

**American Nuclear Society
Risk-Informed Standards Consensus (RISC) Committee
Meeting Minutes
June 11, 2008
Disneyland Hotel • Wonder Garden Room**

Members Present:

Allen Camp (RISC Chair), *Sandia National Lab*; Robert Budnitz (RISC Vice Chair), *Lawrence Berkeley National Lab*; Richard Black, *US DOE*; Biff Bradley, *NEI*; John Gaertner, *EPRI*; Gene Hughes, *ETRANCO, Inc.*; Pat Schroeder, *ANS*; Jean Savy, *Risk Management Solutions*; Bill Stillwell, *STPNOC*; Jonathan Young, *PNNL*

Alternates Present:

Gareth Parry, (NRC alternate) *US NRC*; Doug True (Alternate for Rick Hill), *ERIN*; Don Wakefield (Alternate for Ravi Ravindra) (ANS-58.22 Chair), *ABS Consulting*

Members Absent:

Paul Amico, *SAIC*; Bob Bari, *BNL*; Mary Drouin (Alternate attended), *US NRC*; Fred Emerson, *General Electric*; David Finnicum, *Westinghouse*; Dennis Henneke, *General Electric*; Stanley Levinson, *AREVA NP, Inc.*; Ken Kiper, *FPL Energy*; Rick Hill (Alternate attended), *ERIN*; Ravi Ravindra (Alternate attended), *Individual*; Mark Rubin (Alternate attended), *US NRC*

Others Present:

Sidney Bernsen, *Individual*; Bill Burchill (ANS President-Elect), *Texas A&M University*; Timothy Dennis, *Individual*; Doug Hance, *EPRI*; David Johnson, *ABS Consulting*; Prasad Kadambi (ANS SB Chair), *US NRC*; Mark Leonard (ANS-58.24 Chair), *Dycoda*; Charles Moseley (NRMCC Co-chair), *Individual*; Vinod Mubayi, *BNL*; Barbara Newson, *E.S.C. Learning Network, Inc.*; Kevin O’Kula, *WSMS*; Grant Teagarden, *ERIN*; Keith Woodard (ANS-58.25 Chair), *ABS Consulting*

1. Roll Call and Approval of Agenda

RISC Chair Allen Camp opened the meeting at 8:00 a.m., and the agenda was approved without change.

2. Meeting Key Issues and Objectives

RISC Chair Allen Camp informed the committee that a status update of writing group activities would be provided as would an update on CNRM activities by Doug True. Additionally Camp would report on efforts with ASME CNRM Chair Rick Grantom on establishing a joint consensus committee

RISC Chair’s report and NRMCC activities

See Attachment A – RISC Report to the Standards Board

Summary of Standards Board Meeting

Allen Camp explained that as RISC Chair he was automatically an ex officio member of the Standards Board (SB). He informed the committee that the SB endorsed an effort to continue the activity of investigating a merge of the ANS RISC Committee with the ASME CNRM Committee.

Camp reported that the SB approved new balance of interest category definitions. The new definitions must be submitted to ANSI for approval before they can be used. Additionally a category for an “associate member” classification for young members under the age of 36 was approved. Details of the “associate member” category include earning full voting status after two years of participation. Camp suggested for each member to look around their organization for potential associate members.

Camp explained that the SB discussed the definition of the word “should” as used in ANS standards. It had been brought to the attention of the SB that the definition of the word “should” had not been used consistently throughout ANS standards over the years. The SB agreed to use the ANSI definition. Bob Budnitz stated that the ASME standard was written using the ANSI definition. Chuck Moseley added that the SB requested that the definition for shall, should, and may be included in all ANS standards.

Camp explained that the procedures established in the Due Process Document were followed for the Combined Standard. The process provides steps in gaining approval of the Level 2 and Level 3 standards. He noted that the SB agreed it was sufficient. He reported that the SB discussed NRC interactions. In specific, they discussed the need for more policy guidance on writing a standard and whether it was for technical guidance or to compliment regulatory guidance. It was noted that RISC members shared similar concerns. Further discussion of this topic would be on the agenda for the next SB meeting.

Don Wakefield mentioned that the LPSD working group had not been provided an NRC representative. Gareth Parry stated that a rep was determined but not confirmed.

NRMCC Activities

Camp explained that the NRMCC had a meeting and a couple conference calls since the last RISC meeting. No new standards had been put on the table to be initiated. Most activity had been related to merging RISC and CNRM.

CNRM Interactions and Update on Joint Committee

See Attachment B – Overview Presentation on Joint Committee

Camp stated that interaction between the RISC and CNRM committees had increased significantly. The initial suggestion for a joint committee had come from members that held membership on both committees. Camp explained that he worked with CNRM Chair Rick Grantom to determine what steps would be necessary for merging the two consensus committees, and they prepared a presentation and motion for consideration by both societies’ standards board. The presentation provided background history on the joint projects and agreements that were made. They focused on the needs for today and tomorrow with consideration on the demands of the volunteers and costs. Camp stated that the plan was to report back to both standards boards in November with a set of options and recommendations with a target of fall 2009 for implementation. The following motion was approved by the ANS Standards Board:

MOTION: Endorse moving forward with the concept of realigning the ANS Risk Informed Standards Committee and ASME Committee on Nuclear Risk Management to

better address the PRA standards needs to the global nuclear industry. An ANS/ASME core team will be formed to –

- 1) identify needs and issues to be addressed
- 2) identify options and alternates
- 3) evaluate the options and alternatives
- 4) make recommendations

Bill Burchill (incoming ANS President and former Chair of the RISC Committee) explained that he had a discussion with Standards Board Chair Prasad Kadambi regarding the relationship between this committee and the ASME CNMR and the potential merging of the two committees. He was confident that both societies would like to maintain integrity as an SDO. The Standards Board and ANS Board of Directors would be looking to making sure integrity was preserved. Camp reassured the committee that integrity would be preserved.

The committee questioned whether IEEE or IAEA would be involved. It was noted that IEEE has previously been approached. Gareth Parry offered to provide the name of an IAEA contact.

Action Item 06/08-1: Gareth Parry to provide the name of an IAEA contact to invite to the next RISC meeting.

Camp stated that he received a comment from the SB that more time should be allowed for review and/or approval of CNRM ballots in connection to the Level 1 Combined Standard. Chuck Moseley informed the committee that the SB passed a motion in recognition of the excellent job Ken Balkey had done in facilitating the approval of the Level 1 Combined Standard. The motion would be formally presented to Balkey in a letter from the SB Chair.

4. ASME Lawsuit

Pat Schroeder explained that the SB was considering forming a similar LLC to the one recently formed by ASME to secure grant funds for standards development. The SB had understood that ASME may have also formed the LLC to reduce their risk to potential lawsuits similar to the one ASME lost in the late 70s. Upon review of the lawsuit and current practices, the SB concluded that Standards Committee members and the society were at a very low risk. Sid Bernsen stated that he thought the lawsuit was related to a clarification.

5. Proposed Qualitative Motion

Results of past motion

Allen Camp noted that there had been a fascinating e-discussion on the use of qualitative standards. He admitted he put a wrench in the motion as he intentionally tied the vote. Camp felt that RISC agreed on the importance of qualitative methods but had differing views on the correct mechanism to use. A second motion was made and passed to support qualitative methods that involved appointing an ad hoc committee to determine the best approach to use in developing standards for qualitative methods. Camp informed the members that Dave Finnicum agreed to lead the ad hoc committee

and that the ad hoc committee would include two additional individuals who voted negative and two additional who voted positive.

Doug True noted that he was not aware of any related discussions ASME was having, but he believed that Rick Grantom was doing something higher level; possibly developing a white paper on philosophy of risk management. Sid Bernsen expressed his feeling that there was a stronger preference for separating the two. True stated that he felt the utilities were concerned with having quantitative and qualitative requirements in one standard as they would be required to comply with both. Gareth Parry added that he had heard it would be more difficult to use accurately if both methods were combined. Doug Hance informed the members that the current qualitative risk assessment requirements in the LPSD Standard were intentionally limited to the A4 part of NRC's Maintenance Rule.

Camp reiterated that the LPSD Standard would be going out for ballot soon with the qualitative portion integrated. If approved, it would be the intention that ASME would include the whole standard in the Combined Standard. Bob Budnitz suggested that the LPSD rebalot clearly include the scope of the standard with limitation so there would be no misunderstanding.

Path forward

A report from the ad hoc committee would be provided once they had an opportunity to meet.

6. Combined Standard Update

Bob Budnitz stated that the Combined Standard was formally approved by ANSI. He explained that he and Stanley Levinson were appointed ANS liaisons on the ASME CNRM Committee. They both felt that ANS concerns were considered properly. Allen Camp explained that he confirmed satisfaction with the liaisons and writing group chairs before requesting the SB to provide their approval. It was felt by all that the Combined Standard was able to be completed expeditiously due to the agreement that no new requirements would be added for the initial release. Budnitz added that a revision was already in the works and would be issued as an addendum.

See Attachment C – Presentation provided by Doug True on Addendum 1 of the Combined Standard

Doug True explained that initially the Combined Standard was called the Integrated Standard. Two hundred comments had to be deferred to a revision. A group called the cross-cutting committee was formed to handle the comments. Some comments pointed toward structural issues to align with hazard group concept. The intention was not to add a lot of new requirements. The goal was to get an addendum out by the end of 2008.

True provided a table that categorized open comments by priority and level of effort needed to resolve. It was noted that a few comments would be deferred to later as they were considered long-term issues. Four subcommittees were formed to expedite the addendum. The NRC was actively involved and supported the concept for restructuring. It was unknown at the time if the LPSD Standard would be incorporated or added to the end. The goal of restructuring was to put the standard in a better position in the long-term.

On a related subject, Budnitz noted that Karl Fleming was chairing a CNRM working group on a PRA standard for non-LWR reactors, which he was part of. Although the group was using the old ASME structure, he felt it was not far enough along that it couldn't accommodate the new structure.

7. Status of Standards Writing Group Activities

Level 2 Working Group

See Attachment D – Level 2 Report

ANS-58.24 Working Group Chair Mark Leonard addressed the committee. He stated that the makeup of the working group was different than when initially formed. Leonard felt the group had significant expertise but could benefit from more utility participation.

Leonard stated that a first draft of all sections was completed but that it was rough. He noted that the group spent the entire previous day working on the draft and would meet this September in Knoxville. The goal was to get something on paper that could be reviewed by November 2008. Leonard mentioned that EPRI agreed to organize a special project on containment failure analysis. He explained that the working group was identifying inconsistencies between the Level 1 standards and the Level 3 standard. The intent was for requirements in the Level 2 Standard to mirror the Level 3 standard. Currently LERF will be addressed in the Level 2 Standard as one approach. They intend to capture all uncertainty without identifying specifically.

The following motion was made and seconded:

MOTION: The RISC Committee agrees that the Level 2 Working Group should continue in their work to include uncertainty analysis in the Level 2 Standard.

The motion was approved unanimously.

Leonard confirmed that the Level 2 Standard was initially being written for LWRs at full power although subsequent revisions may include shutdown. The committee in general agreed that standards should not be delayed to include shutdown. Leonard optimistically anticipated that Level 2 shutdown could be available next summer. Camp suggested that 2 – 3 hours be provided for the Level 2 report at the next RISC Meeting.

Action Item 06/08-2: Pat Schroeder to schedule 2-3 hours for the Level 2 report at the November 2008 RISC meeting in Reno.
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Leonard reminded the committee that an NRC representative to the Level 2 Working Group had not been appointed.

Action Item 06/08-3: Pat Schroeder to check with Mary Drouin on a Level 2 NRC representative.

External Events Pilot Update (Hance for Gaertner)

See Attachment E – External Events Pilot Presentation

Doug Hance reported for John Gaertner. Hance reminded the committee that the pilot was being conducted at the Surry Plant. The pilot began August 2007 and should be completed fall of 2009. Hance provided the current status of key elements noting that the final report was anticipated October 2009. Recommendations for revisions to current ANS standards and future ASME higher-level risk standards were anticipated. Full details and anticipated schedule can be found in Attachment E.

LPSD Working Group

See Attachment F – LPSD Report

ANS-58-22 Working Group Chair Don Wakefield provided an update on the Low Power and Shutdown (LPSD) Standard. He reported that the group had been augmented to include the writers of the qualitative-analysis section. Wakefield noted that his group was also missing an NRC representative although Jeff Mitman had been unofficially participating. A substantial number of comments had been addressed and resolved. Comment responses were formally documented and distributed.

Wakefield stated that the working group was directed to incorporate the qualitative section into the LPSD standard. Section 1 of the standard had been rewritten to acknowledge the inclusion of the qualitative section. Additionally some definitions in Section 2 had been revised to incorporate the qualitative section. Wakefield anticipated that Version 8C would be ready for ballot very soon.

It was noted that the RISC Committee, although not unanimous, had previously decided to include the qualitative portion in the LPSD standard provided that it did not delay completion. Wakefield anticipated that many comments would be received on the ballot. Bill Burchill expressed his desire for the committee to leave the debate aside and comment on the quality of the draft. Camp took an action item to prepare a statement for inclusion with the LPSD rebalot asking the committee to judge the qualitative portion of the LPSD draft only on technical accuracy and quality and not on whether or not qualitative approaches were appropriate for the standard.

Action Item 06/08-4: Allen Camp to craft a message to accompany the ballot requesting the committee to judge the LPSD draft standard on technical accuracy and quality.

Level 3 Working Group

See Attachment G – Level 3 Report

ANS-58.25 Working Group Chair Keith Woodard reported that the group held its fourth full meeting that day. Although it was felt that the group was well represented, they had difficulty getting meeting attendance and participation because of members' heavy workload. Woodard stated that the working group spent a lot of time discussing how to deal with uncertainty. When funds for travel expenses were available, he would like to hold a 3-4 day meeting at ANS headquarters. Woodard reported that outline assignments were 75% complete. He currently anticipated a draft for RISC review fall

of 2009. Capability categories were discussed. Some felt that it was necessary to characterize results from Level 1 to Level 2 up to Level 3 while others felt that the Level 3 group should not be asked to include what was not available.

7. Other Business

Allen Camp informed the committee that he planned a conference call in mid August and possibly another conference call before the November meeting.

8. Next RISC Meeting

It was noted that the next RISC meeting was scheduled for Wednesday, November 12, 2008, during the ANS Winter meeting in Reno, Nevada.

9. Adjourn

The meeting was adjourned at 3:13 pm.

RISC Progress Report June 2008

Published

ANSI/ANS-58.23-2007, "Fire PRA Methodology"

Action Completed

ANSI/ASME/ANS-RA-S-2008, "Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications"

In RISC Ballot/Vote (or resolving comments)

ANS-58.22-200x, "Low Power Shutdown PRA Methodology"

Standards in Progress

ANS-58.24-200x, "Severe Accident Progression and Radiological Release (Level 2) PRA Methodology to Support Nuclear Installation Applications

- Writing group proceeding led by Mark Leonard
- PINS approved
- Ballot date being determined

ANS-58.25-200x Standard for Radiological Accident Offsite Consequence Analysis (Level 3 PRA) to Support Nuclear Installation Applications

- Writing group proceeding led by Keith Woodard
- PINS approved
- Ballot date being determined

Other Issues

- Status of NRC Grant
- Coordination with NRMCC and CNRM
- Combining ANS RISC with ASME CNRM
- Revision of ANSI/ASME/ANS-RA-S-2008

ANS / ASME Risk Standards Committees Organizational Initiative

**Allen Camp / Rick Grantom – Committee Chairs
Chuck Moseley / Wes Rowley – NRMCC Co-Chairs**

**ANS Standards Board
ASME Board on Nuclear Codes & Standards**

June 2008



1

Background

- Combined PRA Standard ASME/ANS RA-S-2008 completed via coordination of ASME CNRM and ANS RISC
- First addendum to the Combined PRA Standard is underway for technical improvements and compatibility between Parts and to resolve NRC exceptions in RG 1.200, Rev. 2
- CNRM Responsibility for Level 1 PRA, incorporating ANS standards for External Hazards, Fire, and Low Power/Shutdown
- ANS Responsibility for Level 2 and 3 PRA
- Key technical personnel will now have to support two sets of meetings and associated activities.
 - Two sets of governance and approval processes (ASME BNCS, CNRM, ANS Standards Board, and RISC),
 - Two sets of meetings, etc., results in extra burden on key technical personnel



2

Current ASME/ANS Agreement

- ASME CNRM has responsibility for Level 1 PRA
 - Final approval through BNCS
 - ANS RISC performs technical review
 - ANS Standards Board procedural check that ANS comments were appropriately considered



3

Current ASME/ANS Agreement

- ANS RISC has responsibility for Level 2 and Level 3 PRA
 - Final approval through ANS Standards Board
 - ASME CNRM performs technical review
 - ASME BNCS procedural check that ASME comments were appropriately considered



4

Needs For Today and Tomorrow

- Demands on ANS and ASME volunteers are increasing
 - Compliance with RG 1.200 and future revisions is an important industry focus for risk informed applications
 - Parts of the new Combined PRA Standard need revision and enhancements to support end user implementation
 - Need to complete and pilot Low Power/Shutdown, Level 2 and Level 3 PRA Standards
 - Need to develop standards supporting New Reactors
 - Need for other Guidance documents (e.g., Expert Panels)
 - Risk Management standards for other nuclear facility types
- Need for consensus and consistency in Risk Management objectives, goals, and approach
 - Clarity for the nuclear industry and the NRC
 - Improve effectiveness of volunteers



5

Benefits

- Better focus of limited resources and better opportunities for increased volunteer participation
- Better opportunity to develop needed standards actions in a more timely manner
- Better ability to work to common strategic plan
- Greater ability to address global stakeholder needs in a more timely manner
- Ability to develop a common approach to risk-informed standards of all types



6

Costs

- Will be dependent on the level to which the committees are proposed to be combined
- Each society must give up some control, although both Standards Boards will retain ultimate authority for their respective scopes



7

Proposed Process for Moving Forward

- June 2008 – ANS Standards Board and ASME Board on Nuclear Codes & Standards both endorse same motion to move forward with evaluating ANS / ASME risk standards reorganization
- July 2008-August 2008 – Core group representing ANS / ASME Boards and Risk Standards Committees develop details; identify and evaluate options for key decision areas (e.g., structure, interface); summarize benefits / costs; Coordinate with NRMCC
- Fall 2008 – Core team leaders summarize reorganization evaluation to ASME CNRM, ANS RISC, NRMCC, and ANS/ASME Boards; obtain volunteer feedback
- Early 2009 – ANS/ASME Boards review final recommendations on reorganization for approval; Develop implementation plans as appropriate
- Fall 2009 – Target for implementation



8

Proposed Motion for ANS Standards Board / ASME Board on Nuclear Codes and Standards

Endorse moving forward with the concept of realigning the ANS Risk Informed Standards Committee and ASME Committee on Nuclear Risk Management to better address the PRA standards needs of the global nuclear industry. An ANS/ASME core team will be formed to -

1. Identify needs and issues to be addressed
2. Identify options and alternatives
3. Evaluate the options and alternatives
4. Make recommendation



Questions and Discussion



Backup Slides



11

Key Issues to Address and Initial Thoughts

- Charter – Inclusive of RISC and CNRM Charters
- Rules - Committee should operate under one set of rules – TBD
- Chair - Consider co-chairs for initial joint committee
- Membership
 - Inclusive of both committees, may be constrained by numbers
 - Current scan of balance of interest indicates no problems
- Meetings – Goal to reduce total number, may be difficult
- Approvals – Both Boards still approve standards within the currently agreed scope
- Staff Support - TBD



12

Joint Standard Project Team

- Addressing residual issues from initial combining of the standards
 - Addressing comments deferred to later revisions
 - Alignment of standard with hazard group concept
 - Creating parallel structures within each hazard group
- Goal is an addendum by end of 2008

Categorization of Open Comments

ID	Type of Comments Included	Priority for Addendum A	Level of Effort
SC-A-1	Update/upgrade issues including the broadening of App. 1-A to include non-internal event initiators will be valuable	Medium	Large
SC-A-2	Expansion of peer review guidance	High	Large
SC-A-3	Expansion of application process discussion to address non-internal events	High	Large
SC-T-1	SY-B7 use of the term "impact"	Medium	Small
SC-T-2	ES-B3 clarification of "the potential to..."	Medium	Small
SC-T-3	Use of action word "VERIFY"	Medium	Small
SC-T-4	Consistency of Documentation requirements	Medium	Moderate
SC-T-5	Clarification of fire SRs (including NRC comments)	High	Large?
JSWG-1	Capability categories, terminology, etc.	Medium	Moderate
JSWG-2	Initiator/initiating event definition	Medium	Moderate
JSWG-3	Structure of combined standard	High	Large or Small
JSWG-4	Use of the term "significant" & "hazard groups"	High	Large
JSWG-5	Use of per reactor year for external events	Low	Small
JSWG-6	Term "assumption" and treatment of model uncertainties	High	Moderate
Defer	Long-term item for consideration later	???	Huge

Restructured Combined Standard

Part	Part Number	
	At-Power	LPSD
General Requirements	1	
Internal Events PRA	2	22
Internal Flooding PRA	3	23
Internal Fire PRA	4	24
Seismic PRA	5	25
Screening of Other External Hazards	6	26
High Wind PRA	7	27
External Flood PRA	8	28
PRA of Other Hazards	9	29
Seismic Margins Assessments	10	---
TBD – for future use	11-21	30+

General Structure

Part X: [Hazard Group] At-Power Probabilistic Risk Assessment Requirements

X.1: Overview of [Hazard Group] PRA Requirements At Power

X.1.1 PRA Scope

X.1.2 Coordination with Other Parts of Standard

X.1.3 [Hazard Group] Scope

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X.1.N *Additional Hazard Group-specific Items, as needed*

X.2: [Hazard Group] PRA Requirements

X.2.1 PRA Element 1

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X.2.N PRA Element N

X.3: Peer Review for [Hazard Group] PRA At Power

X.3.1 Purpose

X.3.2 Peer Review Team Composition and Personnel Qualifications

X.3.3 Review of PRA Elements to Confirm the Methodology

Internal Flooding

Current HLR-Based SRs

- IF-A - Flood areas of the plant
- IF-B - The potential flood sources associated mechanisms
- IF-C - Internal flooding scenarios & propagation path(s)
- IF-D - Plant initiating events caused by internal flooding
- IF-E - Internal flooding induced accident sequence quantification
- IF-F - Internal flooding



Distribute Documentation SRs to Technical Elements

Proposed Element-Based SRs

- IFPP- Internal flood plant partitioning
 - IFPP-A – (former IF-A)
 - IFPP-B – (related documentation SRs)
- IFSO- Internal Flood Source
 - IFSO-A – (former IF-B)
 - IFSO-B – (related documentation SRs)
- IFSN – Internal flood scenarios
 - IFSN-A – (former IF-C)
 - IFSN-B – (related documentation SRs)
- IFEV – Internal flood-induced events
 - IFEV-A – (former IF-D)
 - IFEV-B – (related documentation SRs)
- IFQU – Internal flood accident sequences and quantification
 - IFQU-A – (former IF-E)

“Other” External Events

Current HLR-Based SRs

- ANA-A - Hazard analysis
- ANA-B - Fragility of structure, or system, or component (SSC), or a combination thereof
- ANA-C - Systems model (plant response model)
- ANA-D - Documentation



Distribute Documentation SRs to Technical Elements

Proposed Element-Based SRs

- XHA – External event hazard analysis
 - XHA-A – (former ANA-A)
 - XHA-B – (related documentation SRs)
- XFR – External event SSC Fragility
 - XFR-A – (former ANA-B)
 - XFR-B – (related documentation SRs)
- XPR – External event plant response
 - XPR-A – (former ANA-C)
 - XPR-B – (related documentation SRs)

Proposed HLR Name Changes

Hazard Group	Current HLR/ Element	Description	Proposed Element Name
Seismic PRA	HA	Seismic Hazard Analysis	SHA
	SA	Seismic Systems Analysis (Plant Response) ¹	SPR
	FR	Seismic Fragility Analysis ¹	SFR
External Event Screening	EXT-A	Identification of Hazards	XID
	EXT-B	Deterministic Screening	XDS
	EXT-C	Quantitative Screening	XQS
	EXT-D	Walkdown	XWD
	EXT-E	Screening Documentation	n/a
Wind PRA	WIND-A	Wind Hazard Analysis	WHA
	WIND-B	Wind Fragility Analysis	WFR
	WIND-C	Wind Plant Response ²	WPR
	WIND-D	Wind Documentation	n/a
External Flood PRA	FLOOD-A	External Flood Hazard Analysis	EFHA
	FLOOD-B	External Flood Fragility Analysis	EFFR
	FLOOD-C	External Flood Plant Response ²	EFPR
	FLOOD-D	External Flood Documentation	n/a
Other External Event PRA	ANA-A	External Event Hazard Analysis	XHA
	ANA-B	External Event Fragility Analysis	XFR
	ANA-C	External Event Plant Response ²	XPR
	ANA-D	External Event Documentation	n/a

1 – reorder SPRA elements?

2 – adding applicable SPRA plant response requirements

ANS 58.24 Level 2 PRA Standard
-- Status Report

RISC Meeting – Anaheim, CA
June 2008

Mark T. Leonard
58.24 WG Chair

dycoda
LLC

WG Membership

◆ Membership changes

- Current Roster
 - ◆ David Bradley, SAIC
 - ◆ Ed Burns ERIN
 - ◆ Randy Gauntt, Sandia
 - ◆ Jim Fulford, retired
 - ◆ Aram Hakobyan, Dominion
 - ◆ John Lehner, BNL
 - ◆ Bill Mims, retired TVA
 - ◆ Jason Petti, Sandia
 - ◆ Ray Schneider, West.
 - ◆ Paul Boneham, Jacobsen Eng. (UK)
 - ◆ Bob Prior, AREVA
- Retired from WG:
 - ◆ Mike Barrett, Duke

ANS 58.24 – status 06/08

dycoda
LLC

Status – June 2008

- ◆ First (partial) draft of major sections is complete
 - All day writing/editing session yesterday
 - ◆ Summary of findings/observations . . .
 - Next meeting: September in Knoxville
- ◆ Complete first draft will be completed before Sept. WG meeting
 - Goal is to have first draft for review outside WG after final meeting in Reno (Nov. 2008)
- ◆ Cooperation with ASME Section III subcommittee on Containment Failure Analysis has begun
 - Charter / scope of guidance document in development
 - Support from EPRI
 - Schedule will probably lag Level 2 Std, but can be incorporated by reference

ANS 58.24 – status 06/08

dycoda

Problems

- ◆ Lack of financial support for travel grants a continuing problem
 - Hinders WG meeting attendance
 - Particular burden on independent consultants (3-4 members)
- ◆ Slow start has hindered ability to build momentum for goal of finishing a draft by end-2008.

ANS 58.24 – status 06/08

dycoda



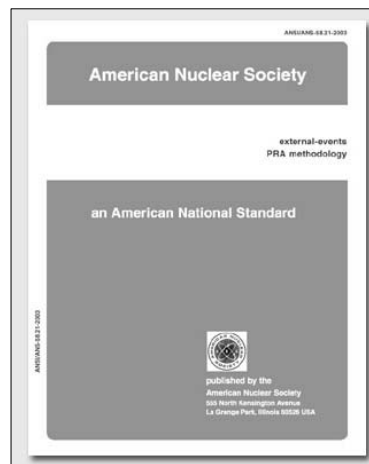
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ANS Standard on Seismic PRA Pilot Plant Review Project

**ANS Risk Informed Steering
Committee Update
June 11, 2008**

ANS Standard on External Events PRA

- **EPRI Pilot Plant Project**
 - **Surry Selected as Pilot**
 - **Existing SPRA for IPEEE**
 - **EPRI 1989 hazard utilized**
 - **Many Surrogate Elements**
 - **Very Few Fragilities**
 - **Pilot Started August 2007**
 - **Scheduled Completion
Fall 2009**



Pilot Seismic PRA by ANS Standard Program Tasks

- **Collection of applicable SPRA data for Surry**
- **Development of Pilot Plant Uniform Seismic Hazard Spectra (USHS)**
 - Key technical innovation and large potential \$\$ savings
 - Capability Category II compatible
 - Utilize results from new plant seismic hazard studies
 - Reflect new seismic attenuation relationships, and new characterizations for Charleston, New Madrid, Eastern Tennessee Seismic Zone, etc.
- **Development of seismic response associated with new USHS**
 - Median response development for 1 or 2 structures
 - Scaling of current seismic response for other structures
- **Development of updated seismic systems model (fault/event trees)**

Pilot Seismic PRA by ANS Standard Program Tasks (Cont.)

- **Update of Seismic Fragilities**
 - New seismic response
 - ANS standard requirements for fragility determination
 - Additional components from original SPRA
- **Quantification of Seismic Risk**
- **Recommendations for revisions to Current ANS Standard (and future ASME higher level risk Standard)**

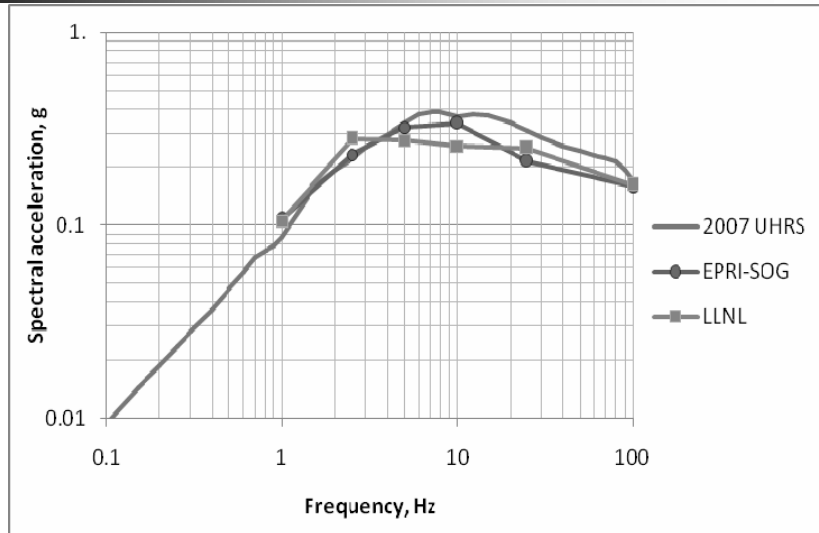
Current Status of Key Elements of Pilot Plant Project

- **Collection and Review of Surry SPRA Data and Reports – Fall 2007 through Spring 2008**
 - Dominion FTP site set up for documentation
 - Key reports and documentation supplied
- **Development of Surry Uniform Seismic Hazard Spectra (USHS) to CC II Level**
 - Generation of rock hazard (February 2008)
 - Generation of free surface hazard based on site amplification study (May 2008)
- **Development of updated seismic systems model (fault/event trees) – broader range of SSCs**
 - SSEL update – April Through July 2008
 - Full Plant logic model revision – March 2009

Current Status of Key Elements of Pilot Plant Project (Continued)

- **Development of seismic response associated with new USHS – May through Sept 2008**
 - New Seismic Response Generated for representative building (from new hazard)
 - Scaling of current seismic response for other buildings
- **Walkdown of Representative Surry Components**
 - May 2008
- **Representative Seismic Fragilities Generated – May 2009**
- **Risk Quantification - August 2009**
- **Final Report - October 2009**

Comparison of 10-4 UHS for Soil at Surry



Low Power & Shutdown PRA Methodology Standard



Writing Group ANS-58.22 STATUS REPORT

RISC Meeting – Anaheim, CA
June 2008

LPSD PRA Standard STATUS REPORT

KLK 5/29/2008

SLIDE 1

LPSD WRITING GROUP



- Current Membership
 - Don Wakefield – chair
 - Dennis Bley, Bob Budnitz, Bill Burchill, Jeff Julius, Yehia Khalil, Bill Stillwell, (Ken Kiper)
 - Augmented WG for Qualitative Standard: Steve Hess, Leo Shanley, Bryan Carroll, Doug Hance
- Changes
 - NRC Staff Being Replaced

LPSD PRA Standard STATUS REPORT

KLK 5/29/2008

SLIDE 2

STATUS

- August/September, 2005 - Balloting and Public Comment Period ended.
- Ballot Status
 - » 8 APPROVED (including 2 with comments)
 - » 7 NOT APPROVED
 - » 2 Other (abstain, not returned)
- RISC / Public Comments
 - » Comments Resolved and Documented
 - » Comment Resolutions Discussed with each Negative Balloter

LPSD PRA Standard STATUS REPORT

KLK 5/29/2008

SLIDE 3

Responses to March 2008 Decision by RISC Committee

- Qualitative Assessment Requirements Developed and Incorporated into Standard
 - Modified Section 1 Introduction
 - Revised Definitions in Section 2
 - New Section 7 for Shutdown QLRA Requirements
 - Non-Mandatory Appendices C and D
- Version 8C Ready for Ballot

LPSD PRA Standard STATUS REPORT

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SLIDE 4

MEETINGS

- **ANS WDC Nov 2005—1st Full Meeting. Assigned Sections. Outlines Scheduled for June 2006 Reno ANS Meeting.**
- **Reno Meeting Cancelled due to Insufficient Availability of Members**
- **2nd Full Meeting held at MIT during Boston ANS June 2007**
- **3rd Full Meeting Held During ANS Winter Meeting In Washington DC**
- **4th Full Meeting Scheduled for Anaheim ANS Annual Meeting June 11, 2008**

MEMBERSHIP

- **All Subject Areas in the Consequence Standard are Well Represented**
- **Well Rounded Group—Having Trouble Completing Draft Writing Assignments**
- **More than Half Have Expressed Concern about Funding to Attend Meetings**
- **About 50% of Group Will Attend Meeting in Anaheim**

WORKING GROUP ASSIGNMENTS

- **Overview---**(Woodard*, O’Kula, Levinson, Mitchell)
- **Level 1/2 Interface---** (Paul*, Leaver)
- **Probabilistic Framework/Uncertainty ---**(Johnson*, Brewer, Levinson)
- **Site/Plant Input Data---**(Teagarden)
- **Dispersion---**(Woodard)
- **Dosimetry---**(O’Kula)
- **Health Effects---**(Mubayi)
- **Economic Factors** (Mubayi)
- **Reporting of Results, Quantification** (Teagarden)
- **Models (Codes), Example Cases----**(Bixler*, Teagarden, Mitchell)

* *Indicates Lead Author*

EXPENSE COMPENSATION ISSUES

- **We Had 50% Representation in Boston and in Washington DC. There Were Conflicts With Other ANS Meetings on Wednesdays. Continue to think Wednesdays are Best**
- **Employers Have Agreed to WG Members’ Participation But Not Travel Expenses in Some Cases. We Have Been Able to Justify Attendance by Scheduling During ANS Meetings**
- **If We Had Travel Expense Allowances Meetings Could be Scheduled at Different Times & Venues Without Distraction of ANS Activities—Such as ANS Headquarters**

PROGRESS

- **Our 3rd Meeting at Washington DC was Helpful. Those in Attendance Contributed in All Areas**
- **We are Still Struggling With Use of the “Capability Category” Approach as Applied to the Level 3 Standard**
- **We Studied one Draft Section in Detail to See if Our Application Made Sense**
- **Outlines Assigned Are Now About 75% Complete— But Most are Primitive and Need a Lot of Work**
- **Meeting Our Draft Writing Assignment Deadlines Needs Improvement!**
- **Additional Drafts of Deficient Sections Are Due Before the 4th Meeting in Anaheim**

SCHEDULE

- **It is Unlikely that we Will Have a Properly Formatted First Draft Complete by June 2008 as Targeted—Although I Have Spent Some Time on it**
- **Our New Target is November 2008**
- **We Hope to Have a Reasonable Draft After the June Meeting that Can be Issued for Writing Committee Comments**
- **We Will Attempt to Resolve Issues and Complete Second Full Draft by April 2009**
- **Submit Final Proposed Level 3 Standard to RISC Committee in Fall of 2009**