



Draft Guide 1200 (Revision 2 to Regulatory Guide 1.200)

Public Meeting, NRC Headquarters

Conference call-in: 1-888-566-5771, pass code 50918

July 11, 2008

Objective of Meeting

- To discuss the changes between Revision 1 of Regulatory Guide 1.200 and Draft Guide 1200 (Revision 2 to Regulatory Guide 1.200)

Meeting Structure/Agenda

- **Category 2 Meeting**

- **Agenda**

9:00 am - 9:15 am Introduction

9:15 am - 11:15 am NRC presentation on DG

11:15 am - 11:45 am Open discussion

11:45 am - 12:00 pm Summary/wrap-up

Scope of RG 1.200

- Address technical acceptability for Level 1 and Level 2 (i.e., LERF) PRA for at-power, low power and shutdown conditions for both internal and external events
- Address PRA technical acceptability to support both operating reactors (Part 50) and new reactors (Part 52) for light water reactors (LWRs)
- Does not, at present, address future advanced non-LWRs

Overview of Changes from Revision 1 of RG 1.200

- Clarification on staff position regarding
 - Definition of PRA, internal and external events, hazard group, significance
 - Internal fire and low power shutdown PRA technical acceptability
 - Relationship to Part 52
 - Treatment of uncertainties
 - Risk aggregation
- Staff Endorsement
 - ASME/ANS PRA standard RA-S-2007
 - NEI 00-02
 - NEI 05-04
 - NEI 07-12

Changes from Revision 1

C.1 Technically Acceptable PRA,

- Page 7, 1st paragraph
 - Definition of PRA – a quantitative assessment of the identified risk

C.1.1 Scope of PRA

- Page 8, Definitions for
 - large release frequency – characteristics include potential for early health effects, or lead to significant increase in latent health effects
 - internal events – all internal plant causes (including LOSP)
 - Internal “hardware” events – transients and LOCAs
 - Internal “area” events – floods and fires
 - external events – external plant causes
 - hazard group – group of similar causes of initiating events

Changes from Rev 1 (cont'd)

C.1.1 Level 2 Technical Elements

- **Page 11, Footnote 3**

- Significance – function of the use of the PRA; measured with respect to either
 - Contribution to total CDF or LERF, or
 - Contribution to CDF or LERF for a specific hazard group
- Defined in context of an accident sequence or a basic event/contributor

Changes from Rev 1 (cont'd)

C.1.2.4 Internal Fire Technical Elements

- Pages 12-14
 - Redefined technical elements for internal fire similar to elements in Part 3 of ASME/ANS standard

C.1.2.5 External Hazards Technical Elements

- Page 14, 2nd paragraph and footnote 4
 - 10^{-6} /yr CDF all event to be screened independent of CCDF
 - For new reactors, screening value should be adjusted

Changes from Rev 1 (cont'd)

C.1.2.6 Interpretation of Results

- Pages 15-16

- Combine (sum) results from different hazard groups
- Characterize the overall results so that for each group, understand
 - Level of detail, group specific uncertainties
- May need to perform sensitivity analyses of assumptions individually or in logical combinations
- Reference NUREG-1855 which provides guidance on treatment of uncertainties associated with PRA

Changes from Rev 1 (cont'd)

C.1.3 Attributes and Characteristics of the PRA Technical Elements

- Page 17, Table 2
 - Initiating Event Analysis: screening value may need to be adjusted
 - Reference to NUREG for HRA
- Pages 19-20, Table 2
 - Attributes and characteristics specific for low power and shutdown (LPSD) defined for each technical element for a Level 1 and Level 2 PRA
 - Attributes and characteristics focus on differences from those for at-power conditions
- Page 21, Table 3, Note for Internal Flood Analysis
 - LPSD issues added

Changes from Rev 1 (cont'd)

C.1.3 Attributes and Characteristics of the PRA Technical Elements

- Pages 22-23, Table 3
 - New characteristics and attributes defined for the revised technical elements
- Page 24, Table 3, Note for External Hazard Analysis
 - Notes that Seismic Margin method not acceptable approach in the base PRA for seismic contributors

Changes from Rev 1 (cont'd)

C.2.2 Industry Peer Review

- Page 31, Footnote 7
 - For new reactors that are not yet in commercial operation, it is not considered to be a limitation (or basis) for not performing a peer review because the peer reviewer may not have pre-knowledge or limited knowledge of the plant operation or plant features

Changes from Rev 1 (cont'd)

Appendix A, Table A-1, Staff Position on Part 1 of ASME/ANS RA-S-2008

- Section 1-1. Introduction
 - Previous objections addressed and removed
- Sections 1-1.3, 1-1.4.2, 1-1.4.3 and 1-1.8
 - The discussion in these sections mixes/confuses the two objectives of the standard (1) specifying the requirements for a baselines PRA, and (2) prescribing a methods for applying the requirements for an application

Changes from Rev 1 (cont'd)

Appendix A, Table A-1, Staff Position on Part 1 of ASME/ANS RA-S-2008

- Section 1-2. Definitions
 - Most of previous objections addressed and removed
 - New/revised objections:
 - Definition of as-built and as-operated not in the standard
 - Redefining initiating event
 - External events – internal fire is an internal event
 - Hazard group – note to clarify distinction between “hazard” and “hazard group”
 - PRA – is a quantitative assessment

Changes from Rev 1 (cont'd)

Appendix A, Table A-1, Staff Position on Part 1 of ASME/ANS RA-S-2008

- Section 1-3. Risk Assessment Application Process
 - Previous objections addressed and removed
- Sections 1-3.1, 1-3.1 Stage A, 1-3.2.2, 1-3.5, Figure 1-3.1-1
 - Global change of “application” to “activity,” and “proposed change” to “proposed decision”
 - At this stage of the decision, determining the relative importance of a portion of the PRA, capability category is applied at the supporting requirement level
 - Definition of significance of accident sequence (i.e., 95%) should match definition in Section 1-2
 - Change in Figure to match change in text (Section 1-1.4.2)
- New comments on Appendix 1-A

Changes from Rev 1 (cont'd)

Appendix A, Table A-1, Staff Position on Part 1 of ASME/ANS RA-S-2008

- Section 1-4. Technical requirements
 - Previous objection (on use of outside expert) remains
- Section 1-5. PRA Configuration Control
 - Objection “dominant accident sequence” addressed, objection removed
 - Objection on record of peer review remains
- Section 1-6. Peer Review
 - Previous objections remain
 - 1-6.6.1, new objection clarifying the specific SRs addressed in peer review needing documentation

Changes from Rev 1 (cont'd)

Appendix A, Table A-2, Staff Position on Part 2 of ASME/ANS RA-S-2008

- Section 2-1 (all technical elements)
 - Previous objections remain
- IF-C3, Qualification
 - Further elaboration on staff resolution provided
- QU-A, E
 - Acknowledgement of LERF
- QU-E4
 - Note should be deleted to be consistent with requirement
- LE-G2
 - Inconsistent with QU-E

Changes from Rev 1 (cont'd)

Appendix A, Table A-3, Staff Position on Part 3 of ASME/ANS RA-S-2008

- New comments as compared to Revision 1 of RG 1.200
 - Comments provided in letter to ASME on combined standard ADAMS # ML073030364
 - General comment: while the requirements are thorough, they are possibly overly complex. However, this complexity should be addressed in the pilot applications of this part of the standard
- Concern with the way in which the term “significant’ has been used in Part 3 (e.g., FSS-C2, CF-A1, HLR FQ-E, QNS-C1)
 - term should be interpreted as being assessed with respect to the fire risk
- Some issues related to use of the term “bounded or accurately characterized” e.g. FSS-B2, FSS-D3
- Clarification on plant partitioning requirements

Changes from Rev 1 (cont'd)

Appendix A, Table A-4, Staff Position on Part 4 of ASME/ANS RA-S-2008

- Changes relative to DG-1138 -- draft guide on staff position on Revision 1 of external events standard (Revision 2 of external events standard contained in Part 4)
 - Majority of staff comments addressed and removed
- Overall comment Part 4 (External Events)
 - This part of the standard is difficult to use because it is not formulated in a parallel manner to the other parts (i.e., Parts 2 and 3). This difficulty should be addressed in future revisions of the combined standard.
 - Because of difficulty, a thorough review not performed by the staff on this revision
- Hazard curve for tornadoes – some information in note should be in the requirements

Changes from Rev 1 (cont'd)

Appendix B, Staff Position on NEI 00-02

- Staff objections remain
- Global qualification
 - NEI self-assessment performed against RA-S-2002, one addenda and major revision have since been issued
 - Differences between RA-S-2002 and RA-S-2008 need to be addressed

Changes from Rev 1 (cont'd)

Appendix C, Staff Position on NEI 05-04

- Staff objections remain, however, staff resolution provided
- Global qualification: NEI 05-04 needs to be based on ASME/ANS RA-S-2008

Changes from Rev 1 (cont'd)

Appendix D, Staff Position on NEI 07-12

- **Qualifications**
 - NEI 07-12 should refer to ASME/ANS combined standard rather than the ANS Fire PRA Standard
 - Section 3.2, the assessment should be based on the fire PRA standard AND on the NRC clarifications or qualifications
 - Section 3.2 would allow the peer review team to skip selected SRs
 - all SRs need to be assessed
- **Clarifications**
 - Supporting requirements addressed by reference
 - Others more of a minor nature

Schedule for Issuance of Revision 2 and Public Meetings

- August 25, 2008 – public review and comment period closes
- Late September/early October – public meeting
 - Share staff response to public comments
- December 2008 – publish Revision 2 to RG 1.200
- NRR expects licensees' PRAs to meet the ASME/ANS standard, as endorsed by the staff in Revision 2 to RG 1.200, in early January 2010 per the Commission's PRA Quality Initiative
- NRO expectations for DC and COL applicants are described in RG 1.206 and SRP Section 19, as supplemented by the final DC/COL-ISG-03 dated June 11, 2008
 - After January 2010, applicants' PRAs should conform to Rev. 2 to RG 1.200, as appropriate
 - 50.71(h)(1) states that no later than the scheduled date for initial fuel loading, each holder of a COL shall develop a Level 1 and Level 2 PRA, and cover those events and modes for which NRC-endorsed consensus standards on PRA exist one year prior to fuel load.