



American National Standard External-Events Probabilistic Risk Assessment Methodology

Public Meeting

Presented by
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Agenda

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|---------------------|--|
| ◆ 10:00am-10:15am | Introduction |
| ◆ 10:15am-10:30am | Overview |
| | Appendix C |
| ◆ 10:30am-11:00am | Staff's Response
to public comments |
| ◆ 11:00am-12:00Noon | Detailed discussion |
| ◆ 12:00Noon-1:00pm | LUNCH |
| ◆ 1:00pm-2:00pm | Discussion (cont'd) |
| ◆ 2:00pm-2:45pm | Open discussion |
| ◆ 2:45pm-3:00pm | Wrap-up |
| ◆ 3:00pm | Adjourn |

MEETING STRUCTURE

- ◆ Category 2 Meeting
- ◆ No transcripts, but meeting summary will be provided
- ◆ Please complete registration form and communication form

PURPOSE AND OBJECTIVE OF MEETING

- ◆ Share the staff's preliminary views on ANS Standard on External Events
- ◆ Solicit and gather information from stakeholders

BACKGROUND/HISTORY

- ◆ April 5, 2002,
ASME published “Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications” (ASME RA-S-2002)
- ◆ June 2002,
NEI published Industry Self Assessment as a part of NEI-00-002 Peer Review Process
- ◆ November 2002,
Draft Guide (DG)-1122, “ An Approach for Determining the Technical Adequacy of PRA Results for Risk-Informed Activities” (and associated SRP) was issued for public comment

BACKGROUND/HISTORY (cont'd)

- ◆ March 3, 2003,
American Nuclear Society (ANS) published American National Standard External-Events PRA Methodology
- ◆ December 18, 2003,
SRM was issued on PRA quality
- ◆ February 28, 2004,
Regulatory Guide 1.200 (formerly DG-1122) was issued for trial use
- ◆ August 31, 2004,
Draft Appendix C, "NRC Staff Regulatory Position on ANS External-Events PRA Methodology," was issued for public comment

PURPOSE OF RG & APPENDIX C

- ◆ Staff recommendation for addressing the issue of “PRA Quality” to support risk-informed regulatory activities
- ◆ Guidance to licensees and guidance to the staff
- ◆ Staff position on ANS external events standard

SCOPE OF RG & SRP

- ◆ Does not address how PRA results are used in a decision-making process
- ◆ The guidance on how PRA results are used in a risk-informed activity is addressed in the application specific regulatory guide
- ◆ The RG (and associated SRP) solely address the issue of determining the acceptability of PRA results for an application

SCHEDULE

- ◆ Early February/March 2005, issue RG 1.200, Revision 0 with Appendices A,B, and C for public review and comment
- ◆ Mid June 2005, public workshop to go over public comments and staff's proposed resolution
- ◆ Late 2005, issue RG 1.200 Revision 1

REGULATORY GUIDE STRUCTURE

Appendices:

- A: NRC Regulatory position on ASME standard
- B: NRC Regulatory position on NEI-00-02
- C: NRC Regulatory position on ANS standard on external events
- D-E: Low power shutdown and internal fires
- F: NRC Regulatory position on any other PRA standards

REGULATORY GUIDE 1.200

APPENDIX C

NRC regulatory position on ANS PRA standard

- ◆ *No objection:* the staff has no objection to the requirement
- ◆ *No objection with clarification:* the staff has no objection to the requirement, however, requirement, as written, is either unclear or ambiguous and therefore, the staff has provided their understanding of this requirement
- ◆ *No objection subject to qualification:* the staff has a technical concern with the requirement and has provided the needed qualification to resolve the concern

STAFF REVIEW OF ANS EXTERNAL- EVENTS PRA METHODOLOGY HAZARD STANDARD

- ◆ Staff reviewing standard against Regulatory positions in RG 1.200
 - Technical characteristics and Attributes
 - Principles & objective
- ◆ Staff's objection to ASME standard, wherever applicable, will apply to ANS; for example the use of term "dominant"

STAFF REVIEW: GENERAL COMMENTS

- ◆ The original intent was to have the External Events Standard “Seamless” with ASME Standard
 - Appropriately relies wherever applicable on ASME standard
- ◆ This has not been achieved in the following aspects
 - Not “seamless” in use of terminology such as “shall, should, may”
 - ◆ Inconsistent use of capability categories
 - Interpretation of supporting requirements that cut across categories
 - ◆ Organization of standard does not match ASME
 - ◆ Use of definitions are not consistent with ASME

STAFF REVIEW: GENERAL COMMENTS (cont'd)

◆ Graded Approach

- The use of the same words under more than one capability category in supporting Requirements (SRs) **cannot** imply a graded interpretation (as currently stated in Section 1.4).
- The SR applies equally to each capability category and is either met or not met, independent of category.

STAFF REVIEW: GENERAL COMMENTS (cont'd)

- ◆ Many of the supporting requirements are not written as minimal requirements (overuse of permissives)
- ◆ Missing supporting requirements
 - Identification of each of the hazard on plant,
 - Requirements to identify the Structures Systems and Components (SSCs),
 - Identification of specific failure modes, and
 - Identification of the modification of PRA logic to model these failures

STAFF REVIEW: GENERAL COMMENTS (cont'd)

- ◆ Mandatory material in notes
- ◆ For some SRs certain material from the notes should be mandatory and therefore should be in the SR itself.
- ◆ An example is WIND-A1, where the six elements described in the note provide the details required for the tornado wind hazard analysis and should be included in the requirement itself.

STAFF REVIEW: SPECIFIC COMMENTS, EXAMPLES

- ◆ Section 3.4.2, three fundamental (sic) quantitative screening criteria are introduced, that focus on core damage frequency (CDF). The last paragraph recognizes that large early release frequency (LERF) should also be considered in the screening but does not suggest additional requirements.
- ◆ One approach is to lower the numerical criteria (e.g., in REQ.EXT-C1) to result in screening at a CDF of $1E-07$ rather than $1E-06$. Is this an acceptable approach, or are there alternative approaches based on a more qualitative approach dealing with the releases?

STAFF REVIEW: SPECIFIC COMMENTS, EXAMPLES (cont'd)

- ◆ Appendix D in the ANS Standard is a nonmandatory appendix that provides guidance on uses of a seismic margins assessment with enhancements. The seismic margin approach, while can be used for certain applications, is not a PRA. Since this standard is providing requirements for an external events PRA, the staff takes objection to this appendix.

STAFF REVIEW: SPECIFIC COMMENTS, examples (cont'd)

- ◆ The staff believes the appropriate place to provide its position on this appendix would be in the NUREG being prepared by the Office of Nuclear Regulatory Research addressing the use of non-PRA methods in risk-informed decision-making. Is this an appropriate strategy?

STATUS

- ◆ Continue to interact with all stakeholders in developing staff position on standards
- ◆ Provide observations to ANS in a formal inquiry letter for their consideration

SCHEDULE

- ◆ June 10, 2004 public meeting
- ◆ August 4, 2004 public meeting
- ◆ August 31, 2004 issued Appendix C for public review and comment
- ◆ November 9, 2004 public meeting
- ◆ January 2005 ACRS Subcommittee meeting
- ◆ February 2005 ACRS meeting
- ◆ February 2005 issue RG 1.200, Rev 1 for public review and comment
- ◆ June 2005 issue RG 1.200, Rev 1 (includes Appendix C)