 in April 2002, and Addendum A, ASME RA-Sa-2003 in December 2003. This standard addresses a Level 1 and limited Level 2 PRA (large early release frequency [LERF]) for full-power operation for internal events (excluding internal fire). The staff then issued Regulatory Guide (RG) 1.200 ("An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities") for trial use. Appendix A of RG 1.200 provides the staff position on the ASME standard. Based on the staff's position in Appendix A of RG 1.200, other public comments, and experience from industry pilot applications, ASME has revised the standard and has released Addendum B to their standard. The staff is currently reviewing this addendum and will revise Appendix A to RG 1.200 as appropriate.

- NEI developed a peer review process and a self-assessment process (NEI-00-02). Appendix B of RG 1.200 provides the staff position on this guidance document. NEI is revising NEI-00-02 based on the staff's position and on Addendum B of the ASME standard and plans to issue Revision 1 in September 2005. The staff will review this revision and revise Appendix B as appropriate.

- ANS published the "External Events PRA Methodology Standard," ANSI/ANS-58.21-2003 in March 2003. The standard addresses external events. The staff then issued Draft Guide (DG) -1138 for public review and comment. DG-1138 is Appendix C to RG 1.200 which provides the staff position on the ANS standard. Based on the staff's position in Appendix C, industry pilots and other public comments, ANS is in the process of issuing a revision to their standard, which is scheduled for issuance in January 2006. The staff will review this revision and revise Appendix C as appropriate.

- In the last 12 months, the staff has performed five separate pilot tests of RG 1.200 (including Appendices A and B). Based on lessons learned from the pilots, Addendum B of the ASME standard, and soon to be issued Revision 1 of NEI-00-02 and Revision 1 of the ANS external events standard, the staff is revising RG 1.200 where appropriate. The staff intends to issue a revised RG 1.200 (with Appendices A, B and C) for use in June 2006.

- ANS is soon to publish, for use, a PRA standard addressing low power and shutdown conditions and soon thereafter, a PRA standard for internal fire events. The staff will review these standards and issue additional appendices (D and E, respectively) to RG 1.200 documenting our position, first as a draft for public review and comment and then as final for use. During this process, it is our understanding that industry pilots and peer reviews are being planned. The lessons learned from these pilots and peer reviews will be incorporated into the final documents. The staff intends to publish Revision 2 to RG 1.200 (including Appendices A, B, C, D and E) in mid-2008.

On December 18, 2003, the Commission requested the staff to develop a plan for stabilizing PRA quality expectations and requirements to support all current and anticipated applications (i.e., the phased approach to PRA quality). This stabilization is expected to be achieved by December 31, 2008 (see COMNJD-03-0002). In SECY-04-0118, the staff forwarded to the Commission its plan for meeting this date. The standards that have been developed and that are under development are a critical element in meeting this deadline. Based on ASME's and ANS's latest timeframe for completing the standards, the staff believes that completion of those efforts by December 31, 2008 is achievable.

In implementing the plan in SECY-04-0118, the staff has identified the current and anticipated applications for which PRA quality expectations and requirements are needed. The ongoing efforts on the PRA standards (i.e., Level 1, limited Level 2 [LERF], full-power, low-power and shutdown, internal and external events) will provide the necessary PRA standards to support these needs.

To achieve the above deadline, NRC resources must remain focused on supporting ASME and ANS in completing the above standards and revising RG 1.200 accordingly. This effort may require (as seen with the ASME standard) more than one iteration of the standard, and may

involve pilots to test the standard and the staff's associated regulatory guide and standard review plan. Completing the standards and the staff endorsement are critical milestones. Supporting the development of other standards, at this time, could significantly impact the staff's ability to meet this milestone.

Both ASME CNRM and ANS RISC have noted that the ASME standard and the ANS external events standard are not "seamless" (e.g., the standards do not use the same language in places, there are format differences, level of detail of the requirements differ). A new integrated (seamless) standard is being proposed by ASME and ANS to address this issue. We believe that a new integrated standard would be useful, but only after all the above standards are completed, issued, and tested. Providing support for the development of an integrated standard at this time (before December 2008) would also utilize resources that would impact the staff's ability to meet the December 2008 date.

With respect to supporting these additional standards, our currently available resources need to remain focused on completing the ongoing initiatives (i.e., standards for Level 1/limited Level 2, external events, low-power and shutdown, and internal fire) by December 31, 2008. Nevertheless, in the long term, we believe that development of these new standards has considerable merit and we will reconsider our ability to support them as we near completion of our ongoing efforts to stabilize PRA quality expectations in response to Commission direction. We will take into account the ASME and ANS schedule for development of these standards.

Both societies have been exemplary in developing the PRA standards, and we look forward to continuing to work with you. If you have any questions, please contact Mary Drouin of my staff at (301) 415-6675.

Sincerely,

/RA/

Charles E. Ader, Director
Division of Risk Analysis and Applications
Office of Nuclear Regulatory Research

cc: R. Weilder, ASME
J. Mallay, ANS
R. Grantom, ASME
R. Bari, ANS

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