

May 29, 2003

C. Wesley Rowley, Vice President  
Nuclear Codes and Standards  
The American Society of Mechanical Engineers  
3 Park Avenue  
New York, NY 10016-5990

SUBJECT: DRAFT REGULATORY GUIDE 1122, "AN APPROACH FOR DETERMINING THE TECHNICAL ADEQUACY OF PROBABILISTIC RISK ASSESSMENT RESULTS FOR RISK-INFORMED ACTIVITIES," NOVEMBER 2002

Dear Mr. Rowley:

This letter provides the staff's response to the ASME comments on draft Regulatory Guide 1122 (DG-1122) contained in your March 3, 2003, letter and as a result of ongoing dialog with ASME. DG-1122 provides one acceptable approach for determining that the quality of the PRA, *in toto* or for those parts that are used to support an application, is sufficient to provide confidence in the results such that they can be used in regulatory decision making for light-water reactors; as such, DG-1122 provides the staff's position regarding ASME RA-S-2002 ("Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications").

From your letter, it is our understanding that ASME plans to take the following actions:

- For the clarifications and qualifications that ASME considered appropriate, ASME will process changes to its PRA Standard as an Addendum or Revision that will incorporate the NRC position, or its intent.
- For the clarifications and qualifications that ASME did not consider appropriate or adequate, ASME will submit comments to the staff supporting its position and, where appropriate, recommend a revised position or actions to resolve the concern.

Since the issuance of your letter, as noted above, there has been continuing dialog discussing in detail the issues raised in your comments. A positive resolution has been achieved, except in a few places where more discussion is required. The staff's understanding of the resolutions are provided in enclosed Tables 1-4. In summary,

- Table 1 includes the staff's objections that ASME considered appropriate but with an alternate resolution to be incorporated into the ASME Addendum to the Standard. The staff's response and position to each proposed resolution is provided. The staff is in general agreement with ASME's proposed resolutions.
- Table 2 includes the staff's objections ASME considered appropriate, but with no proposed changes to the standard in an Addendum. ASME is encouraged to consider including these changes in the Addendum. Our mutual goal is for the staff to endorse the standard in the regulatory guide with as few, if any, clarifications or qualifications. From the subsequent dialogs, it is our understanding that these items will be included in the ASME Addendum to the Standard.

- Table 3 includes the staff's objections that ASME considered appropriate, with the staff's proposed resolution to be incorporated into the ASME Addendum to the Standard.
- Table 4 includes the staff's objections that ASME either (1) considered appropriate but disagreed with the NRC's proposed resolution, or (2) considered not appropriate and provided an explanation for the disagreement. The staff's position on these items are provided. The majority of these items have been resolved from the subsequent dialogs, and it is our understanding that these resolutions will be included in the ASME Addendum to the Standard.

In your letter, you also noted three items of special significance:

- (1) **Definitions and usage of the terms dominant, significant and important.** ASME has acknowledged that ambiguities exist with the usage of these terms in the ASME standard, but noted some concerns regarding the staff's proposed definition. Based on subsequent dialogs, the staff's position on the definitions is contained in the enclosed Table 5. While resolution has been achieved on the usage (as reflected in Table 5), there remains disagreement on the definitions. Mr. Bersen in his April 8, 2003, letter to the ACRS recommends that the ASME "defer setting quantitative definitions at least during the trial use period to determine whether more precise definitions are feasible and desirable." This item was discussed in detail by the staff at the April 10, 2003 ACRS meeting. The ACRS, in their April 21, 2003, letter to the Commission, notes that the terms are "critical to the application of the standard" and that "clear definitions of the terms....should be included in the draft final Regulatory Guide before issuing it for trial use."

The staff's concern regarding these terms is particularly noticeable in the supporting requirements for the Level 2 technical element. However, in reviewing in depth the language of the supporting requirements in an attempt to understand the context of the terms (e.g., dominant), the staff observed another concern. There is an inconsistent usage of other terms such as phenomena, containment challenge, containment failure mode, for example. This inconsistency (and with the inconsistent use of dominant, significant and important) provided further difficulty in understanding the supporting requirements. The staff has proposed clarifications, which includes the resolutions from the subsequent dialogs, which are included in Table 5. It is the staff's understanding that these clarifications will be incorporated in the ASME Addendum to the Standard.

- (2) **Identification of PRA Capability Category.** ASME disagrees with the [implied] requirement of DG-1122 Appendix A that the Capability Category must be documented when the PRA is developed. This topic was discussed in some detail at the March 11, 2003, public meeting. The staff believes that knowing to which capability category a PRA element required for an application has been developed is an important part of assessing the capability of the PRA to support that application. The staff has no preference as to whether this identification is included in the original PRA documentation or in the peer review report, or indeed on an application specific basis. However, for an application submittal, an identification of the category will be expected.

- (3) **Section 5.4 PRA Maintenance and Upgrades.** The staff took the position in DG-1122 that PRA maintenance should be subject to (additional) peer reviews (when the maintenance significantly impacts the results; e.g., different contributors, substantial change in CDF). ASME does not believe that these additional peer reviews are necessary because PRA maintenance does not use different methodologies or techniques which would be subject to peer review. ASME's position was also noted in other public comments. At the March 11, 2003, public meeting, the staff agreed with the industry argument and will revise its position.

A preliminary draft of the attached tables was provided to the ASME Committee on Nuclear Risk Management (CNRM) for its March 24-26, 2003, meeting. These items were discussed in detail and in subsequent conference calls. The staff's positions contained in these tables reflects the resolutions proposed at this meeting and from the subsequent discussions.

We believe the few remaining outstanding issues can be resolved and look forward to continuing dialogue. We agree that DG-1122 and the ASME standard will require a period of trial use before "questions of clarity, adequacy and consistency of interpretation can be resolved." We believe that Revision 14a, given satisfactory resolution of the staff's concerns, will be a standard that will be technically sound and useful in risk-informed decision-making, and we commend ASME on their effort. We are prepared to discuss and clarify these comments to support your work to issue an Addendum to the standard in the upcoming months. It is our mutual objective that a regulatory guide be issued with few, if any, clarifications and qualifications by the staff. If you have any questions, please contact Mary Drouin at (301) 415-6675 or me at (301) 415-5790.

Sincerely,

/ RA /

Scott Newberry, Director  
 Division of Risk Analysis and Applications  
 Office of Nuclear Regulatory Research

Enclosures: As stated

- cc: S. Bernsen, Chairman, ASME Committee on Nuclear Risk Management (CNRM)  
 D. Brewer, Chairman, CNRM Subcommittee on Technology  
 R. Grantom, Chairman, CNRM Subcommittee on Applications  
 R. Bari, Chairman, ANS Risk Informed Standards Committee  
 K. Kipper, Chairman, ANS Writing Committee on LPSD PRA Standard

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